

1. Transducin is a protein found in:

a) Glomerulus

b) Retina

c) Skeletal muscle

d) Adrenal medulla

Correct Answer - B

Retina REF: Ganong 22nd edition, chapter 8,

<http://en.wikipedia.org/wiki/Transducin>

Transducin (also called Gt) is a heterotrimeric G protein that is naturally expressed in vertebrate retina rods and cones.

Mechanism of action: Heterotrimeric Transducin (alpha-beta-gamma subunits) is activated by a conformational change in rhodopsin due to the absorption of a photon by rhodopsin's active group retinal.

Activation causes the GDP bound to the alpha subunit to be exchanged with GTP from solution and results in activated alpha dissociating from beta-gamma.

Active Transducin-alpha then causes cyclic GMP

Phosphodiesterase to increase its activity, thereby lowering the concentration of cGMP, an intracellular second-messenger molecule. Decrease in cGMP concentration leads to the closure of cGMP-regulated Na⁺ and Ca²⁺ ion channels and a hyperpolarized membrane potential. This chain of signaling events is also called "the vertebrate photo transduction cascade"

2. Treatment of mooren's ulcer is?

a) Corneal graft

b) Immunosuppressives

c) Topical steroids

d) All of the above

Correct Answer - D

All of the above REF: Khurana 4th ed p. 110

MOOREN'S ULCER:

- Severe inflammatory peripheral ulcerative keratitis , chronic serpigenous or rodent ulcer
- Treatment:
 1. Topical corticosteroids
 2. Immunosuppressives with systemic steroids , e.g. cyclosporine
 3. Soft contact lens
 4. Lamellar or full thickness corneal grafting

3. The percentage of atropine present in atropine drops as cycloplegic is:

a) 0.5%

b) 1%

c) 4%

d) 2%

Correct Answer - B
1%

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4. All of the following are true about Keratoconus, except:

a) Increased curvature of corneaAstigmatism

b) Astigmatism

c) K.F ring cornea

d) Thick cornea

Correct Answer - D

The main pathological changes in Keratoconus are thinning and ectasia of the lens which occur as a result of defective synthesis of mucopolysaccharide and collagen tissue.

5. Which of the following condition is associated with the development of posterior staphyloma?

a) Pathological myopia

b) Retinoblastoma

c) Acid injury

d) Sympathetic ophthalmia

Correct Answer - A

Posterior staphyloma, the posterior outpouching of the wall of the eye, is an important component of the diagnosis of pathologic myopia; indeed, it is one of the hallmarks of pathologic myopia.

With the exception of inferior staphyloma related to tilted disc syndrome, it does not occur in pathologies other than pathologic myopia.

Thus, the presence of staphyloma is specific to pathologic myopia and critically important in differentiating simple school myopia with good best corrected visual acuity (BCVA) and pathologic myopia that could cause the loss of BCVA.

6.

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A 30 year old man presents to the clinic with pain in the eye, watering, redness and photophobia. Examination of his eyes shows circumcorneal congestion and keratic precipitates.

Assertion: KPs are proteinaceous deposits occurring in a triangular fashion in the inferior part of cornea.

Reason: Mutton fat KPs are seen in granulomatous iridocyclitis and is composed of epithelioid cells and macrophages.

- a) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion
- b) Both Assertion and Reason are true, and Reason is not the correct explanation for Assertion
- c) Assertion is true, but Reason is false
- d) Assertion is false but reason is true

Correct Answer - B

Keratic precipitates are proteinaceous deposits occurring in a triangular fashion in the inferior part of cornea due to convection currents in the aqueous humor. Mutton fat KPs are seen in granulomatous iridocyclitis and is composed of epithelioid cells and macrophages. They are usually 10-15 in number.

Ref: Comprehensive Ophthalmology by AK Khurana, 4th Edition, Page 142

7. Transport of Ascorbic acid to lens is done by which of the following?

a) Myoinositol

b) Choline

c) Taurine

d) Na-K ATPase

Correct Answer - D

The lens epithelium is the principal site of energy production of the lens that is used for transport of inorganic ions and amino acids by an active process involving Na and K activated ATPase.

Ref: Histopathology of Preclinical Toxicity Studies: Interpretation and Relevance ... By Peter Greaves, Peter Greaves (M.B., Ch.B.), 2007, Page 896; Transport of vitamin C in the lens, Curr Eye Res. 1987 Jul;6(7):885-96; Adler's Physiology of the eye 10th Edition, Page 131; Ascorbic acid and the Eye, Am J Clin Nutr 1991;54:1198S-1202S.

8. Fundus fluorescein angiography done in a patient following cataract surgery shows a flower petal pattern. What is he MOST likely suffering from?

a) Macular hole

b) Cystoid macular edema

c) Central serous retinopathy

d) None of the above

Correct Answer - B

He is showing features of cystoid macular edema. Cystoid macular edema refers to a condition in which there is fluid accumulation in honeycomb like spaces of the outer plexiform and inner nuclear layers. **Fluorescein angiography done shows leakage of fluorescein dye from the perifoveal retinal capillaries and peripapillary region, and accumulating in a flower-petal pattern around the fovea.**

It most frequent occur following cataract surgery, especially if the surgery was complicated or prolonged. It usually manifests at 4–12 weeks postoperatively.

Ref: Fletcher E.C., Chong N., Augsburger J.J., Corrêa Z.M. (2011). Chapter 10. Retina. In P. Riordan-Eva, E.T. Cunningham, Jr. (Eds), Vaughan & Asbury's General Ophthalmology, 18e

9. Painful eye movement is a feature of :

a) Iridocyclitis

b) Papilledema

c) Corneal ulcer

d) Vernal catarrh

Correct Answer - A

Anterior uveitis , also known as iridocyclitis and iritis, is the inflammation of the iris and anterior chamber. Anywhere from two-thirds to 90% of uveitis cases are anterior in location. Injection, photophobia, pain, and blurred vision usually accompany iritis (anterior uveitis or **iridocyclitis**).

Ref : Braverman R.S. (2012). Chapter 16. Eye. In W.W. Hay, Jr., M.J. Levin, R.R. Deterding, J.J. Ross, J.M. Sondheimer (Eds), *CURRENT Diagnosis & Treatment: Pediatrics*, 21e.

10. Kayser Fleischer ring is found in which layer of cornea?

- a) Bowman's Capsule
- b) Substantia propria
- c) Descemet's membrane
- d) Endothelium

Correct Answer - C

Kayser-Fleischer rings take the form of a crescentic rusty-brown discoloration of the deepest layer of the cornea (**Descemet membrane**). In the purely hepatic stage of the disease, the rings may not be evident (in 25 percent of cases), but they are virtually always present (if properly sought) once the neurologic signs manifests. A slit-lamp examination may be necessary for their early detection, particularly in brown-eyed patients, but in the majority of patients with neurologic signs the rings can be visualized with the naked eye or with the aid of an indirect ophthalmoscope focused on the limbus.

Also Know:

Kayser-Fleischer rings are a sign of Wilson's disease, which involves abnormal copper handling by the liver resulting in copper accumulation in the body and is characterised by abnormalities of the basal ganglia of the brain, liver cirrhosis, splenomegaly, involuntary movements, muscle rigidity, psychiatric disturbances, dystonia and dysphagia. **The combination of neurological symptoms, a low blood ceruloplasmin level and KF rings is diagnostic of Wilson's disease.**

Ref: Ropper A.H., Samuels M.A. (2009). Chapter 37. Inherited Metabolic Diseases of the Nervous System. In A.H. Ropper, M.A. Samuels (Eds), Adams and Victor's Principles of Neurology, 9e.

11. Placido disc is used for diagnosing which of the following condition?

a) Uveitis

b) Keratoconus

c) Retinoblastoma

d) Retinal detachment

Correct Answer - B

Placido disc examination is used to diagnose keratoconus. In a case of keratoconus, placido disc examination shows irregularities of the circles.

Placido's keratoscopic disc: It is a disc painted with alternating black and white circles. It may be used to assess the smoothness and curvature of corneal surface. Normally, on looking through the hole in the center of disc a uniform sharp image of the circle is seen on the cornea. Distortion of the circles occur when irregularities are present on the corneal surface.

Ref: Comprehensive Ophthalmology By AK Khurana, 4th edn, page 119

12. Macular sparing is associated with lesions in:

a) Optic nerve

b) Lateral geniculate body

c) Occipital cortex

d) Optic chiasma

Correct Answer - C

Macular sparing, that is, loss of peripheral vision with intact macular vision, is also common with occipital lesions

Ref: Ganong's Review of Medical Physiology 23rd edition, Chapter 12.

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13. All statements are true about trachoma except

- a) Trachoma is caused by bedsonian organism of psittacosis - lymphogranuloma - trachoma (PLT) group.
- b) Strains mainly responsible are A, B, Ba and C
- c) Marked papillary hyperplasia with limbal follicles are seen in stage III
- d) Corneal ulceration is a complication

Correct Answer - C

C. i.e. Marked papillary hyperplasia with limbal follicles are seen in stage III

>Trachoma is caused by a Bedsonian organism, the Chlamydia trachomatis belonging to the Psittacosis-lymphogranulomatrachoma (PLT) group.

>Serotypes A, B, Ba and C are associated with hyperendemic (blinding) trachoma, while serotypes D-K are associated with paratrachoma (oculogenital chlamydial disease).

>Congestion of upper tarsal and forniceal conjunctiva. 2.

Conjunctival follicles. Follicles look like boiled sagograins and are commonly seen on upper tarsal conjunctiva and fornix; but may also be present in the lower fornix, plica semilunaris and caruncle.

Sometimes, (follicles may be seen on the bulbar conjunctiva (pathognomic of trachoma).

>Pannus i.e., infiltration of the cornea associated with vascularization is seen in upper part

>Grading of trachoma McCallan's classification McCallan in 1908, divided the clinical course of the trachoma into following four stages: Stage I (Incipient trachoma or stage of infiltration). It is characterized

by hyperaemia of palpebral conjunctiva and immature follicles. Stage II (Established trachoma or stage of florid infiltration). It is characterized by appearance of mature follicles, papillae and progressive corneal pannus. Fig. 4.14. Trichomatous Herbert's pits. A B 66 Comprehensive OPHTHALMOLOGY Stage III (Cicatrising trachoma or stage of scarring). It includes obvious scarring of palpebral conjunctiva. Stage IV (Healed trachoma or stage of sequelae). The disease is quite and cured but sequelae due to cicatrization give rise to symptoms.

- The clinical diagnosis of trachoma is made from its typical signs; at least two sets of signs should be present out of the following: 1. Conjunctival follicles and papillae 2. Pannus progressive or regressive 3. Epithelial keratitis near superior limbus 4. Signs of cicatrization or its sequelae.

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14. Satellite nodules are seen *in*

a) Fungal corneal ulcer

b) Tuberculosis

c) Sarcoidosis

d) Viral ulcer

Correct Answer - A
A i.e. Fungal corneal ulcer

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15. Herpetic keratitis is treated by

a) Analgesics

b) Atropine

c) Steroids

d) Idoxuridine

Correct Answer - D

Ans: D i.e. Idoxuridine

- Drug of choice for herpetic keratitis is Acyclovir Q (topical)
- Other antiviral drugs used are
- Idoxuridine
- Trifluorothymidine
- Vidarabine

16. Interstitial keratitis is seen in all except:

a) Syphilis

b) Acanthamoeba

c) HSV Chlamydia Trachomatis

d) HZV

Correct Answer - B

B i.e. Acanthamoeba

> acquired syphilis) Q - Herpetic keratitis (including chicken pox; HSV is now the most common cause) Other viral infections (HSV, Herpes zoster, Epstein Barr, mumps, measles etc) - Tuberculosis, leprosy - Sarcoidosis - Trypanosomiasis, - Malaria - Cogan's syndrome (d/t chlamydia etc) "

v:shapes="_x0000_s1027">**Interstitial keratitis (IK)**

Interstitial keratitis (IK) is non-suppurative inflammation of corneal stroma without primary involvement of epithelium or endothelium. In most cases the inflammation is an immune mediated process triggered by an appropriate antigen. Immune stromal keratitis manifests as focal, multifocal or diffuse stromal opacities or an immune ring. It is often accompanied by stromal edema and mild anterior chamber reaction, while sparing epithelium and endothelium. It is called *IK* if accompanied by vascularization. HSV is now the most common cause of IK (esp. unilateral). Unlike syphilitic (luetetic) IK, HSV neovascularization is usually sectoral & leads up to stromal scar.

- **Syphilis related (congenital >> acquired) IK** is usually bilateral, although usually not simultaneous. It presents with characteristic salmon patch appearance, granulomatous anterior uveitis, and ghost vessels and feathery deep stromal scarring in healed stage.

- **Cogan's syndrome** is *chronic bilateral deep nonsyphilitic IK with vestibuloauditory dysfunction (i.e. neuro sensory deafness, vertigo & tinnitus)* because of systemic autoimmune vasculitis (life threatening in 10%). Serum antibodies to various • infectious agents (**Lyme disease, Chlamydia, type 1 poliovirus**) have been associated with Cogan's syndrome.

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17. An elderly male with heart disease presents with sudden loss of vision in one eye; examination reveals cherry red spot; diagnosis is:

- a) Central retinal vein occlusion
- b) Central retinal artery occlusion
- c) Amaurosis fugax
- d) Acute ischemic optic neuritis

Correct Answer - B

B i.e. Central Retinal Artery Occlusion

Central retinal artery occlusion characteristically presents with *sudden painless loss of vision, cherry red spot & cattle-truck appearance* (of retinal veins usually).

Source of emboli from carotid artery & heart disease, and thrombus from arteriosclerosis along with hypertension & arteritis are predisposing factors.

18. Primary aim of retinal detachment surgery

- a) Removal of vitreous
- b) Drainage of subretinal fluid
- c) Vitrectomy
- d) Encirclage

Correct Answer - D

D i.e. Encirclage

The main objective of the treatment of retinal detachment is to *seal and support the retinal break*.

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19. Which of the following antiglaucoma medications can cause drowsiness?

a) Latanoprost

b) Timolol

c) Brimonidine

d) Dorzolamide

Correct Answer - C
C i.e. Brimonidine

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20. All are true regarding optic neuritis except:

- a) Decreased visual acuity
- b) Decreased pupillary reflex
- c) Abnormal electroretinogram
- d) Abnormal visual evoked response retinogram

Correct Answer - C

C i.e. Abnormal electroretinogram

Electroretinogram indicates the activity of retinal (esp. rods & cones) function and has no role in assessing the functional integrity of the optic nerve. So it can't be abnormal in optic neuritis.

21. Vossius ring occurs in

a) Lens dislocation

b) Concussion injury

c) Penetrating injury

d) Extra capsular extraction

Correct Answer - B
B i.e. Concussion injury

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22. In which of the following conditions Berlin's edema is

a) Open angle glaucoma

b) After cataract surgery

c) After concussion trauma

d) Diabetic retinopathy

Correct Answer - C

C i.e. After concussion trauma

Blunt trauma to eye may produce *Berlin's edema* or *commotio retinae* Q which is a cloudy swelling characterized by a grey appearance, most frequently in the temporal region. It may also manifest as cherry red spot in the foveal region.

23. Mucin layer tear film deficiency occurs in:

a) Keratoconjunctivitis sicca

b) Lacrimal gland removal

c) Canalicular block

d) Herpetic keratitis

Correct Answer - A
A i.e Keratoconjunctivitis sicca

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24. The nerve which has the longest intracranial course is:

a) Fourth cranial nerve

b) Third cranial nerve

c) Sixth cranial nerve

d) Fifth cranial nerve

Correct Answer - A
Ans. Fourth cranial nerve

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25. Corneal sensations are decreased in all of the following conditions except:

a) Recurrent corneal erosion syndrome

b) Herpetic keratitis

c) Neuroparalytic keratitis

d) Leprosy

Correct Answer - A

Ans. Recurrent corneal erosion syndrome

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26. Snellen's chart is used to test:

a) Vision

b) Refraction

c) Presbyopia

d) Colour blindness

Correct Answer - A
Ans. Vision

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27. A wave in ERG is due to activity of:

a) Pigmented epithelium

b) Rods and cones

c) Ganglion cell

d) Bipolar cell

Correct Answer - B
Ans. Rods and cones

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28. Sturm's conoid refers to configuration of the rays refracted through:

a) Concave spherical surface

b) Convex spherical surface

c) Toric surface

d) Irregular surface

Correct Answer - C

Ans. Toric surface

Sturm's Conoid

It is an optical condition in which the refractive power of lens or cornea is not the same in all meridians, hence two focal points separated by a focal interval are formed which is called the Sturm's Conoid.

29. Soft contact lenses are made of:

a) Polymethyl methacrylate

b) Hydroxymethyl methacrylate

c) Glass

d) Silicone

Correct Answer - B

Ans. Hydroxymethyl methacrylate

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30. Astigmatism is considered to be:

a) Spherical abberation

b) Curvatural ametropia

c) Axial ametropia

d) Index ametropia

Correct Answer - A
Ans. Spherical abberation

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31. Visual axis is

a) Center of cornea to retina

b) Object to fovea

c) Center of lens to cornea

d) None

Correct Answer - B
Ans. Object to fovea

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32. Foster's fusch's spots are seen in

a) Hypermetropiea

b) Myopia

c) Astigmatism

d) None

Correct Answer - B
Ans. Myopia

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33. Swimming pool conjunctivitis is caused by

a) *Chlamydia trachomatis*

b) *Adenovirus type 8*

c) *Adenovirus type 8*

d) *Gonococcus*

Correct Answer - A

Ans., *Chlamydia trachomatis*

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34. Goldenhar syndrome is associated with which prominent ocular manifestation:

- a) Microcornea
- b) Megalocornea
- c) Sclerocornea
- d) Epibulbar dermoids

Correct Answer - D

Ans. Epibulbar dermoids

- *Goldenhar syndrome (oculoauriculovertebral dysplasia with hemifacial microsomia) is a rare congenital developmental anomaly involving the first and second branchial arches.*
- *The classic features of this syndrome include ocular changes such as microphthalmia, epibulbar dermoids, lipodermoids and coloboma; aural features such as preauricular tragi, hearing loss and microtia; and vertebral anomalies such as scoliosis, hemivertebrae and cervical fusion.*
- **Other ocular anomalies are rare but include microphthalmos, microcornea, anophthalmos, eyelid colobomas, iris and choroid colobomas, motility disorders, strabismus, blepharoptosis, palpebral fissure, iris atrophy, polar cataract, anomalous lacrimal drainage system, and retinal and optic nerve anomalies**

35. Complication of vernal kerato conjunctivitis:

a) Cataract

b) Keratoconus

c) Retinal detachment

d) Vitreous hemorrhage

Correct Answer - B
Ans. Keratoconus

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36. Treatment of vernal keratoconjunctivitis includes all except:

a) Steroids

b) Chromoglycate

c) Olopatadine

d) Antibiotics

Correct Answer - D
Ans. Antibiotics

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37. Features of vernal conjunctivitis are:

a) Shield ulcer

b) Horner-Tranta's spots

c) Papillary hypertrophy

d) All

Correct Answer - D

Ans. A, B and C

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38. Pterygium all are true except:

a) Arise from any part of conjunctiva

b) Can cause astigmatism

c) Surgery is treatment of choice

d) UV exposure is risk factor

Correct Answer - A

Ans. Arise from any part of conjunctiva

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39. Neonatal conjunctivitis is caused by all except:

a) *Gonococcus*

b) *Chlamydia*

c) *Aspergillus*

d) *Pseudomonas*

Correct Answer - C

Ans. *Aspergillus*

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40. In photophthalmia site of lesions is:

a) Cornea

b) Retina

c) Optic nerve

d) All of the above

Correct Answer - A
Ans. Cornea

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41. Elschnig's pearls are a sign of:

- a) Chronic uveitis
- b) Secondary cataract
- c) Cystoid macular oedema
- d) All of the above

Correct Answer - B
Ans. Secondary cataract

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42. Rosette cataract is seen due to:

a) Trauma

b) Copper foreign body

c) Diabetes

d) Hyperparathyroidism

Correct Answer - A
Ans. Trauma

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43. A child has got a congenital cataract involving the visual axis which was detected by the parents right at birth. This child should be operated:

- a) Immediately
- b) At 2 months of age
- c) At 1 year of age when the globe becomes normal sized
- d) After 4 years when entire ocular and orbital growth becomes normal

Correct Answer - A

Ans. A [Immediately]

Congenital cataract - Timing of surgery

1. **Bilateral dense** - cataract requires early surgery (i.e. **by 6 weeks of age**) to prevent the development of stimulus deprivation amblyopia
2. **Bilateral partial**- cataract may not require surgery until later if at all, in cases of doubt, it may be prudent to defer surgery monitor lens opacity, and visual function and intervene later if vision deteriorates.
3. **Unilateral dense** - cataract merits urgent surgery (**within days**) followed by aggressive anti-amblyopia therapy the cataract is detected after 16 weeks of age then surgery can be delayed little because amblyopia is refractory
4. **Partial unilateral** - cataract can usually be observed or treated non surgically with pupillary dilatation and possibly part-time contralateral occlusion to prevent amblyopia "The critical period of developing the fixation reflexes in both unilateral and bilateral visual deprivation disorders is between 2 and 4 months of age, any cataract dense enough to impair vision must be dealt with before this

age and the earliest possible time is preferred"

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44. Which of the following is the most important factor in the prevention of the endophthalmitis in cataract surgery?

a) Preoperative preparation with povidone iodine

b) One week antibiotic therapy prior to surgery

c) Trimming of eyelashes

d) Use of intravitreal antibiotics

Correct Answer - A

Ans. Preoperative preparation with povidone iodine

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45. Schwalbe's ring corresponds to:

a) Corneal endothelium

b) Descemet's membrane

c) Schlemm's canal

d) Ciliary body

Correct Answer - B
Ans. Descemet's membrane

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46. Vitrectomy should be considered if the vitreous haemorrhage is not absorbed within:

a) 1 month

b) 3 months

c) 6 months

d) 2 months

Correct Answer - B
Ans. 3 months

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47. Eales disease is:

- a) Recurrent optic neuritis
- b) Recurrent papilloedema
- c) Recurrent periphetbitis retinae
- d) None

Correct Answer - C
Ans. Recurrent periphetbitis retinae

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48. All of the following are true for retinopathy of prematurity except:

- a) Occurs in premature infants due to late crying
- b) Due to hypoxia there occurs neovascularization followed by fibroproliferation
- c) End result is bilateral blindness
- d) Blindness can be prevented by early diagnosis and ablation of vascular premature retina with cryotherapy or photocoagulation

Correct Answer - A

Ans. Occurs in premature infants due to late crying

49. All of the following are the causes of exudative retinal detachment except:

a) Retinopathy of toxemia of pregnancy

b) Retinopathy of prematurity

c) Exudative retinopathy of Coats

d) Sympathetic ophthalmia

Correct Answer - B

Ans. Retinopathy of prematurity

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50. The earliest change noticed in hypertensive retinopathy is:

a) Soft exudate

b) Arteriolar spasm

c) Venospasm

d) Hard exudate

Correct Answer - B
Ans. Arteriolar spasm

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51. Strabismic amblyopia is more common in patients with:

a) Intermittent squint

b) Alternate squint

c) Constant squint

d) Latent squint

Correct Answer - C
Ans. Constant squint

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52. Onset of stereopsis occurs at the age of:

a) 3 to 5 months

b) 1 to 2 years

c) 5 years

d) 7 years

Correct Answer - A
Ans. 3 to 5 months

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53. Elevators of eye:

a) SR and IO

b) IO and SO

c) IR and S

d) SO SR

Correct Answer - A
Ans. SR and IO

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54. Dalrymple's sign of ocular Graves' disease refers to:

- a) Retraction of the upper lid
- b) Lid lag
- c) Proptosis
- d) All of the above combinedly

Correct Answer - A
Ans. Retraction of the upper lid

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55. Best method of detection of retained glass intraocular foreign body is:

a) CT scan

b) Radiography

c) Ultrasonography

d) Tonography

Correct Answer - A
Ans. CT scan

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56. In primary open-angle glaucoma pilocarpine eye drops lowers the intraocular pressure by its direct action on the:

- a) Trabecular meshwork
- b) Ciliary epithelium
- c) Longitudinal fibres of the ciliary muscle
- d) All of the above

Correct Answer - D

Ans. D

Pilocarpine as eye drops it is used to manage angle closure glaucoma until surgery can be performed, ocular hypertension, primary open angle glaucoma, and to bring about constriction of the pupil following its dilation.

Mechanism of Action:

Pilocarpine is used as a miotic and in the treatment of glaucoma

Pilocarpine contracts the ciliary muscle, causing increased tension on the scleral spur and opening of the trabecular meshwork spaces to facilitate outflow of aqueous humor. Outflow resistance is reduced, lowering intraocular pressure (IOP).

57. Isolated painful third nerve palsy is a feature of aneurysms of:

- a) Posterior communicating artery
- b) Anterior communicating artery
- c) Vertebrobasillary artery
- d) Ophthalmic artery

Correct Answer - A

Ans. Posterior communicating artery

The most common of all intracranial aneurysms, **posterior communicating artery** aneurysms present with ipsilateral **third nerve palsy** (thus dilating the pupil)

Isolated cranial nerve palsy frequently involves the third cranial nerve due to its anatomic surroundings when leaving the brainstem. (PCOM) is the most common type of aneurysm to form in the basal cistern. The majority of symptomatic aneurysms of the PCOM present as an oculomotor nerve palsy (ONP), which can develop directly via mass effect of the growing aneurysm or indirectly via rupture of the aneurysm

58. All of the following are given global prominence in the VISION 2020 goal, expect:

a) Refractive errors

b) Cataract

c) Trachoma

d) Glaucoma

Correct Answer - D
Ans. Glaucoma

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59. Axial length of eye ball is:
March 2005

a) 16 mm

b) 20 mm

c) 24 mm

d) 28 mm

Correct Answer - C

Ans. C: 24 mm

The eye of the newborn is hypermetropic and the average axial length is about 18mm. At the age of 3 years it is 23 mm and from age 3-14 years it increases by 1 mm.

In the emmetropic eye, the axial length (from the posterior corneal surface to the retina) varies from 22 to 26 millimeters. In the emmetropic eye (which has no refractive error), the range of corneal refracting power is between 39 and 48 diopters, while the range of lenticular refracting power is between 15 and 24 diopters.

60. Eye structure with maximum refractive power:
March 2007

- a) Anterior surface of lens
- b) Posterior surface of lens
- c) Anterior surface of cornea
- d) Posterior surface of cornea

Correct Answer - C

Ans. C: Anterior surface of cornea

Together with the lens, the cornea refracts light, accounting for approximately two-thirds of the eye's total optical power. In humans, the refractive power of the cornea is approximately 43 dioptries. While the cornea contributes most of the eye's focusing power, its focus is fixed.

The curvature of the lens, on the other hand, can be adjusted to "tune" the focus depending upon the object's distance.

61. Pilocarpine is used in all of the following except:

September 2006

- a) Primary, Open Angle Glaucoma
- b) Malignant Glaucoma
- c) Acute Angle Closure Glaucoma
- d) Chronic Synechial Angle Closure Glaucoma

Correct Answer - B

Ans. B: Malignant Glaucoma

Management of angle-closure secondary to ciliochoroidal effusion is directed at two processes:

- The first is uveal inflammation, which is treated with oral steroids to reduce the effusion and allow the chamber to deepen spontaneously as the inflammation subsides.
- The second is anterior rotation of the lens-iris diaphragm, which is reversed with cycloplegics. The pressure is treated in the acute setting with aqueous suppressants and oral carbonic anhydrase inhibitors. Pilocarpine is contraindicated because it will cause anterior rotation of the lens-iris diaphragm.

**62. Most common etiopathogenetic cause
of glaucoma is:
*March 2012***

a) Raised pressure in episcleritic veins

b) Decreased outflow

c) Increased formation of aqueous humour

d) Increased scleral outflow

Correct Answer - B

Ans: B i.e. Decreased outflow

A sustained increase in intraocular pressure may be due to increased formation of the aqueous humour, difficulty in its exit, or a raised pressure in the episcleral veins of these, the first & last rarely occur, and it follows that raised intraocular pressure is essentially due to an increased resistance to the circulation of the aqueous at the pupil and/ or its drainage through the angle of the anterior chamber.

63. Posterior staphyloma is seen in: *September 2005*

a) Myopia

b) Hypermetropia

c) Astigmatism

d) Presbyopia

Correct Answer - A

Ans. A: Myopia

Staphyloma is the term given to an eye whose sclero-uveal coats are stretched (also known as ectasia). This most commonly occurs posteriorly, although anterior staphyloma also is recognised.

Posterior staphyloma

- Progressive myopia (or mega myope) most common cause.
- Glaucoma
- Scleritis
- Necrotizing infection
- Surgery/trauma
- Radiotherapy

Posterior staphyloma affects the posterior pole of the eye and is lined by the choroid.

The ectatic portion is not visible externally but can be detected by fundoscopy and B-scan USG.

Anterior staphyloma

The most common cause for anterior staphyloma is sloughing corneal ulcer which perforates and heals with the formation of a pseudocornea by the organization of exudates and laying down of fibrous tissue.

Differential diagnoses

- Buphthalmos (congenital glaucoma)
- Axial myopia
- Macrophthalmos: seen in neurofibromatosis type 1 (NF1)
- Coloboma

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64. All of the following are true for sympathetic ophthalmitis except:

- a) Affects the injured eye
- b) Mostly results from a penetrating wound
- c) Autoimmune etiology
- d) Dalen Fuch's nodules may be seen

Correct Answer - A

Ans. A: Affects the injured eye

Sympathetic ophthalmitis is a condition in which serious inflammation attacks the sound eye after injury to the other eye.

65. Snowflake cataract is associated with:
September 2008

a) Hypertension

b) Adult diabetes

c) Trauma

d) Juvenile diabetes

Correct Answer - D

Ans. D: Juvenile diabetes

Snowflake Cataracts: This type of cataract represents dots of various sizes (and sometimes various colours) distributed throughout the cortex surrounding the nucleus for 360°.

This is the most common cataract seen in Down Syndrome (extra copy of chromosome 21 also called trisomy 21) and juvenile diabetes mellitus.

These usually have very little effect on vision.

Adult diabetic cataract shows cortical and/or nuclear and/or subcapsular (same as age related)

66. Diabetic cataract is due to accumulation of:

March 2009

a) Fructose

b) Galactose

c) Glucose

d) Sorbitol

Correct Answer - D

Ans. D) Sorbitol

The enzyme aldose reductase (AR) catalyzes the reduction of glucose to sorbitol through the polyol pathway, a process linked to the development of diabetic cataract.

67. Scleritis is most commonly associated with:

March 2005

- a) Diabetes
- b) Osteoarthritis
- c) Rheumatoid arthritis
- d) Hypertension

Correct Answer - C

Ans. C: Rheumatoid arthritis

Scleritis is a severe, destructive, chronic, painful, and potentially blinding inflammatory disease of the Conjunctiva, Sclera and Episclera tissues.

Symptoms includes redness and severe eye pain, which may radiate to adjacent areas, the forehead, cheek, or behind the eye. This is usually associated with light sensitivity, teary, and in some cases, reduced or poor vision. The affected eye often has a bluish hue or becomes an intense purple.

There are several different sub-types of Scleritis

- Nodular Scleritis is characterized by a focal area of inflammation, immovable, and tender, inflamed nodules on the eye.
- Diffuse Scleritis
- Diffuse Anterior Scleritis is the most common type, and is characterized by widespread inflammation of the Anterior portion of the Sclera, the white of the eye. The Diffuse type of Scleritis is, fortunately, the most benign form of Scleritis and the most responsive to therapy.
- Necrotizing Scleritis is likely the worst form of the disease,

sometimes leading to loss of the eye from multiple complications, severe pain, or occasionally perforation of the globe. It is often associated with severe systemic disease and involvement of multiple organs. An associated type of vascular inflammation, called Vasculitis, may threaten the lives of those patients afflicted. Pain with this condition is usually extreme, and damage to the Sclera is often marked. Necrotizing scleritis also known as Scleromalacia perforans is characterized by severe thinning of the Sclera of the Eye, allowing for local outpouchings of the underlying dark Uveal tissue. There are large abnormal blood vessels crossing areas of Scleral loss. The condition occurs in an otherwise white and "quiet" Eye, without pain. This type of Scleritis is associated with severe Rheumatoid Arthritis, occasionally seen in Wegener's Granulomatosis and Relapsing Polychondritis.

- Posterior Scleritis is quite rare, but usually presents with poor or double vision, severe pain, proptosis (forward displacement of the eye), Uveitis (inflammation inside the Uvea Tract), and limitation of eye movement. An exudative Retinal detachment (fluid under the Retina) may cause severe visual loss, Angle-Closure Glaucoma from Choroidal effusion.
- About 50% of Scleritis patients are associated with systemic autoimmune disorders including rheumatoid arthritis, gout, Wegener's granulomatosis, Relapsing Polychondritis, Systemic Lupus Erythematosus, Polyarteritis Nodosa, Ankylosing Spondylitis, with infections, or chemical or physical injuries.
- It occurs most often in people between the ages of 30 and 60 (it is rare in children). Scleritis may be the initial or only presenting clinical manifestation of these potentially lethal disorders.

68. Laser used to manage after cataract: *March 2005, September 2009*

a) Excimer laser

b) Argon green laser

c) Diode laser

d) Nd:YAG laser

Correct Answer - D

Ans. D: Nd:YAG laser

The Nd:YAG laser is a solid state laser that uses a neodymium-doped yttrium-aluminum-garnet crystal as the lasing medium. It is optically pumped with a lamp or diode and most commonly emits infrared light at 1064nm. It can be used in either a pulsed or continuous mode. Pulsed YAG lasers are typically Q-switched to achieve high-intensity pulses, which can be frequency doubled to emit light at 532nm.

There are numerous ophthalmic applications for Nd:YAG lasers.

- They are most commonly used to treat posterior capsular opacification after cataract surgery
- To create a peripheral iridotomy in patients with narrow angles or angle-closure glaucoma.
- YAG lasers can also be used to cut the anterior capsule for capsular block syndrome and capsular phimosis
- To cut vitreous strands in the anterior chamber.
- In malignant glaucoma, disruption of the anterior hyaloid face is performed with the YAG laser
- In refractory glaucomas, these lasers can be used for cyclophotoablation of the ciliary body.

- They have also been helpful for draining premacular subhyaloid hemorrhages in patients with Valsalva retinopathy.
- Panretinal photocoagulation can be performed with frequency-doubled Nd:YAG lasers.
Other applications include the treatment of recurrent corneal erosions and vitreous floaters.
Excimer (Argon fluoride) laser is used in photorefractive keratectomy (PRK), phototherapeutic keratectomy (PTK), LASIK, LASEK
Argon green laser is used in trabeculoplasty, iridoplasty, pupillomydriasis and retinal photocoagulation
Diode laser is used in retinal photocoagulation

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69. Which of the following is not a cause of hypermetropia:
September 2009

- a) Short axial length of the eyeball
- b) Flat cornea
- c) Increased refractive index of the cortex of lens
- d) Anterior dislocation of the lens

Correct Answer - D

Ans. D: Anterior dislocation of the lens

Factors responsible for hypermetropia:

- Short axial length of the eyeball
- Curvature hypermetropia commonly occurs as a factor in astigmatism (corneal plana)
- Index hypermetropia accounts for the hypermetropia of old age due to increased refractive index of the cortex of the lens relative to the nucleus so that overall refractive power of the lens decreases. It may be associated with diabetes, tumors, microphthalmia (a growth dysfunction during fetus development) and fovea hypoplasia, a condition that affects the blood vessels in the retina. While these conditions may result in hypermetropia, one of the most commonly cited causes of farsightedness is considered to be aging.

70. Type of collagen present in cornea ?

a) Type I

b) Type II

c) Type III

d) Type IV

Correct Answer - A
Ans. is 'a' i.e., Type I

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71. Which of the following is present in cornea ?

a) Hyaluronic acid

b) Chondroitin sulfate

c) Dermatan sulfate

d) Heparan sulfate

Correct Answer - B

Ans. is 'b' i.e., Chondroitin sulfate

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72. A person with defective blue color appreciation is called ?

a) Deuteranomalous

b) Deuteranopia

c) Tritanopia

d) Tritanomalous

Correct Answer - D

Ans. is 'd' i.e., Tritanomalous

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73. What is the immediate management of vitreous hemorrhage in eye ?

a) No treatment

b) Steroids

c) Antibiotics

d) Vitrectomy

Correct Answer - A

Ans. is 'a' i.e., No treatment

Treatment of vitreous haemorrhage :

1. Conservative treatment : Bed rest, elevation of patient's head and bilateral eye patches. This will allow the blood to settle down.
2. Treatment of the cause : Once the blood settles down, indirect ophthalmoscopy should be performed to locate and further manage the causative lesion such as a retinal break, phlebitis, proliferative retinopathy, etc.
3. Vitrectomy by pars plana route should be considered to clear the vitreous, if the haemorrhage is not absorbed after 3 months.

74. Keratitis is caused by ?

a) Bacteria

b) Atopy

c) Protozoa

d) All

Correct Answer - D

**Ans. is 'd' i.e., All
Causes of keratitis**

1. *Infective keratitis*

a. Bacterial

b. Viral

c. Fungal

d. Chlamydial

e. Protozoal

f. Spirochaetal

2. *Allergic keratitis*

a. Phlyctenular keratitis

b. Vernal keratitis

c. Atopic keratitis

3. *Trophic keratitis*

a. Exposure keratitis

b. Neuroparalytic keratitis

c. Keratomalacia

d. Atheromatous ulcer

4. *Keratitis associated with diseases of skin and mucous membrane.*

5. *Keratitis associated with systemic collagen vascular disorders.*

6. *Traumatic keratitis*, which may be due to mechanical trauma, chemical trauma, thermal burns, radiations.

7. *Idiopathic keratitis e.g.,*
- a. Mooren's corneal ulcer
 - b. Superior limbic keratoconjunctivitis
 - c. Superficial punctate keratitis of Thygeson

75. Subconjunctival cyst is seen in?

a) Toxoplasmosis

b) Cysticercosis

c) Leishmaniasis

d) Chaga's disease

Correct Answer - B

Ans. is b i.e., Cysticercosis

Parasitic cysts occurs in *subconjunctival cysticercus*, hydatid cyst and filarial cyst.

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76. Pars planitis is ?

a) Anterior uveitis

b) Intermediate uveitis

c) Posterior uveitis

d) Pan uveitis

Correct Answer - B

Ans. is b i.e., intermediate uveitis

Uveitis

- Uveitis refers to the inflammation of uveal tissue.
- However, practically there is always some associated inflammation of the adjacent structures such as retina, vitreous, sclera and cornea.
- Due to close relationship between the anatomically distinct part of the uveal tract, the inflammatory process usually involve the uvea as a whole and are generally not limited to a single part.
- However, the uveitis is classified according to the part of uvea which is clinically more affected. For example, the term iritis is used when iris appears to be more affected.

Anatomical classification of uveitis

1. *Anterior uveitis*. It is inflammation of the uveal tissue from iris up to pars plicata of ciliary body. It may be subdivided into -

- *Iritis*, in which inflammation predominantly affects the iris.
- *Iridocyclitis* in which iris and pars plicata part of ciliary body are equally involved, and
- *Cyclitis*, in which pars plicata part of ciliary body is predominately affected.

2. *Intermediate uveitis*. It includes inflammation of the pars plana and peripheral part of the retina and underlying 'choroid'. It is also

called '*pars planitis*'.

3. *Posterior uveitis*. It refers to inflammation of the choroid (choroiditis). Always there is associated inflammation of retina and hence the term '*chorioretinitis*' is used.

4. *Panuveitis*. It is inflammation of the whole uvea.

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77. Brushfield spot in iris is seen in -

a) Neurofibromatosis

b) Down syndrome

c) Tuberous sclerosis

d) Toxoplasmosis

Correct Answer - B

Ans. is 'b' i.e., Down syndrome

Brushfield spots are white spots in the iris in patients with Down syndrome.

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78. Most common orbital cyst in children-

a) Neuroenteric cyst

b) Dermoid cyst

c) Lymphoma

d) Clobomatous cyst

Correct Answer - B

Ans. is 'b' i.e., Dermoid cyst

Epidermal dermoid cyst (dermoid) is by far the most common orbital cystic lesion in children, accounting for over 40% of all orbital lesions of childhood and for 89% of all orbital cystic lesions of childhood that come to biopsy or surgical removal.

Most important secondary cyst is a mucocele that can occur in children with cystic fibrosis.

79. Dissociated vertical deviation seen in ?

- a) AV dissociation
- b) Infantile esotropia
- c) Congenital esotropia
- d) Superior oblique palsy

Correct Answer - C

Ans. is 'c' i.e., Congenital esotropia

The usual age of presentation of congenital (infantile) esotropia is between 2-4 months of age. Presentation at birth is very rare.

Infantile esotropia has been classically described as large angle constant esotropia (not variable).

The classic triad of associated motor abnormalities in congenital esotropia is *inferior oblique overaction*, dissociated vertical deviation (DVD) and latent nystagmus.

"It seems, from a review of literature, that infants with esotropia have, on average, refractive errors similar to the normal age matched population". — Handbook

80. Koeppe's nodules are type of ?

a) Granulomatous uveitis

b) Non granulomatous uveitis

c) Coroiditis

d) Pars planitis

Correct Answer - A

Ans. is 'a' i.e., Granulomatous uveitis

Nodules on the iris surface. These are observed in granulomatous uveitis (Koeppe's and Busacca's nodules), melanoma, tuberculoma and gumma of the iris

Iris nodules

There are many types of nodules that develop on iris in *granulomatous uveitis* :-

- i. *Koeppe nodule* :- Seen at pupillary margin.
- i. *Busacca's nodule* :- Seen on the peripheral part of anterior surface of iris.
- i. *Tubercular nodules* :- Scattered throughout the iris and ciliary body, mostly in stroma. They are more common at pupillary margin.
- i. *Syphilitic nodules* :- At pupillary margin.
- i. *Sarcoid nodules* :- At pupillary margin or in the stroma of the iris.

81. Cause of blindness in pterygium ?

- a) Astigmatism
- b) Loss of visual axis
- c) Cataract
- d) Limitation of ocular movements

Correct Answer - A

Ans. is 'a' i.e., Astigmatism

Pterygium

- Pterygium is a *non-cancerous (non-neoplastic) growth* of conjunctiva, characterized by a *wing-shaped fold* of conjunctiva encroaching upon the cornea from either side within the interpalpebral fissure. Pterygium is always situated in the palpebral aperture.
- Pathologically *Pterygium is a degenerative and hyperplastic condition of conjunctiva*. The subconjunctival tissue undergoes elastotic degeneration *and proliferates as vascularized granulation tissue* under the epithelium, which ultimately encroaches the cornea. The corneal epithelium, Bowman's layer and stroma are destroyed.

Etiology & Clinical features

- Pterygium is more common in people with excess outdoor exposure to sunlight (UV rays), dry heat, high wind and abundance of dust. Therefore it is more common in those who work outdoors.
- Clinically it presents as a *triangular fold* of conjunctiva encroaching the cornea in the area of palpebral **aperture**, usually on the *nasal side*. Other findings are *stocker's line* (deposition of iron)
- Pterygium is an *asymptomatic condition* in the early stages, except for *cosmetic intolerance*. *Visual disturbance or corneal astigmatism* may occur. Visual **disturbances are due to encroachment of**

pterygium on pupillary area or corneal astigmatism.

Occasionally diplopia may occur due to limitation of ocular movements.

Treatment

- Asymptomatic pterygium which is not progressive is best left alone.
Surgical excision is the only satisfactory treatment and is indicated for : - (1) Cosmetic reasons, (2) Continued progression threatening to encroach onto the pupillary area (once the pterygium has encroached pupillary area, wait till it crosses on the other side), (3) Diplopia due to interference in ocular movement.

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82. Cause of blindness in trachoma ?

a) Scarring

b) Pannus

c) Chronic dacrocystitis

d) Entropion

Correct Answer - A

Ans. is 'a' i.e., Scarring

The later structural changes of trachoma are referred to as "cicatricial trachoma".

These include scarring in the eyelid (tarsal conjunctiva) that leads to distortion of the eyelid with buckling of the lid (tarsus) so that eye lashes rub on the eye (trichiasis).

Rubbing of eye lashes of scarred eye lids against the cornea leads to corneal opacities and scarring and then to blindness.

Thus actual cause of blindness is **corneal opacity and scarring**, which may be secondary to **eyelid scarring**.

83. Fundus in retinitis Pigmentosa is ?

- a) White spots with red disc
- b) Jet- black spots with pale-waxy disc
- c) No pigmentation
- d) Dilatation of arterioles

Correct Answer - B

Ans. is 'b' i.e., Jet- black spots with pale-waxy disc

Examination findings in retinitis pigmentosa

Ophthalmoscopic findings are characteristic and include :-

- i. **Retinal pigmentary changes (Bone spicule intraneural retinal pigmentation)** : - Retina studded with small, **jet-black spots** resembling **bone corpuscles** with a spidery outline. These pigmentary changes are typically **perivascular** and *retinal veins (never arteries)* have a sheath of pigment for part of their course. These changes affect *equatorial region initially* sparing the posterior pole and periphery. Later in the course of disease whole retina is involved.
- i. **Attenuated and thread like retinal arterioles and veins.**
- i. **Pale and waxy optic disc** (consecutive optic atrophy).
- i. Thinning and atrophy of retinal pigment epithelium (RPE) in mid and far peripheral retina with relative sparing of RPE at macula.

Electroretinogram (ERG) and particularly the electro-oculogram (EOG) are markedly subnormal.

84. Retinoblastoma can occur bilaterally in how many percentage of the cases?

a) 10 - 15%

b) 15 - 20%

c) 20 - 25%

d) 25 - 30%

Correct Answer - D

Ans. is 'd' i.e., 25- 30%

RETINOBLASTOMA

- Retinoblastoma is the most common intraocular tumor in children. The tumor is confined to *infancy and very young children (1-2 years)*. There is *no sex predisposition*. Retinoblastoma is unilateral in 70-75% of cases and bilateral in 25-30% of cases.

Etiology

- Retinoblastoma gene (RB gene) is located on 14 band on the *long arm of chromosome 13 (13q14)*. RB gene is a *tumor suppressor gene*. Retinoblastoma develops when *both the normal alleles of the **RB** genes are inactivated or altered*. It is typical example of Knudson's two hit hypothesis. In *Hereditary retinoblastoma* first genetic change (first hit) in RB gene is inherited from an affected parent, where as second mutation (second hit) occurs in postnatal life and both alleles are lost. In *non- hereditary* retinoblastoma, both mutations (first and second hits) occur postnatally.

85. Kayser flescher ring is seen in ?

- a) Siderosis
- b) Chalcosis
- c) Open angle glaucoma
- d) Chemical injuries

Correct Answer - B

Ans. is 'b' i.e., Chalcosis

Chalcosis

- It refers to the specific changes produced by the alloy of copper in the eye.
- Mechanism. Copper ions from the alloy are dissociated electrolytically and deposited under the membranous structures of the eye. Unlike iron ions these do not enter into a chemical combination with the proteins of the cells and thus produce no degenerative changes.
- *Clinical manifestations*
 - i. *Kayser-Fleischer ring* : It is a golden brown ring which occurs due to deposition of copper under peripheral parts of the Descemet's membrane of the cornea.
 - i. *Sunflower cataract* : It is produced by deposition of copper under the posterior capsule of the lens. It is brilliant golden green in colour and arranged like the petals of a sun flower.
 - i. *Retina* : It may show deposition of golden plaques at the posterior pole which reflect the light with a metallic sheen.

86. Gaze fixation takes place at which age ?

a) 3 months

b) 6 months

c) 1 year

d) 2 years

Correct Answer - B

Ans. is 'b' i.e., 6 months

Gaze Fixation starts developing in the first month and is completed in 6 months.

Macula is fully developed by 4 - 6 months.

Fusional reflexes, stereopsis and accommodation is well developed by 4 - 6 months.

Cornea attains normal adult diameter by 2 years of age.

Lens grows throughout life.

87. Phacoemulsification incision is at ?

a) Sclero-corneal junction

b) Cornea

c) Sclera

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Sclero-corneal junction

In phacoemulsification very small 3 mm incision is taken at the sclerocorneal junction.

Phacoemulsification

- It is nothing else but an advancement in the *method of doing ECCE*. Here the nucleus is converted into pulp or emulsified using high frequency sound waves, and then sucked out of the eye through a small (3.2 mm) incision. A special *foldable IOL* is then inserted into the posterior chamber through the same incision. ECCE by phacoemulsification with foldable posterior chamber IOL is the procedure of choice for cataract.
- The steps in phacoemulsification include : (i) *Corneoscleral incision*, (ii) Continuous curvilinear capsulorrhexis, (iii) Hydrodissection and hydrodelineation (iv) Emulsification and aspiration of nucleus and then cortex, and (v) Foldable IOL implantation in posterior chamber.
- Recovery with phacoemulsification is fastest as incision is very small and no sutures are taken.

88. Gland of Moll opens in/on the ?

a) Skin

b) Hair follicle

c) Tarsal plate

d) Ducts of Meibomian glands

Correct Answer - B

Ans. is 'b' i.e., Hair follicle

GLANDS OF EYELIDS :

- i. *Meibomian glands* : These are also known as *tarsal glands* and are present in the stroma of tarsal plate arranged vertically. They are modified sebaceous glands. Their ducts open at the lid margin. Their secretion constitutes the oily layer of the tear film.
- i. *Glands of Zeis* : These are also sebaceous glands, which open into the follicles of eyelashes.
- i. *Glands of Moll* : These are modified sweat glands situated near the hair follicle. They open into the hair follicles or into the ducts of Zeis glands. They do not open directly onto the skin surface or elsewhere.
- i. *Accessory lacrimal glands of Wolfring* : These are present near the upper border of the tarsal plate.

89. Cherry red spot is seen in ?

a) Niemann - Pick's disease

b) Tay Sach's disease

c) Central retinal artery occlusion

d) All of the above

Correct Answer - D

Ans. is 'd i.e., All of the above

Causes of cherry red spot

- GM2 gangliosidosis (Tay Sachs & Sandhoff)
- Hurler's syndrome
- GM1 gangliosidosis
- Cryoglobulinemia
- Niemann - Pick's disease
- Leber's congenital amaurosis
- Gaucher's disease
- Sialidosis (galactosialidosis)
- Metachromatic leukodystrophy
- Mucopolysaccharidosis VII
- Central retinal artery occlusion (CRAO)
- Multiple sulfatase deficiency
- Trauma (Berlin's edema / commotio retinae)
- Poisoning :- Carbon mono-oxide, methanol
- Quinine and Dapsone
- Shprintzen-Goldberg syndrome
- Farber's disease
- Hallervorden Spatz disease
- Goldberg's disease
- Rarely in Krabbe's disease

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90. Most common malignant intraorbital tumor in adult is ?

a) Lymphoma

b) Rhabdomyosarcoma

c) Dermoid cyst

d) Sarcoma

Correct Answer - A

Ans. is 'a' i.e., Lymphoma

An orbital tumor is any tumor that occurs within the orbit of the eye. The orbit is a bony housing in the skull that provides protection to the entire eyeball except the frontal surface. It is lined by the orbital bones and contains the eyeball, its muscles, blood vessels, nerves and fat.

- An intraocular tumor is the tumor which occurs within the eyeball.
- *Most common intraocular tumor in adults is metastasis.* Metastasis is particularly common from carcinoma of breast and lung.
- *Most common primary intraocular tumor in adults is uveal melanoma.* Most of the uveal malignant melanoma arise in choroid.
- *Most common primary intraocular tumor in children is retinoblastoma.*
- *Most common orbital tumors in adults are benign vascular tumors → Cavernous hemangioma.*
- *Most common malignant orbital tumor in adult → lymphoma*
- *Most common orbital tumors in children are benign tumors → Dermoid cyst > capillary hemangioma*
- *Most common malignant orbital tumor in children → rhabdomyosarcoma.*
- Overall most common primary malignant tumor of eye is malignant

- melanoma followed by retinoblastoma
- *Most common malignant eyelid tumor* → Basal cell carcinoma.
 - *Most common epithelial tumor of lacrimal gland* Pleomorphic adenoma (benign mixed tumor)
 - *Overall most common tumor of lacrimal gland* → Lymphoid tumour and inflammatory pseudo - tumors
 - *Most common malignant tumor of conjunctiva & cornea* → Squamous cell carcinoma.

91. Which antiglaucoma drug decreases aqueous formation ?

a) Prostaglandins

b) Beta - blockers

c) Mannitol

d) Pilocarpine

Correct Answer - B

Ans. is 'b' i.e., Beta - blockers

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92. Selective alpha 2 against used in glaucoma ?

a) Tirriolol

b) Epinephrine

c) Dipivefrine

d) Brimonidine

Correct Answer - D

Ans. is 'd' i.e., Brimonidine

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93. Bilateral inferior dislocation of lens is seen in ?

a) Marfans syndrome

b) Homocystinuria

c) Weil Marchesani syndrome

d) Trauma

Correct Answer - B

Ans. is 'b' i.e., Homocystinuria

Ectopia lentis

- Ectopia lentis is defined as displacement or malposition of the crystalline lens of the eye. The lens is considered dislocated (luxated) when it lies completely outside the lens patellar fossa. The lens is described as subluxated when it is partially displaced but contained within the lens space.

94. All are true about Bullous keratopathy except ?

- a) Seen in Macular dystrophy
- b) Treatment is lamellar kertosplasty
- c) Lenses can be prescribed for such patients
- d) Seen in Fuch's dystrophy

Correct Answer - A

**Ans. is 'a' i.e., Seen in Macular dystrophy
Fuch's epithelial - endothelial dystrophy**

Fuch's dystrophy-slowly progressive bilateral condition affecting females more than males. Primary open angle glaucoma is associated with this condition.

Stages and clinical features

- i) Stage of cornea guttata
 - Hassal - Henle type of excrescences in the central part of cornea.
 - A gradual increase of central guttae with peripheral spread and confluence gives rise to the so called 'beaten - metal' appearance.
 - This stage is asymptomatic.
- ii) Oedematous stage or Stage of endothelial decompensation
 - Early stromal edema and epithelial dystrophy
 - Patients complain of blurring of vision.
- iii) Stage of Bullous keratopathy
 - Follows long standing stromal edema
 - Marked epithelial edema with formation of bullae, which when rupture cause pain, discomfort and irritation with associated decreased visual acuity.
- iv) Stage of scarring
 - Cornea becomes opaque and vascularized.

- May be complicated by secondary infection or glaucoma.

Treatment

- i. Edematous stage : 5% Sodium chloride (Hypertonic saline)
- i. Bullous keratopathy: Bandage soft contact lenses.
- i. Penetrating kertaoplasty : treatment of choice.

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95. Most common primary intraocular neoplasm in a child is ?

- a) Metastasis
- b) Retinoblastoma
- c) Basal cell carcinoma
- d) Squamous cell carcinoma

Correct Answer - B
Ans. is 'b' i.e., Retinoblastoma

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96. Following are the side effects of apraclonidine except ?

- a) Lid dermatitis
- b) Follicular conjunctivitis
- c) Eye lid retraction
- d) Watering of mouth

Correct Answer - D

Ans. is 'd' i.e., Watering of mouth

Apraclonidine

- Topical application lowers the intra ocular pressure by 25 %.
- It decreases aqueous production by primary alpha 1 and subsidiary alpha 2 action in ciliary body.
- Itching, lid dermatitis, follicular conjunctivitis, mydriasis, eyelid retraction, dryness of mouth and nose are common side effects.
- Its use is restricted to short term control of spikes of intraocular tension after laser trabeculolasty or iridotomy.

97. Treatment of presbyopia is by use of which lens?

a) Convex

b) Concave

c) Biconcave

d) Concavoconvex

Correct Answer - A

Ans. is 'a' i.e., Convex

Presbvopia

- Presbyopia is a vision condition in which the crystalline lens of eye loses its flexibility, which make it difficult to focus on the objects closer to the eye. Presbyopia is not an error of refraction but a condition of physiological insufficiency of accommodation leading to a progressive fall in near vision. Presbyopia is an *age related problem*, therefore also called eye sight of old age.
- Symptoms are usually seen *after 40 years of age*.
- Presbyopia is not a disease, rather a natural part of the aging process of the eye.
- The treatment of presbyopia is the prescription of appropriate convex glasses for near work.

98. Steroid is contraindicated in ?

a) Herpetic keratitis

b) Atopic dermatitis

c) Fungal corneal ulcer

d) Exposure keratitis

Correct Answer - C

Ans. is 'c' i.e., Fungal corneal ulcer

- *Topical corticosteroids enhance fungal replication and corneal invasion and therefore, contraindicated in a fungal corneal ulcer.*
- Now, option 'a' requires specific mention here :-
- Topical corticosteroids are contraindicated in herpetic keratitis. But not in all forms of herpetic keratitis :-
 - i. *Epithelial herpetic keratitis (Dendritic ulcer, geographic ulcer) Topical corticosteroids are contraindicated.*
 - i. *Stromal keratitis (Disciform & Diffuse necrotic) Topical corticosteroids along with topical antiviral drugs are used as the first line of treatment.*
- So, my opinion for this type of question is that :-
 - i. If herpetic keratitis has given as the option, then look at other options. If any of the other options is a clear cut contraindication for corticosteroid (e.g. fungal corneal ulcer in this question), consider that option as your answer. If no other option is a contraindication for topical corticosteroid, consider herpetic keratitis as the answer.
 - i. If examiner has specifically mentioned dendritic ulcer as an option, consider it as the answer.

99. Vitreous hemorrhage produces ?

- a) Sudden painless loss of vision
- b) Sudden painful loss of vision
- c) Gradual painless loss of vision
- d) Gradual painful loss of vision

Correct Answer - A

Ans. is 'a' i.e., Sudden painless loss of vision

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100. Tubular vision seen in -

a) Myopia

b) Hypermetropia

c) Presbyopia

d) Optic neuritis

Correct Answer - A

Ans. is 'a' i.e., Myopia

Causes of Tubular vision

- Retinitis pigmentosa
- High Myopia
- Primary open angle glaucoma
- CRAO with sparing of cilioretinal artery

101. Treatment of dacryocystitis in three months old child ?

a) Daily probing

b) Weekly probing

c) Massaging

d) Syringing

Correct Answer - C

Ans. is 'c' i.e., Massaging

Spontaneous recanalization of obstructed nasolacrimal duct occurs during first 6-8 weeks and sometimes after 6-12 months in 90% of infants. Therefore upto 9-12 months only massage and antibiotic drops are indicated. After the age of 12 months high pressure syringing is indicated.

102. Methanol attacks ?

a) Cones

b) Rods

c) Ganglion cells of retina

d) Germinal cell layer

Correct Answer - C

Ans. is 'c' i.e., Ganglion cells of retina

Methyl alcohol is metabolised very slowly and thus stays for a longer period in the body.

It is oxidised into formic acid and formaldehyde in the tissues. These toxic agents cause oedema followed by degeneration of the ganglion cells of the retina, resulting in complete blindness due to optic atrophy.

103. Retinal tears seen most commonly seen in ?

- a) Primary retinal detachment
- b) Secondary retinal detachment
- c) Tractional retinal detachment
- d) Exudative retinal detachment

Correct Answer - A

Ans. is 'a' i.e., Primary retinal detachment

Retinal detachment is a disorder of eye in which retina peels away from its underlying layer of support tissue. Usually there is separation between the neuroepithelium (neurosensory epithelium) and the pigmented layer.

The retinal separation is divided into:

1. Primary :- Rheumatogenous retinal detachment.
2. Secondary :- Tractional retinal detachment and exudative retinal detachment.

Rheumatogeneous retinal detachment

- This is the commonest type of retinal detachment. This is due to a retinal break/tear/hole which allows the liquid vitreous to seeps into the subretinal space and separates the sensory retina from the pigmentary epithelium.
- Predisposing factors include : (i) Myopia, (ii) Previous intraocular surgery : cataract extraction, (aphakia) or pseudoaphakia); (iii) Trauma; (iv) Retinal degeneration (Lattice degeneration; Snail track degeneration, Senile or degenerative retinoschisis.
- Tractional retinal detachment
- It is due to pulling on the retina usually from fibro-vascular band in the vitreous cavity, i.e., *vitroretinal band*.

- Exudative retinal detachment (solid retinal detachment)
- It occurs due to the retina being pushed away by accumulation of fluid or a neoplasm beneath the retina. This type of detachment is caused by inflammatory disorders or by tumors.

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104. Following are the clinical features of Leber optic neuropathy except

- a) Seen in the 2nd or 3rd decade of life
- b) It is an example of gradual painless visual loss
- c) Males can transmit the disease
- d) No leak of dye is observed in fluorescein angiography

Correct Answer - C

Ans. is 'c' i.e., Males can transmit the disease

Leber's Hereditary optic neuropathy

Leber's hereditary optic neuropathy is characterized by *sequential subacute optic neuropathy* in males aged 11-30 years. The underlying genetic abnormality is a point mutation in mitochondrial DNA. Since mitochondrial DNA is exclusively derived from mother, males do not transmit the disease and the disease is transmitted by carrier females.

It is characterized by *bilateral, painless, subacute visual failure* that develops *during young adult life*. Males are four to five times more likely than females to be affected. Affected individuals are usually entirely asymptomatic until they develop blurring affecting the central visual field of one eye; Similar symptoms appear in the other eye an average of two to three months later. In about 25% of cases, visual loss is bilateral at onset.

On examination, patients generally have bilateral impairments of visual acuity. There is centrocecal scotoma that begins nasal to the blind spot and extends to involve fixation of both sides of the vertical meridian. Pupillary reactions are often normal. Ophthalmoscopic examination shows fundus abnormalities *in acute phase* like swelling of the disc, peripapillary retinal telangiectasia, but characteristically

there is no leak from the optic disc during fluorescein angiography.
Later in atrophic phase, disc becomes atrophic and pale.

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105. Following is feature of Fusch's hetero chromic iridocyclitis ?

- a) Heterochromia of iris
- b) Keratic precipitates
- c) Posterior subcapsular cataract
- d) All the above

Correct Answer - D

Ans. is 'd' i.e., All the above

Fuch's heterochromic iridocyclitis (Fuch's uveitis syndrome)

It is a form of anterior and intermediate uveitis.

The condition is usually unilateral and chronic in nature and is characterized by a *chronic non-granulomatous uveitis* and eventually results in *iris heterochromia* (a change in the colour of iris).

The disease has following characteristic features :

- i) Heterochromia of iris
- ii) Diffuse stromal iris atrophy
- iii) Fine KPs at back of cornea
- iv) Faint aqueous flare
- v) Absence of posterior synechiae
- vi) A fairly common rubeosis iridis, sometimes associated with neovascularisation of the angle of anterior chamber.
- vii) Comparatively early development of complicated cataract and secondary glaucoma (usually open angle type). *Glaucoma has been reported in 10-59% of cases.*

Treatment

Fuch's heterochromic uveitis *responds variable to steroids and cycloplegics*. The complications of long term use of these drugs may at times outweigh their potential benefits. Therefore, treatment with

topical steroids is given to iritis which is sufficiently active to require the treatment, otherwise the patient is routinely followed without giving any treatment.

Cataract responds well to most forms of intraocular surgeries, including the standard IOL implantation. Hyphemia may occur because of rubeosis iridis (neovascularization of iris).

Glaucoma control may be somewhat more problematic, with surgical options indicated for later forms of disease

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106. BSGT stands for ?

- a) Bagolini striated glasses test
- b) Bagolini smooth glasses test
- c) Bagolini shiny glasses test
- d) Bagolini second glue test

Correct Answer - A

Ans. is 'a' i.e., Bagolini striated glasses test

Bagolini striated glasses test, or BSGT, is a subjective clinical test to detect the presence or extent of binocular functions and is generally performed by an orthoptist. It is mainly used in strabismus clinics.

107. Melanocytes in conjunctiva are derived from ?

a) Neural ectoderm

b) Surface ectoderm

c) Mesoderm

d) Neural crest

Correct Answer - D
Ans. is 'd' i.e., Neural crest

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108. Bitemporal hemianopia is characteristic of ?

- a) Glaucoma
- b) Optic neuritis
- c) Pituitary tumor
- d) Retinal detachment

Correct Answer - C

Ans. is 'c' i.e., Pituitary tumor

Characteristic visual field defect of central chiasmatic lesion is bitemporal hemianopia. Pituitary tumor causes central chiasmatic lesion.

Bitemporal hemianopia results due to central (sagittal) lesion of the optic chiasma, common causes of which are tumors of the pituitary gland (most common), craniopharyngioma, suprasellar meningioma, glioma of third ventricle, chiasmal arachnoiditis, and third ventricular dilatation.

109. For congenital obstruction of nasolacrimal duct, probing is done at what age ?

a) 2 months

b) 6 months

c) 10 months

d) 14 months

Correct Answer - B

Ans. is 'b' i.e., 6 months

Probing of congenital nasolacrimal duct blockade with Bowman's probe

It should be performed, in case the condition is not cured by the age of 3-4 months.

Some surgeons prefer to wait till the age of 6 months.

It is usually performed under general anaesthesia.

While performing probing, care must be taken not to injure the canaliculus.

110. Right esotropia is evident with ?

- a) Left lateral rectus paralysis
- b) Right lateral rectus paralysis
- c) Left medial rectus paralysis
- d) Right medial rectus paralysis

Correct Answer - A

Ans. is 'a' i.e., Left lateral rectus paralysis

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111. Diabetic ischemic maculopathy is characterized by all except ?

- a) It occurs due to microvascular blockage
- b) Mild visual loss
- c) Areas of non perfusion are evident on fluorescein angiography
- d) Microaneurysms and hemorrhages are seen

Correct Answer - B

Ans. is 'b' i.e., Mild visual loss

Ischaemic diabetic maculopathy

It occurs due to microvascular blockage.

Clinically it is characterised by marked visual loss with microaneurysms, haemorrhages, mild or no macular oedema and a few hard exudates.

Fluorescein angiography shows areas of non-perfusion which in early cases are in the form of enlargement of foveal avascular zone (FAZ), later on areas of capillary dropouts are seen and in advanced cases precapillary arterioles are blocked.

112. Treatment for mild ptosis is ?

a) Fasanella servat operation

b) Levator resection

c) Frontalis sling operation

d) Everbusch's operation

Correct Answer - A

Ans. is 'a' i.e., Fasanella servat operation

Fasanella-Servat operation. It is performed in cases having mild ptosis (1-5-2mm) and good levator function. In it, upper lid is everted and the upper tarsal border along with its attached Muller's muscle and conjunctiva are resected.

113. Cataract is cases of diabetes mellitus is due to accumulation of ?

a) Glycated crystallins

b) Calcified crystallins

c) Glycated fibrillins

d) Calcified fibrillins

Correct Answer - A

Ans. is 'a' i.e., Glycated crystallins

Diabetic cataract

Senile cataract tends to develop at an earlier age and more rapidly than usual in diabetic subjects. The lenses of an adult diabetic are said to be in the same condition as a non-diabetic who is 15 years older. In diabetic adults, compared to non-diabetics, cataracts are more prevalent, are dependent on the duration of diabetes and progress more rapidly. The mechanisms are believed to be glycation, carbamylation of crystallins and increased oxidative damage.

True diabetic cataract is a rare condition occurring typically in young people in whom the diabetes is so acute as to disturb grossly the water balance of the body. A large number of fluid vacuoles appear under the anterior to posterior parts of the capsule, initially manifesting as myopia and then producing a diffuse opacity which at this stage is reversible.

The lens then rapidly becomes cataractous, with dense, white subcapsular opacities in the anterior and posterior cortex resembling a snowstorm- '*snowflake*' cataract. Fine, needle-shaped polychromatic cortical opacities may also form. With appropriate treatment to control hyperglycaemia, the rapid progression to mature

cataract may be arrested at this stage.

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114. Density of cells in adult corneal endothelium ?

a) 2000 cells/mm²

b) 3000 cells/mm²

c) 4000 cells/mm²

d) 5000 cells/mm²

Correct Answer - B

Ans. is 'b' i.e., 3000 cells/mm²

The cell density of corneal endothelium is around 3000 cells/mm² in young adults, which decreases with the advancing age.

115. Axial proptosis is produced by tumors lying in ?

a) Retrobulbar space

b) Subperiosteal space

c) Tenon space

d) Peripheral space

Correct Answer - A

Ans. is 'a' i.e., Retrobulbar space

SURGICAL SPACES IN THE ORBIT

- These are of importance as most orbital pathologies tend to remain in the space in which they are formed.
- Therefore, their knowledge helps the surgeon in choosing the most direct surgical approach. Each orbit is divisible into four surgical spaces.
 1. The subperiosteal space
- This is a potential space between the bone and the periorbital (periosteum).
 2. The peripheral space
- It is bounded peripherally by the periorbital and internally by the four recti with thin intermuscular septa. Tumours present here produce eccentric proptosis and can usually be palpated. For peribulbar anaesthesia, injection is made in this space.
 3. The central space
- *It is also called muscular cone or retrobulbar space.* It is bounded anteriorly by the Tenon's capsule lining back of the eyeball and peripherally by the four recti muscles and their intermuscular septa in the anterior part. In the posterior part, it becomes continuous with the peripheral space. Tumours lying here usually produce axial

proptosis. Retrobulbar injections are made in this space.

4. Tenon's space

- It is a potential space around the eyeball between the sclera and the tenons capsule.

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116. In xerophthalmia classification X 2 stage is ?

a) Bitots spots

b) Corneal xerosis

c) Corneal ulceration

d) Corneal scar

Correct Answer - B

Ans. is b i.e., Corneal xerosis

WHO classification (1982)

- The new xerophthalmia classification (modification of original 1976 classification) is as follows :
 1. XN Night blindness
 2. X1A Conjunctival xerosis
 3. X1B Bitot's spots
 4. X2 Corneal xerosis
 5. X3A Corneal ulceration/keratomalacia affecting less than one-third corneal surface.
 6. X3B Corneal ulceration/keratomalacia affecting more than one-third corneal surface.
 7. XS Corneal scar due to xerophthalmia
 8. XF Xerophthalmic fundus.

117. All of the following has HLAB27 associated with uveitis except ?

a) Ankylosing spondylitis

b) Reiters syndrome

c) Behcets syndrome

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Behcets syndrome

A few examples of HLA-associated diseases with uveitis are as follows :

- i) HLA-B27 : Acute anterior uveitis associated with ankylosing spondylitis and also in Reiter's syndrome.
- ii) HLA-B5 : Uveitis in Behcet's disease.
- iii) HLA-DR4 and DW15 : Vogt Koyanagi Harada's disease.

118. Marcus gunn jaw winking phenomenon due to relation between which cranial nerves

a) VII + VIII

b) III + V

c) V + VII

d) III + VI

Correct Answer - B

Ans. is 'b' i.e., III + V

Marcus Gunn phenomenon (a.k.a. Marcus Gunn Jaw-Winking or **Trigemino-oculomotor Synkineses**)

- IT is an autosomal-dominant condition with incomplete penetrance, in which nursing infants will have rhythmic upward jerking of their upper eyelid.
- This condition is characterized as a synkinesis: when two or more muscles that are independently innervated have either simultaneous or coordinated movements.

119. Increased intraocular tension can be diagnosed by ?

- a) Tonometer
- b) Pachymeter
- c) Placido's disc
- d) Keratometer

Correct Answer - A

Ans. is 'a' i.e., Tonometer

The exact measurement of intraocular pressure is done by an instrument called *tonometer*. Indentation (Schiotz tonometer) and applanation (e.g., Goldmann's tonometer) tonometers are frequently used.

120. Wernicke's hemianopic pupillary response is seen in lesions at ?

a) Optic tract

b) Optic chiasma

c) Optic radiation

d) Lateral geniculate body

Correct Answer - A

Ans. is 'a' i.e., Optic tract

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121. 'Ischemic necrosis' in alkali burn is ?

a) Stage I

b) Stage II

c) Stage III

d) Stage IV

Correct Answer - A

Ans. is 'a' i.e., Stage I

Alkali burns are among the most severe chemical injuries to eye. Common alkalies responsible for burns are liquid ammonia (most harmful), lime, caustic potash or caustic soda. o Clinical features are divided into three stages.

1) Acute ischemic necrosis (Stage I) :- In this stage there are signs in conjunctiva (edema, congestion, necrosis, copious discharge), cornea (sloughing, edema and opacity) and iris (iridocyclitis).

2) Reparation (Stage II) :- Conjunctival and corneal epithelium regenerate, and there is corneal neovascularization.

3) Complications (Stage III) :- *Symblepharon*, recurrent corneal ulceration, complicated cataract, secondary glaucoma.

122. Ganglionic cells are, neurons ?

a) First order

b) Second order

c) Third order

d) None

Correct Answer - B
Ans. is 'b' i.e., Second order

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123. No movement of Red reflex in retinoscopy -

a) No refractive error

b) Myopia of 3D

c) Myopia of ID

d) Hypermetropia

Correct Answer - C

Ans. is 'c' i.e., Myopia of ID

Retinoscopy

- Retinoscopy, also called *skiascopy* or *shadow test*, is an objective method of finding out the error of refraction by the method of neutralization.
- Retinoscopy is based on the fact that when a light is reflected from a mirror into the eye, the direction in which the light will travel across the pupil will depend upon the refractive state of the eye.
- With the help of a retinoscope, light is thrown onto the patient's eye and through a hole in the retinoscope's mirror the examiner observes of red reflex in the pupillary area of the patient.
- Then the retinoscope is moved in horizontal the vertical meridia keeping a watch on red reflex, which also moves when the retinoscope is moved.

124. Maximum refractive index ?

a) Cornea

b) Air

c) Lens

d) Vitreous

Correct Answer - C

Ans. is 'c' i.e., Lens

.. Refractive index of various eye parts

.. Cornea-1.376

2. Aqueous humor-1.336

3. Lens(from cortex to core)-1.386-1.406

1. Vitreous humor-1.336

2. How to memorise!

a. The refractive index depends upon the optical density

.. Aqueous and vitreous being fluids have low density-
have **low** refractive index.

2. Cornea is less optically dense than lens.(cornea is thinner than
lens!)

b. So remember 4 values

.. **i. 1.336-aqueous/vitreous**

2. **ii. 1.376-cornea**

3. **iii. 1.386-cortex of lens**

1. **iv. 1.406-core or centroid of lens**

c. Also remember, the refractive index of the anterior surface of lens
is greater than the posterior surface.

125. Primary action of inferior oblique ?

a) Abduction

b) Adduction

c) Extorsion

d) Elevation

Correct Answer - C
Ans. is 'c' i.e., Extorsion

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126. What is the most common problem following surgical treatment of pterygium?

a) Recurrence

b) Corneal ulceration

c) Astigmatism

d) Scleral scarring

Correct Answer - A

Ans. is 'a' i.e., Recurrence

Surgical excision of pterygium is its only satisfactory treatment and is indicated for ?

- 1. Cosmetic reasons
- 2. Continued progression threatening to encroach onto the pupillary area (once the pterygium has encroached pupillary area, wait till it crosses on the other side)
- 3. Diplopia due to interference in ocular movements.
- *Recurrence* of the pterygium after surgical excision is the most common problem after pterigium excision and is seen in 30 - 50 % of the cases.
- The post operative complications of pterigium surgery are:
 - 1. Recurrence (most common)
 - 2. Others : Bleeding, corneal thinning, scarring, fornix loss, symblepharon formation, rectus muscle injury, wound dehiscence, dellen formation, graft chemosis, conjunctival granuloma, epithelial inclusion cysts, astigmatism etc.

127. Refsum's syndrome is associated with ?

a) Retinitis pigmentosa

b) Xerophthalmia

c) Chalcosis

d) Diabetes retinopathy

Correct Answer - A

Ans. is 'a' i.e., Retinitis pigmentosa

Associations of retinitis pigmentosa

Ocular associations : These include myopia, primary open angle glaucoma, microphthalmos, conical cornea and posterior subcapsular cataract.

Systemic associations : These are in the form of following syndromes :-

i) *Laurence-Moon-Biedl syndrome* : It is characterised by retinitis pigmentosa, obesity, hypogenitalism, polydactyly and mental deficiency.

ii) *Cockayne's syndrome* : It comprises retinitis pigmentosa, progressive infantile deafness, dwarfism, mental retardation, nystagmus and ataxia.

iii) *Refsum's syndrome* : It is characterized by retinitis pigmentosa, peripheral neuropathy and cerebellar ataxia.

iv) *Usher's syndrome* : It includes retinitis pigmentosa and labyrinthine deafness.

v) *Hallgren's syndrome* : It comprises retinitis pigmentosa, vestibulo-cerebellar ataxia, congenital deafness and mental deficiency.

128. Following is a feature of concomitant squint ?

- a) Constant amount of deviation in all directions of gaze
- b) Associated limitation of ocular movements
- c) Different amount of deviation in different directions of gaze
- d) Develops in the patients at 15 - 20 years of age.

Correct Answer - A

Ans. is 'a' i.e., Constant amount of deviation in all directions of gaze

MANIFEST SQUINT (HETEROTROPIA)

- In manifest squint the deviation of eye is present as such and cannot be compensated by fusion. Two main types of manifest squint are concomitant squint and paralytic squint.

A) Concomitant squint

In concomitant squint the eyes are not in alignment and the degree of malalignment remains constant in all the directions of gaze and there is no limitation of ocular movements. Concomitant squint may be of following types:

1) Esotropia (Convergent squint) :- It denotes inward deviation of eye. It can be *unilateral or uniocular* (the same eye always deviates inwards) or *alternating* (either of the eyes deviates inwards and the other eye takes up fixation, alternately). *Concomitant esotropia is the most common type of squint in children.* Following types of esotropia are there :-

- i) Congenital esotropia (infantile esotropia)
- True congenital (infantile) esotropia usually appears between the age of 2 and 4 months. However, rarely it may be present from birth. The inward turn of the eye is constant of large amount, i.e., deviation

- is > 35 prism diopters (17-5').
- *Binocular vision (both eyes fixing simultaneously) does not develop.* There is *alternate fixation in primary gaze*, i.e, when the infant looks straight, he fixes the gaze with one eye at a time alternately. On lateral gaze there is *cross fixation*, i.e, use right eye to fix across the nose to view the objects to the left and vice versa. *Amblyopia* develops in 25- 40% of cases.
 - Latent horizontal nystagmus (common) and many rotatory nystagmus may occur. Inferior oblique overaction may be present initially or develop later and *dissociated vertical deviation* develop in 80% by age of 3 years.
 - It is more difficult to help this type of strabismus with nonsurgical methods, thus, surgery is the treatment of choice. Surgical procedure to make both medial recti weak by recession. Surgery should be done as early as possible to avoid development of amblyopia and for the development of proper binocular vision. The usually recommended time is *between 6 month - 2 years of age (and preferably before 1 year of age)*. It is important to treat the amblyopia before performing surgery by *patching of normal eye*.
- ii) Accommodative esotropia
- Accommodative esotropia occurs due to overaction of convergence associated with accommodation reflex. *Accommodative esotropia is the most common type of squint in children* (Previously it was believed that congenital esotropia is the most common type squint in children. However now it is very much clear that accommodative esotropia is the most common one). It esotropia is noted around 2-3 years of age, it is most likely accommodative esotropia. On the bases of AC/A (accommodative convergence/accommodation) ratio, accommodative esotropia is divided into two types : (a) Refractive (Normal AC/A ratio); (b) Non - refractive (abnormal AC/A ratio). AC/A ratio gives the relationship between the amount of convergence that is governed by a given amount of accommodation.
- i. *Normal AC/A ratio accommodative esotropia* :- This occurs in *children with hypermetropia*. Esotropia is a physiological response to excessive hypermetropia. Patients with high hypermetropia generate large amount of accommodation to see clearly at near fixation. This

excessive accommodation may cause esotropia as accommodation is associated with convergence. *AC/A ratio is normal.*

- 1). *Large AC/A ratio accommodative esotropia :-* Children have large amounts of focusing power and sometimes the increase of accommodation is accompanied by a disproportionately large increase of convergence. This occurs in patient with hypermetropia but may occur in myopia and without any refractive error. *AC/A ratio is high.*
- Usually, there are no symptoms except for cosmetic embarrassment to the patient. *There is no diplopia* as the image in the squinting eye is automatically suppressed, i.e., amblyopia develops in squinting eye. The main feature is the failure of binocular vision.
- 2) Exotropia (divergent squint) :- It is characterized by outward deviation of eye. This is very less common than esotropia.
- 3) Hypertropia (Vertical squint) :- It is characterized by vertical deviation of eye. It is also rare.

B) Incomitant squint

Incomitant squint is a squint in which the angle of deviation differs depending upon the direction of gaze i.e., amount of deviation varies in different directions of gaze. There are many type of incomitant squints (paralytic, restrictive, 'A' & 'V' pattern), however the most common type is Paralytic squint and the word incomitant squint is usually used for paralytic squint. Therefore, I will explain paralytic squint here *Paralytic squint is the most common type of squint in adults.* Paralytic squint is the strabismus resulting from complete or incomplete paralysis of one or more extraocular muscles. There are many causes like neurogenic (e.g. meningitis, cranial nerve palsy etc.), myogenic (myopathies), or neuromuscular junction lesions. o Symptoms of paralytic squint are :-

i) Diplopia : It is the main symptom. It is most marked in the direction of action of paralysed muscle. For example in left rectus palsy, the maximum diplopia occurs when patient tries to see horizontally on left side and in left superior oblique palsy (causes Dextrodepression) diplopia is maximum when patient tries to look downward and right. It is worth noting here that in diplopia, if the images are separated horizontally it is probable that either a lateral or a medial rectus is affected; when the images are separated vertically or the image is tilted (torsion) it is likely that one or more of the vertical recti or the

tilted (torsion) it is likely that one or more of the vertical recti or the obliques are affected.

ii) Other symptoms : Confusion, nausea & vertigo, ocular deviation, loss of stereopsis.

Signs of paralytic squint are :-

i) Secondary deviation is more than primary deviation:- Primary deviation is the deviation in the affected eye and is away from the action of paralysed muscle. *Secondary deviation* is the deviation of normal eye seen under cover, when the patient is made to fix with the squinting eye.

ii) Restriction of ocular movements

iii) Compensatory head posture :- Patients with a paralytic squint move their head such that the eyes occupy a position in the orbit where the angle of squint is minimal and this can avoid confusion and diplopia. Head is turned towards the action of paralysed muscle. When the horizontal recti (medial or lateral) are affected, the characteristic posture is a turn of the face to right or left, e.g. in left lateral rectus palsy the head is turned to the left and in left medial rectus palsy the head is turned to the right. When a vertical rectus (superior or inferior) or an oblique muscle is affected, a tilt of the head to the right or left with depression or elevation of the chin is adopted to reduce both the vertical deviation and rotation, e.g. in superior oblique palsy (dextrodepression of left eye is affected) the head is tilted to left so that the left eye can see down and medially.

iv) There is false projection or orientation

v) There is no amblyopia and visual acuity is normal as paralytic squint develops in adults when visual acuity has already developed.

129. Diplopia is usually seen in ?

a) Paralytic squint

b) Non-paralytic squint

c) Both of the above

d) None of the above

Correct Answer - A
Ans. is 'a' i.e., Paralytic squint

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130. Following is true about behcet's disease except ?

- a) It shows presence of aphthous ulceration, genital ulceration and uveitis
- b) Uveitis is bilateral, acute recurrent iridocyclitis with hypopyon
- c) It has good visual prognosis
- d) Chlorambucil can be used to control the disease

Correct Answer - C

Ans. is 'c' i.e., It has good visual prognosis

BEHCET'S DISEASE

It is an idiopathic multisystem disease characterised by recurrent, non-granulomatous uveitis, aphthous ulceration, genital ulcerations and erythema multiforme.

Etiology

- It is still unknown; the basic lesion is an obliterative vasculitis probably caused by circulating immune complexes. The disease typically affects the young men who are positive for HLA-B5 1.

Clinical features

- *Uveitis seen in Behcet's disease* is typically bilateral, acute recurrent iridocyclitis associated with hypopyon. It may also be associated with posterior uveitis, vitritis, periphlebitis retinae and retinitis in the form of white necrotic infiltrates.

Treatment

- No satisfactory treatment is available, and thus the disease has got comparatively poor visual prognosis. Corticosteroids may be helpful initially but ultimate response is poor. In some cases the disease may be controlled by *chlorambucil*.

131. Imbert-Fick law is associate with ?

a) Schiotz tonometry

b) Applanation tonometry

c) Pachymetry

d) Keratometry

Correct Answer - B

Ans. is 'b' i.e., Applanation tonometry

Applanation tonometry

- The concept of applanation tonometry was introduced by Goldmann in 1954. It is based on Imbert-Fick law which states that the pressure inside a sphere (P) is equal to the force (W) required to flatten its surface divided by the area of flattening (A); i.e., $P = W/A$.

132. Recurrent non-granulomatous uveitis is seen in?

- a) Vogt koyanagi-Harada syndrome
- b) Posner-Schlossman syndrome
- c) Tuberculosis
- d) Sarcoidosis

Correct Answer - B

Ans. is 'b' i.e., Posner-Schlossman syndrome

Glaumatocyclic crisis

Glaumatocyclitic crisis (Posner - Schlossman syndrome) is a unilateral recurrent non- granulomatous iritis that is associated with an elevated ocular pressure during the attacks. This self- limiting condition tends to occur in persons during the third to sixth decade and the visual fields, the optic nerve head, and anterior chamber angle are normal. A mild inflammatory reaction is very rarely present as evidenced by a few keratic precipitates on the posterior surface of the cornea. The cause of the glaucoma remains unknown, but a trabeculitis is suspected. Many patients (55%) subsequently develop open angle glaucoma.

133. Bett's classification deals with ?

a) Ocular trauma

b) Ocular foreign body

c) Squint

d) Maculopathy

Correct Answer - A

Ans. is 'a' i.e., Ocular trauma

BETTS (Birmingham Eye Trauma Classification System)

Ocular trauma classification group has organized eye injuries using standard technology to describe various forms of ocular injury. This is called BETTS - Birmingham Eye Trauma Classification System.

134. How many incisions are used in the divided system approach of pars planavitrectomy?

a) 1

b) 2

c) 3

d) 4

Correct Answer - C

Ans. is 'c' i.e., 3

Techniques of performing vitrectomy

A) Open-sky vitrectomy

- This technique is employed to perform only anterior vitrectomy. Open sky vitrectomy is performed through the primary wound to manage the disturbed vitreous during cataract surgery or aphakikeratoplasty.

B) Closed vitrectomy (Pars planavitrectomy)

- Pars plana approach is employed to perform core vitrectomy, subtotal and total vitrectomy. Pars planavitrectomy is a highly sophisticated microsurgery which can be performed by using two type of systems:
 - 1. *Full function system vitrectomy* is now-a-days sparingly used. It employs a multifunction system that comprises vitreous infusion, suction, cutter and illumination (VISC), all in one.
 - 2. *Divided system approach* is the most commonly employed technique in modern vitrectomy. In this technique three *separate incisions* are given in *pars plana* region. That is why the procedure is also called *three-port pars plana vitrectomy*. The cutting and aspiration

functions are contained in one probe, illumination is provided by a separate fiberoptic probe and infusion is provided by a catheter introduced through the third pars plana incision.

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135. Munson's sign is a feature of ?

a) Keratoconus

b) Corneal ulcer

c) Pterygium

d) Posterior staphyloma

Correct Answer - A

Ans. is 'a' i.e., Keratoconus

Keratoconus

- Keratoconus is a *progressive, noninflammatory, bilateral* ectatic corneal disease, characterized by *paraxial/stromal thinning* and weakening that leads to corneal surface distortion.
- *Essential pathological changes are thinning and ectasia* which occur as a result of defective synthesis of mucopolysaccharide and collagen tissue.
- It usually starts at puberty and progresses slowly.
- Symptoms usually begin as blurred vision with shadowing around images.
- Vision becomes progressively more blurred and distorted with associated glare, halos around lights, light sensitivity and ocular irritation.
- *Visual loss occurs primarily from irregular astigmatism and myopia, and secondarily from corneal scarring.* o The hallmark of keratoconus is *central or paracentral stromal thinning, apical protrusion of anterior cornea and irregular astigmatism.*
- The cornea thins near the centre and progressively bulges forwards, with the apex of cone always being slightly below the centre of the cornea.

Important findings on examination are -

i) Distorted window reflex (Corneal reflex)e.

ii) Fleisher's rine.

iii) Yawning reflex (Scissor reflex).

iv) Oil drop reflex.

v) Munson's signs

Treatment includes :?

1) Spectacles for regular or mild irregular astigmatism.

2) Rigid gas permeable contact lens for higher astigmatism.

3) Epikeratoplasty in patients intolerant to lens and without significant corneal scarring.

4) Keratoplasty penetrating or deep lamellar if there is significant corneal scarring.

136. Newborn eye is ?

- a) Myopic
- b) Hypermetropic
- c) Presbyopic
- d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Hypermetropic

Eye at birth

- *Anteroposterior diameter* of eye ball is about 16.5 mm (70% of adult size). Adult size is attained by 7-8 years.
- *Corneal diameter* is about 10 mm. Adult size (11.7 mm) is attained by 2 years of age.
- *Anterior chamber* is shallow and angle is narrow.
- *Lens* is spherical at birth.
- *Retina* :- Apart from macular area, the retina is fully differentiated. Macula differentiates 4-6 months after birth.
- Myelination of optic nerve fibres has reached the lamina cribrosa.
- New born is usually hypermetropic by +2 to +3D.
- Orbit is more divergent (50°) as compared to adult (45°).
- *Lacrimal gland* is still underdeveloped and tears are not secreted.

137. Homonymous hemianopia type of visual field defect is seen in all except ?

a) Lateral geniculate body

b) Total optic radiation

c) Optic tract

d) Optic chiasma

Correct Answer - D

Ans. is 'd' i.e., Optic chiasma

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138. Following is true about oculocardiac reflex except ?

- a) It is also called aschner phenomenon
- b) It is mediated by oculomotor and vagus nerve
- c) It is characterized by bradycardia following traction on extra-ocular muscles
- d) Reflex is more sensitive in neonates

Correct Answer - B

Ans. is 'b' i.e., It is mediated by oculomotor and vagus nerve
Oculocardiac reflex

- Oculocardiac reflex, is also known as Aschner phenomenon, Aschner reflex, or Aschner-Dagnini reflex, o It is characterized by decrease in pulse rate (bradycardia) associated with traction applied to extraocular muscles and/or compression of the eyeball.
- The reflex is mediated by nerve connections between the ophthalmic branch of the trigeminal cranial nerve via the ciliary ganglion, and the vagus nerve of the parasympathetic nervous system.
- This reflex is especially sensitive in neonates and children, particularly during strabismus correction surgery. However, this reflex may also occur with adults.
- Bradycardia, junctional rhythm and asystole, all of which may be life-threatening, can be induced through this reflex.

139. Corneal endothelial cell count is measured by ?

a) Specular microscope

b) Ophthalmoscope

c) Synoptophore

d) Amsler's grid

Correct Answer - A

Ans. is 'a' i.e., Specular microscope

Corneal endothelium is examined with specular microscope, which allows a clear morphological study of endothelial cells including photographic documentation.

The cell density of endothelium is around 3000 cells/mm² in young adults, which decreases with advancing age.

140. Drug kept as a last resort in the management of primary open angle glaucoma is ?

a) Latanoprost

b) Topical beta blocker

c) Brimonidine

d) Oral acetazolamide

Correct Answer - D

Ans. is 'd' i.e., Oral acetazolamide

Treatment of POAG (Primary open angle glaucoma)

Following treatment options are available for POAG :

Medical therapy :- Total medical therapy is the treatment of choice for POAG. Topical β -blockers (Timolol, Betoxalol, Levobunolol, carteolol) are the drugs of choice. Topical prostaglandin analogues (Latanoprost, bimatoprost, travoprost) are the second choice drugs. Other topical drugs for POAG are:- *LI Alpha agonists* (non - selective : *epinephrine, dipivefrine*; and Selective - α_2 : *apraclonidine, brimonidine*)

Carbonic anhydrase inhibitors (Dorzalamide, brinzolamide)

Cholinomimetic drugs (Pilocarpine, physostigmine, echothiophate, carbachol) Pilocarpine has several drawbacks, therefore, is being considered as an adjunctive therapy only as a last resort.

Approach to treatment of POAG

- Start monotherapy with topical β -blocker or latanoprost.
- If target IOT is not attained either change over to the alternative drug or use both the above concurrently.
- Brimonidine/dorzolamide/dipivefrine are used only when there are

- contraindications to PG analogues or 13-blockers.
- Topical miotics and oral acetazolamide are added only as the last resort.
 - Systemic therapy is considered only as a last resort. Drugs used for systemic therapy are :- (i) *Carbonic anhydrase inhibitors* (Acetazolamide, Dichlorphenamide, methazolamide), (ii) *Hyperosmotic agents* (mannitol, glycerol).

141. Amsler's grid is used to evaluate ?

a) Central 10 degrees of vision

b) Central 20 degrees of vision

c) Peripheral vision

d) Lens opacity

Correct Answer - A

Ans. is 'a' i.e., Central 10 degrees of vision

Metamorphopsia is a phenomenon wherein the patient perceives objects to have an altered, irregular contour or shape. For example, graph paper lines may be bent or obscured in areas.

This can be reviewed for any changes over time using an Amsler grid, which tests the central 10° of vision.

It is associated with diseases affecting the macula such as central serous choroidopathy, age-related macular degeneration, diabetic macular oedema and macular hole.

142. Stye is suppurative inflammation of glands of ?

a) Zeis

b) Meibonian

c) Wolfring

d) All the above

Correct Answer - A

Ans. is 'a' i.e., Zeis

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143. Objective methods for checking the refractive error are all except

a) Ophthalmoscopy

b) Retinoscopy

c) Refractometry

d) Keratometry

Correct Answer - A

Ans. is 'a' i.e., Ophthalmoscopy

The procedure of determining and correcting refractive errors is termed as *refraction*. The refraction comprises two complementary methods : ?

A) Objective methods : Objective methods of refraction include :- (i) Retinoscopy, (ii) *Refractometry*, (iii) *Keratometry*.

B) Subjective methods : These are :- (i) Subjective verification of refraction, (ii) Subjective refining of refraction, (iii) Subjective binocular balancing.

144. Lens dislocation in marfans syndrome is

-

a) Superotemporal

b) Inferonasal

c) Forward

d) Backward

Correct Answer - A

Ans. is 'a' i.e., Superotemporal

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145. Safe size of corneal graft with less chances of failure is ?

a) 7.5 mm

b) 6.5 mm

c) 5.5 mm

d) 4.5 mm

Correct Answer - A

Ans. is 'a' i.e., 7.5 mm

Correlation of corneal graft diameter and chances of graft failure
Increased corneal graft size has been reported in some studies to be a significant risk factor for graft rejection.

Other studies refute this and point to smaller graft size as more likely to be rejected.

There is increased risk of rejection and endothelial failure in small grafts with recipient size < 7 mm and also increased risk of rejection in large grafts with graft size > 8.5 mm.

Thus the corneal graft with graft diameter between 7 and 8.5 mm has more chances of survival.

146. Angular conjunctivitis is caused mainly by

- a) *Moraxella axenfeld*
- b) *Staphylococcus aureus*
- c) *Streptococcus pneumoniae*
- d) *Pseudomonas aeruginosa*

Correct Answer - A

Ans. is 'a' i.e., *Moraxella axenfeld*

Angular conjunctivitis (diplobacillary conjunctivitis)

- It is a type of chronic conjunctivitis characterized by mild grade inflammation confined to conjunctiva and lid margins near the angles associated with maceration of the surrounding skin.
- *Moraxella axenfeld* (*Moraxella lacunata*), a diplobacillus, is the commonest causative organism.
- Less commonly, *staphylococcus aureus* can also cause angular conjunctivitis.
- **Source of infection:** Nasal tract of healthy people and the nasal discharge of patients with angular conjunctivitis.
- It spreads from the nasal cavity to the eye by contaminated hands and handkerchief.
- Angular conjunctivitis responds to tetracycline ointment, Oxytetracycline for 10 to 14 days.
- *Eye drops containing zinc* inhibit the proteolytic ferment and are of great value although less rapidly effective, and may be used in addition to tetracycline.

147. Anterior uveitis earliest lesion ?

- a) Aqueous flare
- b) Keratic precipitates
- c) Circumcorneal congestion
- d) Blurring of vision

Correct Answer - A

Ans. is 'a' i.e., Aqueous flare

Aqueous flare is the earliest sign of acute anterior uveitis.

- Keratic precipitates is the pathognomonic sign of acute anterior uveitis

Clinical features of acute anterior uveitis

- Acute anterior uveitis is the most common form of uveitis, accounting for 60-70% of cases. It is characterized by *sudden onset and duration less than 3 months*. Presentation is typical with sudden onset of *unilateral pain, photophobia, redness, lacrimation and blepharospasm*. Vision may be normal initially. However, later there may be disturbance in vision due to ciliary spasm (induced myopia), corneal haze (due to edema & 1(1³s) and aqueous turbidity.

External examination shows following signs :-

- i. Circumcorneal (ciliary) congestion Which has a violaceous hue.
- i. Corneal edema, posterior corneal opacities.
- i. *Keratic precipitates (KPs)*:- are proteinaceous cellular deposits at the back of cornea on endothelium.
- i. *Anterior chamber signs* :- Aqueous cells, Aqueous flare, hypopyon, hyphaemia (in hemorrhagic uveitis), deep anterior chamber (If posterior synachiae occurs).
- i. *Iris signs* :- Blurred & indistinct iris, i.e. *muddy iris*, instead of being clear and sharply defined.
- i. *Papillary signs* :- Narrow (miotic) pupil, irregular pupil due to

segmental posterior synechiae which gives festooned appearance (*festooned pupil*) when dilated with atropine, sluggish pupillary reaction, ectropion pupillae (eversion of pupillary margins), occlusio pupillae (due to complete occlusion of pupil by organised exudate).

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148. Main MOA brimonidine in glaucoma ?

a) Decreased aqueous secretion

b) Increased trabecular outflow

c) Increased uveoscleral outflow

d) Reduce vitreous volume

Correct Answer - A

Ans. is 'a' i.e., Decreased aqueous secretion

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149. Meibomian glands secrete which component of sweat?

a) Water (aqueous)

b) Mucin

c) Protein

d) Lipid

Correct Answer - D

Ans. is 'd' i.e., Lipid

- The major function of lacrimal apparatus is to secrete and drain the tear.
- **Tear film consists of 3 layers :-**
 - i. *Mucous or mucin layer (innermost)*:- Secreted by conjunctival goblet cells, crypts of Henle, glands of Manz.
 - i. *Aqueous layer (intermediate)* :- This forms the bulk of the tear. It is secreted by main lacrimal and accessory lacrimal glands.
 - i. *Lipid layer (outermost)* :- Secreted by the Meibomian Zeis, and Moll glands.

150. Quantification of corneal sensation is done by ?

a) Pachymeter

b) Keratometer

c) Aesthesiometer

d) Tonometer

Correct Answer - C

Ans. is 'c' i.e., Aesthesiometer

Measurement of Corneal Sensitivity

- Corneal sensitivity may be tested by touching it in various places with a wisp of cotton-wool twisted to a fine point and comparing the effect with that on the other, normal cornea. There is in general a brisk reflex closure of the lids.
- Corneal sensations are often diminished after any gross disorder, but the change is of diagnostic significance in certain cases, particularly herpes keratitis where minimal corneal changes are accompanied by a gross diminution of sensation.
- Quantification of the corneal sensation is possible to some degree by the use of a corneal aesthesiometer in which a single horse hair of varying length is used instead of a wisp of cotton-wool. The longest length which induces blinking is a measure of the threshold of corneal sensitivity.

151. Subconjunctival hemorrhages are evident in the following cases except ?

a) Whooping cough

b) Scurvy

c) Purpura

d) Pellagra

Correct Answer - D

Ans. is 'd' i.e., Pellagra

Subconjunctival haemorrhage

- Occurs due to the rupture of small vessels.
- The condition, though unsightly, is trivial. This can occur spontaneously in elderly people with fragile vessels or those with systolic hypertension or after local ocular trauma or eye surgery.
- Very minute ecchymoses, or possibly thromboses, are seen in severe conjunctivitis; large extravasations accompany severe straining, especially in old people, as on lifting heavy weights or vomiting.
- They are not infrequently seen in children with whooping cough and may occur in scurvy, blood diseases such as purpura, or in malaria.
- Recurrent subconjunctival haemorrhages warrant investigations for a bleeding diatheses or leukaemia. The differential diagnosis includes Kaposi sarcoma.
- More serious are the large sub-conjunctival ecchymoses which seep forwards from the fornix following head injuries. They are due to an extravasation of blood along the floor of the orbit, secondary to a fracture of the base of the skull.
- In fractures of the sphenoid the blood appears later on the temporal side than elsewhere.

- Haemorrhages also result from severe or prolonged pressure on the thorax and abdomen, as in persons squeezed in a crowd or by machinery.
- The blood gradually changes colour and gets absorbed in 1 to 3 weeks without treatment.
- The use of aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided and if mild ocular irritation is present, artificial tears can be prescribed four to six times a day.

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152. Pleomorphic adenoma of the lacrimal gland moves the eyeball ?

a) Downwards and outwards

b) Downwards and inwards

c) Upwards and outwards

d) Upwards and inwards

Correct Answer - A

Ans. is 'a' i.e., Downwards and outwards

Benign mixed tumour of lacrimal gland |Pleomorphic adenoma'

- It is also known as *pleomorphic adenoma* and occurs predominantly in young adult males.
- *Clinically* it presents as a slowly progressive painless swelling in the upper-outer quadrant of the orbit displacing the eyeball downwards and outwards.
- It is locally invasive and may infiltrate its own pseudocapsule to involve the adjacent periosteum.
- *Histologically*, it is characterised by presence of pleomorphic myxomatous tissue, just like benign mixed tumour of salivary gland.
- *Treatment* consists of complete surgical removal with the capsule. Recurrences are very common following incomplete removal.

153.

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Optic canal is a part of ?

- a) Lesser wing of sphenoid
- b) Greater wing of sphenoid
- c) Ethmoid
- d) Pterygoid

Correct Answer - A

Ans. is 'a' i.e., Lesser wing of sphenoid

The optic nerve leaves the orbit is the optic canal to enter the cranial vault.

The optic canal is the most posterior landmark of the orbit. It measures 10 mm in length.

The thin piece of bone separating the optic canal from the superior orbital fissure is the optic strut.

The optic strut and optic canal are a part of the lesser wing of sphenoid bone.

154. Floaters are seen in following except ?

a) Vitreous hemorrhage

b) Retinal detachment

c) Uveitis

d) Acute congestive glaucoma

Correct Answer - D

Ans. is 'd' i.e., Acute congestive glaucoma

Floaters

- A floater is something in the fluids of the eye that casts a shadow on the retina and looks like a dark spot or spots floating around in the field of vision. Floaters are usually described by patients, as small, semitranslucent particles of varying shapes moving across the visual field with the movement of the eye. Floater can only be seen with the eyes open and in a lighted environment. Floaters are usually grey or black, since they are actually shadow on the retina.

Causes of floaters are :-

- Posterior vitreous detachment (PVD)*
- Bleeding (vitreous hemorrhage)*
- Retinal detachment*
- Inflammation of eye (uveitis)*
- High myopia*

155. Illuminated frenzel glasses are used in detecting?

a) Nystagmus

b) Heterophoria

c) Esotropia

d) Astigmatism

Correct Answer - A

Ans. is 'a' i.e., Nystagmus

Illuminated frenzel glasses (+20 lenses) are useful for abolishing fixation and thus revealing peripheral vestibular nystagmus.

156. Following is a cause of secondary angle closure glaucoma ?

- a) Pseudophakia
- b) Corticosteroid induced
- c) Angle recession glaucoma
- d) Congenital glaucoma

Correct Answer - A

Ans. is 'a' i.e., Pseudophakia

Causes of secondary angle closure glaucoma

- Pupillary block: uveitis, pseudophakia
- Angle fibrosis: neovascular glaucoma

157. Which gas is most commonly used with pneumatic retinopathy ?

a) SF₆

b) C₃F₈

c) CO₂

d) N₃

Correct Answer - A

Ans. is 'a' i.e., SF₆

Sulfur hexafluoride gas (SF₆) is most commonly used with pneumatic retinopathy.

158. Latanoprost used topically in glaucoma primarily acts by?

- a) Decreasing aqueous humor formation
- b) Increasing uveoscleral outflow
- c) Releasing pupillary block
- d) Increasing trabecular outflow

Correct Answer - B

Ans. is 'b' i.e., Increasing uveoscleral outflow

Ans. is 'b' i.e., Increasing uveoscleral outflow

- **Latanoprost is an analog of prostaglandin F2a that increases uveoscleral outflow and induces miosis.**
- **Antiglaucoma Drugs: Mechanism of Lowering Intraocular Pressure (IOP):**

Drugs that increase trabecular outflow

? Miotics (e.g., pilocarpine)

? Epinephrine, dipivefrine

? Bimatoprost

Drugs that increase uveoscleral outflow

? Prostaglandins (latanoprost)

? Epinephrine, dipivefrine

? Brimonidine

? Apraclonidine

Drugs that decrease aqueous production

? Carbonic anhydrase inhibitors (e.g., acetazolamide, dorzolamide)

? Alpha receptor stimulators in ciliary process (e.g., epinephrine, dipivefrine, clonidine, brimonidine, apraclonidine)

? Beta-blockers

Hyperosmotic agents - (e.g., glycerol, mannitol, urea).

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159. 2nd Purkinje image is ?

- a) Erect and moves in same direction
- b) Inverted and moves in same direction
- c) Erect and moves in opposite direction
- d) Inverted and moves in opposite direction

Correct Answer - A

Ans. is 'a' i.e., Erect and moves in same direction

1st from anterior surfac: of cornea --> Erect and moves in same direction.

2nd from posterior surface of cornea --> Erect and moves in same direction.

3rd from anterior surface of lens --> Erect and move in same direction.

4th from posterior surface of lens --> Inverted and moves in opposite direction

160. Axial length of eye ball is measured by ?

- a) A mode Ultrasonography
- b) B mode Ultrasonography
- c) M mode Ultrasonography
- d) Both a and b

Correct Answer - A

Ans. is 'a' i.e., A mode Ultrasonography

Ultrasonography in Ophthalmology

A Mode

- Transducer is coupled directly to the eye through the use of methyl cellulose.
- Recording are done in a graphic mode. Height of the recorded spike on vertical axis is a measure of the amplitude of the echo, the position of the spike along the horizontal axis indicates the arrival of the echo on the transducer.
- Diagnosis is based on the basis of amplitude, position, extent and movement of the abnormal echoes alongwith the sound attenuating properties of the abnormality.
- It has a special role in biometry i.e. axial length which is very essential for surgical planning. B mode
- The transducer is coupled to the eye by either the gel applied to the closed lid or by a saline bath
- Is is a display of two - dimensional cross sectional images.
- The echoes in B scan are displayed as spots and the brightness of echoes indicates its amplitude.

161. Enophthalmos is seen in ?

a) Blow out fracture of orbit wall

b) Hyperthyroidism

c) Radiation Injuries

d) Diabetes mellitus

Correct Answer - A

Ans. is 'a' i.e., Blow out fracture of orbit wall

Enophthalmos is seen in blow out fracture of orbit wall.

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162. Acute angle closure glaucoma first line treatment?

- a) Iv mannitol
- b) Acetazolamide
- c) Pilocarpine
- d) Beta blocker eyedrops

Correct Answer - A

Ans. is 'a' i.e., I.V. Mannitol

Treatment of angle closure glaucoma

- Definitive treatment (treatment of choice) is surgery. However, initially drugs are used to decrease IOP during an acute attack. Approach of treatment is as follows:-
- Start i.v. mannitol or i.v. acetazolamide
- When IOP starts falling, start topical pilocarpine or β -blocker (timolol).
- Apraclonidine/latanoprost may be added.
- Once IOP is reduced, surgery is done.
- Topical pilocarpine 2% is the preferred antiglaucomatous drug.
- After control of IOP, Laser (Nd : YAG) peripheral iridotomy is the definitive management of choice. If laser is not available surgical peripheral iridectomy is the procedure of choice. Other surgical procedures used are *filtration surgeries* (like trabeculectomy, deep sclerotomy, *Viscous anulostomy*).
- Symptomatic treatment during an attack also includes *analgesics, antiemetic and topical corticosteroids* to reduce inflammation. Mydriatics (e.g. atropine) are contraindicated as they precipitate glaucoma.
- PACG is a bilateral disease, the fellow eye is at risk of developing an

acute attack in 50% cases in future. Therefore a prophylactic peripheral laser iridotomy should be performed in the fellow eye.

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163. Oculomotor nerve supplies all extraocular muscles except ?

a) Superior rectus

b) Inferior rectus

c) Lateral rectus

d) Medial rectus

Correct Answer - C
Ans. is 'c' i.e., Lateral rectus

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164. Which bacteria penetrates intact cornea ?

a) Corynebacterium

b) Pneumococcus

c) Moraxella

d) E. coli

Correct Answer - A

Ans. is 'a' i.e., Corynebacterium

Bacterial corneal ulcer

- Bacterial corneal ulcer, also called *suppurative keratitis*, is due to organisms that produce toxin which cause tissue necrosis and pus formation in the corneal tissue. Purulent keratitis is nearly always exogenous, due to pyogenic organism. As long as the cornea is healthy, the majority of bacteria are unable to cross or adhere to the corneal epithelium. Therefore the two main predisposing factors for bacterial corneal ulcer are : -
 - 1. *Damage to corneal epithelium*
 - 2. *Infection of the eroded area*
- However, there are a few species that are capable of penetrating an intact epithelium : -
 - 1. *Neisseria gonorrhoea*
 - 2. *Neisseria meningitidis*
 - 3. *Corynebacterium diphtheriae*
 - 4. *Listeria species*
 - 5. *Haemophilus agyptus*
- Bacteria which cause corneal ulcer (Purulent keratitis) after epithelial injuries are : -
 - 1. *Pseudomonas*

2. *Pneumococcus*
 3. *Streptococcus epidermidis*
 4. *Staphylococcus aureus*
 5. *Moraxella*
 6. *Enterobacterias*
 7. *Proteus, Klebsiella*)
- Although there are specific presentations depending on the bacteria involved, there exists a series of symptoms and signs common to all that allow for a rapid diagnosis, and therefore early treatment of corneal ulcers. *The most important symptoms are pain, lacrimation, foreign body sensation, conjunctival injection (red eye), photophobia and blurred vision.* There is lid swelling, blepharospasm and yellow white areas of ulcer with swollen and overhanging margin may be seen.

165. Which of the following is not a feature of fungal corneal ulcer?

a) Fixed hypopyon

b) Ulcer with sloughing margins

c) Symptoms are more pronounced than signs

d) Fungal hyphae are seen on KOH mount

Correct Answer - C

Ans. c. Symptoms are more pronounced than signs

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166. Congenital dacryocystitis, the block is at?

a) Lacrimal calnaliculi

b) Nasolacrimal duct

c) Punctum

d) None

Correct Answer - B

Ans. is 'b' i.e., Nasolacrimal duct

Congenital dacryocystitis (Dacryocystitis neonatorum)

- It is the inflammation of lacrimal sac in the newborn. It is due to congenital blockage of nasolacrimal duct. Congenital dacryocystitis usually presents as a mild grade chronic inflammation. It is characterized by :?
 1. Epiphora develops after seven days of birth followed by mucopurulent discharge.
 2. Regurgitation of mucopurulent discharge on pressure over the sac area, i.e., positive regurgitation test
 3. Swelling over the sac area
- Treatment includes :?
 1. Massage over lacrimal sac with topical antibiotics:- Cures obstruction in about 90% of infants spontaneous recanalization of obstructed nasolacrimal duct can occur upto 9 months.
 2. Lacrimal syringing:- Syringing with normal saline and antibiotic solution is performed if the condition is not cured up to the age of 9-12 months.
 3. Probing of nasolacrimal duct:- It is performed if the condition is not cured by 1-12 months
 4. Intubation with silicon tube
 5. Dacryocystorhinostomy:- It is performed if the child is brought very

late or above described procedures fail.

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167. Dacryocystorhinostomy involves?

- a) Opening up the terminal blocked end of nasolacrimal duct
- b) Connecting the lacrimal sac to nose by breaking the medial wall
- c) Complete excision of lacrimal
- d) Insertion of drainage tube in the lacrimal sac

Correct Answer - B

Ans. is 'b' i.e., Connecting the lacrimal sac to nose by breaking the medial wall

- Dacryocystorhinostomy is the surgical procedure which involves removal of bone adjacent to lacrimal sac (medial wall) and incorporating the lacrimal sac with lateral nasal mucosa (at middle meatus) in order to bypass the obstruction in nasolacrimal duct.
- Advantage of dacryocystorhinostomy over dacryocystectomy is that there is no epiphora or watering of eyes postoperatively.
- Indications of dacryocystorhinostomy are :-
 1. Congenital or acquired nasolacrimal duct obstruction.
 2. Functional obstruction to lacrimal outflow (e.g. lacrimal pump weakness) or facial nerve palsy.
 3. History of dacryocystitis
- Dacryocystorhinostomy can be done either open (external) approach or endonasal (endoscopic) approach.

168. Copper deposition in cornea leads to?

a) Keratoconus

b) Keratoglobus

c) KF ring

d) Siderosis

Correct Answer - C

Ans. is 'c' i.e., KF ring

Retention of Foreign bodies

- The retention of a foreign body adds considerably to the danger of a penetrating injury.
- The foreign bodies most likely to penetrate and be retained in the eye are minute chips of iron or steel (accounting for 90% of the foreign bodies in industry), stone, and particles of glass, lead pellets, copper percussion caps and less frequently, spicules of wood.
- In chipping stone with an iron chisel, it is commonly a chip of the chisel and not of the stone which enters the eye.
- Chalcosis is perforating injury to eye with metal containing copper (Cu). Copper deposition can lead to :?
 - .. Grayish-green/golden brown discoloration of peripheral cornea called Kayser-Fleisher ring.
 - 2. Sunflower (Petal of flower) cataract due to deposition of copper under the posterior capsule of the lens.
 - 3. Golden plaque at posterior pole of the retina.
- Siderosis is caused by an iron foreign body. Iron deposition can cause :?
 - .. Characteristic and earliest manifestation is rusty deposits of iron in a ring shaped manner on anterior surface of capsule of the lens. Later cataract develops.

2. Initially iris is stained greenish and later become reddish-brown ---> Heterochromia iridis.
3. Pigmentary degeneration of retina.
4. Secondary open angle glaucoma.

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169. Habbs striae are seen in ?

a) Buphthalmos

b) Keratoglobus

c) Trachoma

d) Keratoconus

Correct Answer - A

Ans. is 'a' i.e., Buphthalmos

Examination findings of primary congenital glaucoma (buphthalmos)

- First sign is corneal edema with watering of eye with marked photophobia
- Haab striae (Discrete corneal opacities appear as lines with double contour due to rupture in Descemet's membrane)
- Cornea is hazy with frosted glass appearance.
- Corneal enlargement
- Thin & blue sclera
- Deep anterior chamber
- Lens is antero-posteriorly flat and may be subluxated backward
- Iridodonesis (tremulous iris) and atrophic patch on iris
- Large eye (Buphthalmos or hydrophthalmos)
- Variable cupping and atrophy of disc
- Raised IOP (neither acute nor marked)
- Axial myopia due to increased axial length which may give rise to anisometropic amblyopia

170. Krukenberg spindles -

- a) Involves anterior surface of cornea
- b) Involves anterior lens surface
- c) Involves posterior surface of cornea
- d) Involves posterior surface of lens

Correct Answer - C

Ans. is 'c' i.e., Involves posterior surface off cornea

Pigmentot-v glaucoma

- It is a type of secondary open angle glaucoma where in clogging up of trabecular meshwork occurs by the pigment particles.
- The condition typically occurs in young myopic males.
- The characteristic feature is the deposition of pigment granules in the anterior segment structures such as iris, posterior surface of the cornea (Krukenberg's spindle), trabecular meshwork, ciliary zonul es and the crystalline lens.
- Gonioscopy shows pigment accumulation along the schwalbe's line especially inferiorly (Sampalesi's line).
- Iris transillumination shows radial slit-like transillumination defects in the mid periphery (pathognomonic feature).
- Treatment is as for primary open angle glaucoma

171. Eye of a newborn is ?

a) Emmetropic

b) Hypermetropic

c) Myopic

d) Astigmatism

Correct Answer - B

Ans. is 'b' i.e., Hypermetropic

Eye at birth

- Anteroposterior diameter of eye ball is about 16.5 mm (70% of adult size). Adult size is attained by 7-8 years.
- Corneal diameter is about 10 mm. Adult size (11.7 mm) is attained by 2 years of age.
- Anterior chamber is shallow and angle is narrow.
- Lens is spherical at birth.
- Retina : - Apart from macular area, the retina is fully differentiated. Macula differentiates 4-6 months after birth.
- Myelination of optic nerve fibres has reached the lamina cribrosa.
- New born is usually hypermetropic by +2 to +3D.
- Orbit is more divergent (50°) as compared to adult (45°).
- Lacrimal gland is still underdeveloped and tears are not secreted.

172. Causes of exudative retinal detachment are all except-

- a) Toxemia of pregnancy
- b) Scleritis
- c) High myopia
- d) Central serous retinopathy

Correct Answer - C

Ans. is 'c' i.e., High myopia

Cause: retinal detachment

.. Rheumatogenous

- High myopia, Cataract extraction (Aphakia, pseudophakia), Trauma, Retinal degeneration (1 l ice degeneration, snail track degeneration, retinoschisis).

Exudative

.. Systemic disease Toxaemia of pregnancy, renal hypertension, blood dyscrasias & polyarteritis nodosa.

.. Ocular disease

- Inflammation : Harada's disease, sympathetic ophthalmitis, posterior scleritis & orbital cellulitis q Vascular : Central serous retinopathy, exudative retinopathy of coats
- Neoplasm : Malignant melanoma of choroid, retinoblastoma (exophytic type)
- Sudden hypotony : perforation of globe, intraocular operation
- .. Other causes : Uveal effusion syndrome, choroidal neovascularisation, haemangioma & metastatic tumour of choroid.

Tractional

- Penetrating injury, Proliferative diabetic retinopathy, sickle cell retinopathy, Retinopathy of prematurity, CRVO, Eale's disease, post-

hemorrhagic retinitis proliferan - Toxoc iasis, plastic cyclitis

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173.

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Commotio retinae affects which part of retina

-

a) Posterior pole

b) Peripheral retina

c) Inferior-nasal part

d) Superior-nasal part

Correct Answer - A

Ans. is 'a' i.e., Posterior pole

- Berlin's oedema, also called commotio retinae, occurs in blunt trauma to eye.
- It manifests as milky white cloudiness involving a considerable area of the posterior pole with a 'cherry-red' spot in the foveal region.
- It may disappear after some days or may be followed by pigmentary changes.

174. Standard in perimetry ?

a) Goldman type I

b) Goldman type II

c) Goldman type III

d) Goldman type IV

Correct Answer - C

Ans. is 'c' i.e., Goldman type III

- Projected stimuli in perimetry are usually white and of variable size and intensity.
- There are five different sizes on Goldmann scale designated by Roman numeral I to V.
- *The standard used in both manual and automated perimetry is Goldman III (0.05" and area of 4mm²). o Failure to recognize target size III necessitates testing with stimulus V*

Goldman scale Stimulus size (mm²)

I	1/4
II	1
III	4
IV	16
V	64

175. Treatment of congenital ptosis with poor elevation is

a) Levator resection

b) Frontalis sling

c) FS operation

d) None of the

Correct Answer - B

Ans. is 'b' i.e., Frontalis sling

Surgeries for ptosis

- Depending upon the LPS action, three main types of techniques are available.
- 1. If levator action is good :- LPS is shortened, i.e., resection of LPS. The operations are Blaskovics operation, Everbusch operation and Fasanella - servat operation. Fasanella - servat operation is indicated in Homer syndrome.
- 2. If LPS is paralysed Superior rectus muscle is used to lift the lid. The operation is called Mott's operation.
- 3. If both LPS and superior rectus are paralysed Frontalis sling/suspension operation (Hess's operation) is done. It is indicated in Marcus Gunn jaw winking syndrome, blepharophimosis syndrome, total 3rd nerve palsy, Aberrant regeneration of V^d nerve.

176. Dacrocystorhinostomy, where the duct is opened?

- a) Superior meatus
- b) Inferior meatus
- c) Middle meatus
- d) Sphenoethmoidal recess

Correct Answer - C

Ans. is 'None > c' i.e., Middle meatus

- CMV retinitis is the most common ophthalmic manifestation of CMV, occurring as a congenital infection in infants or an opportunistic infection in the immunocompromised host.
- Adults commonly affected include those individuals with acquired immunodeficiency syndrome (AIDS), oncology patients, and patients on immunosuppressive therapy.
- There is characteristic hemorrhagic, full thickness retinitis.
- In early stage there are yellow-white exudates (areas of retinal necrosis) associated with areas of vasculitis and retinal hemorrhage.
- There may be exudative retinal detachment and ultimately, there occurs total retinal atrophy.
- There are three distinct variants of CMV retinitis :?
 1. Classical (fulminant) retinitis
- It is necrotic retinitis
- Large areas of retinal hemorrhage along a whitened, edematous or necrotic retina, usually in posterior pole in the distribution of nerve fiber layer along the vascular arcades.
- It is also known as "Pizza-Pic retinopathy" or "cottage cheese with catchup".
 2. Granular (indolent) retinitis

- Without edema, hemorrhage or vascular sheathing, progressing along active border of retinal periphery.
- 3. Perivascular retinitis
- Frosted branch angitis with retinal perivasculitis.
- .. Another finding in CMV retinitis is a white granular geographic lesion that clears centrally as it enlarges, leaving a quiet central area of retinal atrophy and mottled pigment epithelium. This has also been described as "brush-fire" pattern.
- 2. It should be remembered that vitreous hemorrhage, though, is not common in CMV retinitis, it may occur after initiation of treatment of AIDS (HAART).
- 3. In routine course there is no vitreous hemorrhage or vitritis due to immunocompromised state of these patients. But, once the treatment of AIDS is started, their immune status may improve, and capable of producing inflammation. Which may cause vitritis and vitreous hemorrhage.

177. Blow out fracture of orbit leads to fracture in

a) Floor

b) Posterior Medial wall

c) Lateral wall

d) Roof of the orbit

Correct Answer - B

Ans:B

1. A blow out fracture of the orbital floor is typically caused by a sudden increase in orbital pressure by a striking object which is greater than 5 cm in diameter, greater than the orbital sinus diameter such as a fist or tennis ball.
2. The fracture most frequently involves the floor of the orbit along the thin bone covering the infra orbital canal.
3. The floor consists of three bones: Zygomatic, Maxillary and Palatine.
4. **The posteromedial portion of the maxillary bone is relatively weak and may be involved in a 'blowout' fracture.**
5. **Fracture of the Roof of the orbit known as 'blow in' fractures.**
6. Most medial wall orbital fractures are associated with floor fracture

178. Most common symptom in buphthalmos is?

a) Lacrimation

b) Pain

c) Photophobia

d) Itching

Correct Answer - A

Ans. is 'a' i.e., Lacrimation

The commonest symptom is watering"

In Buphthalmos

- Most common symptom → Watering (lacrimation)
- 2nd most common symptom → Photophobia
- Most troublesome symptom → Photophobia (Child avoids light) o
- First sign → Corneal edema with watering
- Frosted glass appearance of the cornea (hazy cornea)
- Haab striae
- Large cornea
- Deep anterior chamber
- Lens anteroposteriorly flat

179. Normal vision with absence of direct & consensual light reflex, which nerve is involved ?

a) Optic

b) Oculomotor

c) Trigeminal

d) Abducens

Correct Answer - B

Ans. is 'b' i.e., Oculomotor

This question can be solved by simple basic knowledge :-

Among the given options only optic nerve and oculomotor nerves are related to light reflex'

a) In optic nerve injury vision is also impaired (vision is normal in the question)'

n Thus answer is oculomotor nerve

- When light is shone to one (e.g. left) eye. left optic nerve carries afferent impulse to brain and from brain efferent
- impulse to ipsilateral (left) eye comes through ipsilateral (left) oculomotor nerve (for direct light reflex) and efferent
- for contralateral (right) eye comes through contralateral (right) oculomotor nerve for consensual light reflex' When
- light is shone to other (right) eye, right optic nerve carries afferent impulse to brain and from brain, efferent impulse to
- right eye (for direct light reflex) comes through right oculomotor nerve and efferent for left eye (for consensual light reflex) comes through left oculomotor nerve' So :-
- Optic nerve is responsible for direct light reflex in ipsilateral eye and

- consensual light reflex for contralateral eye. (In above example, afferent for right sided direct and left sided consensual light reflex is through right optic nerve; and afferent for left sided direct and right sided consensual light reflex is through left optic nerve)
- Oculomotor nerve is responsible for direct and consensual light reflex in the same eye' (In above example'
- efferent for right sided direct as well as consensual light reflex is through right oculomotor nerve and efferent for
- left sided direct as well as consensual light reflex is through left oculomotor nerve)

In complete optic nerve lesion of one side (Anisocoria light reflex or total afferent pupillary defect)

The ipsilateral direct reflex is lost

The ipsilateral consensual reflex is intact

The contralateral direct reflex is intact

The contralateral consensual reflex is lost

In oculomotor nerve lesion of one side (efferent pupillary defect)

The ipsilateral direct reflex is lost

The ipsilateral consensual reflex is lost

The contralateral direct reflex is intact

The contralateral consensual reflex is intact

180. The most common cause of vitreous hemorrhage in adults is

a) Retinal hole

b) Trauma

c) Hypertension

d) Diabetes

Correct Answer - D

Ans. is 'd' i.e., Diabetes

Diabetic retinopathy is the commonest cause of spontaneous vitreous hemorrhage in adults". — Parson's

"Most common cause of vitreous hemorrhage is diabetic retinopathy in adults". — Atlas of ophthalmology

Causes of vitreous hemorrhage

Posterior vitreous detachment

Coat's disease

Retinal tear (break) due to trauma

Hypertensive retinopathy,
or vitreous traction.

Proliferative diabetic retinopathy
periphlebitis or uveitis

Branched retinal vein occlusion
(Polycythemia, anemia, SCA)

Age- related macular degeneration

Retinal macroaneurysm

Eale's disease &

Vascular disorders :-

CRVO

Acute chorioretinitis,

Bleeding disorders

Neoplasm

Treson syndrome

181. Slit lamp examination helps in examination of?

a) Anterior 2/3rd of choroid

b) Anterior 1/3rd of choroid

c) Posterior 1/3rd of choroid

d) Posterior capsule

Correct Answer - D

Ans. is 'd' i.e., Posterior capsule

Slit-lamp biomicroscopy is very useful in the diagnosis of eye diseases.

- o It should routinely be performed in almost all diseases of the eye.
- o Following structures are examined ?
 1. Eyelids and lashes
 2. Conjunctiva
 3. Cornea
 4. Anterior chamber
 5. Iris
 6. Lens : Anterior capsule, cortex, nucleus, posterior capsular
 7. Anterior vitreous

182. Retinal detachment occurs between

- a) Layers of neurosensory retina
- b) Neurosensory retina and pigment epithelium
- c) Pigment epithelium and choroid
- d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Neurosensory retina and pigment epithelium

- Retina has total ten layers from with out inward :- (i) Pigmented epithelium, (ii) Layers of Rods & cones, (iii) External limiting membrane, (iv) Outer nuclear layer, (v) Outer plexiform layers, (vi) Inner nuclear layer, (vii) Inner plexiform layer, (viii) Ganglionic cell layer, (ix) Nerve fibre layer, (x) Internal limiting membrane
- Broadly these layers are subdivided into two layers based on the function :?
- Neurosensory layer or sensory layer (containing layers ii to x of above 10 layers) :- for vision.
- **Pigmented epithelium (layer i) :-** Provide metabolic support to neurosensory layer and acts as an antireflective layer.
- So, inner layers are included in neurosensory layer and outer most layer is retinal pigmented epithelium(RPE).
- Retinal detachment is a disorder of eye in which retina peels away from its underlying layer of support tissue. Usually
- there is separation between the neuroepithelium (neurosensory epithelium or sensory epithelium) and the pigmented
- layer, because there is a potential space between these two layers where fluid can accumulates and can cause separation.

183. Ocular bobbing?

a) Midbrain

b) Pons

c) Medulla

d) Cortex

Correct Answer - B

Ans. is 'b' i.e., Pons

Square-wave jerks

Not localizing

Macro square-wave jerks

Cerebellum

Macrosaccadic oscillation

Cerebellum

Voluntary nystagmus

Volitional

Saccadic pulses

Cerebellum, lower brainstem

Ocular flutter

Cerebellum, lower brainstem

Opsoclonus

Cerebellum, lower brainstem

Ocular bobbing

Pons

184. Bilateral inferior lens subluxation is seen in?

a) Marfan syndrome

b) Homocysteinuria

c) Ocular trauma

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Homocysteinuria

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185. Retinitis pigmentosa is characterized by ?

a) Central scotoma

b) Centrocaecal scotoma

c) Tubular vision

d) Isopteric contraction

Correct Answer - C

Ans. is 'c' i.e., Tubular vision

Important facts

- Earliest visual field defect in primary open angle glaucoma → Isopeteric contraction.
- Earliest clinically significant visual field defect in primary open angle glaucoma → Paracentral scotoma,
- Visual field defect in rheumatogenous retinal detachment → Loss of peripheral field.
- Visual field defect in retinitis pigmentosa → Tubular vision.
- Most common visual field defect in optic neuritis → Central or centrocaecal.
- Visual field defect in papilloedema → Enlargement of blind spot and progressive contraction of visual field.
- Visual field defect in Leber's optic neuropathy → Centmcaecal.
- Characteristic visual field defect in anterior ischemic optic neuropathy → Altitudinal visual field defects.

186. Scissor reflex is seen in ?

- a) Open angle glaucoma
- b) Phlyctenular conjunctivitis
- c) Keratoconus
- d) Interstitial keratitis

Correct Answer - C

Ans. is 'c' i.e., Keratoconus

- Keratoconus is a progressive, noninflammatory, bilateral ectatic corneal disease, characterized by paraxial stromal thinning and weakening that leads to corneal surface distortion.
- Essential pathological changes are thinning and ectasia which occur as a result of defective synthesis of mucopolysaccharide and collagen tissue.
- It usually starts at puberty and progresses slowly.
- Symptoms usually begin as blurred vision with shadowing around images.
- Vision becomes progressively more blurred and distorted with associated glare, halos around lights, light sensitivity and ocular irritation.
- Visual loss occurs primarily from irregular astigmatism and myopia, and secondarily from corneal scarring.
- The hallmark of keratoconus is central or paracentral stromal thinning, apical protrusion of anterior cornea and irregular astigmatism.
- The cornea thins near the centre and progressively bulges forwards, with the apex of cone always being slightly below the centre of the cornea.
- Important findings on examination are -

- 1. Distorted window reflex (Corneal reflex)Q.
- 2. Fleisher's ring.
- 3. Yawning reflex (Scissor reflex).
- 4. Oil drop reflex.
- 5. Munson's signs

Treatment includes :?

- 1. Spectacles for regular or mild irregular astigmatism.
- 2. Rigid gas permeable contact lens for higher astigmatism.
- 3. Epikeratoplasty in patients intolerant to lens and without significant corneal scarring.
- 4. Keratoplasty penetrating or deep lamellar if there is significant corneal scarring.

187. Which are first order neuron in optic pathway?

a) Bipolar cells

b) Ganglionic cells

c) Cells of lateral geniculate body

d) Astrocytes

Correct Answer - A

Ans. is 'a' i.e., Bipolar cells

In visual pathway

Sensory organs → Photoreceptors (Rods & cones)

Neurons of first order → 3 Axon of bipolar cells (in Retina)

Neurons of second order → Axons of ganglionic cell (Retina i.e., Optic disc, Optic nerve, Optic chiasma, optic tracts)

Neurons of third order → Axons from nerve cells in lateral geniculate body (optic adiation)

188. True about electroretinogram ?

- a) 'a' wave is positive wave
- b) 'a' wave arises from pigmented epithelium
- c) 'b' wave arises from rods and cones
- d) 'c' wave is positive wave

Correct Answer - D

Ans. is 'd' i.e., 'c' wave is positive wave

Electroretinogram

- The changes induced by the stimulation of light in the resting potential of the eye are measured by electroretinography. It is extinguished or absent in complete failure of function of rods and cones, e.g. pigmentary retinal dystrophy, complete occlusion of retinal artery, complete retinal detachment, advanced siderosis etc.
- 1. Negative 'a' wave represent the activity in rods and cones.
- 2. Positive 'b' wave arises in inner retinal layers.
- 3. Positive 'c' wave is associated with the pigmentary epithelium.

Uses :?

- 1. Diagnosis and prognosis of retinal disorders such as retinitis pigmentosa, Leber's congenital amaurosis, retinal ischaemia and other chorioretinal degenerations.
- 2. To assess retinal function when fundus examination is not possible, e.g. in the presence of dense cataract and corneal opacity.
- 3. To assess the retinal function of the babies where possibilities of impaired vision is considered.

189. Specific for albinism

a) Red reflex

b) Decreased visual activity

c) Photophobia

d) Nystagmus

Correct Answer - A

Ans. is 'a' i.e., Red reflex

- All the given options are seen in albinism. But, red reflex is specific.
- Ocular features in albinism -
 - a Red reflex
 - Pink or blue iris
 - Dazzling glare
 - Photophobia
 - Decreased vision
 - Nystagmus
 - Clear retinal and choroidal vessels, separated by glistening white space
 - Strabismus (mild to moderate)

190. All are parts of anterior segment of eye except?

a) Lens

b) Cornea

c) Vitreous

d) None

Correct Answer - C

Ans. is 'c' i.e., Vitreous

The eyeball is divided into two segments : ?

Anterior segment

1. Part of eyeball anterior to posterior border of lens is called anterior segment.
2. It consists of lens, and structures anterior to it, i.e., cornea, iris and two aqueous humor-filled spaces, i.e., anterior and posterior chambers.
3. Anterior chambers : - It is bounded anteriorly by back of cornea and posteriorly by the iris & part of ciliary body. It contains aqueous humor.
4. Posterior chamber : - This triangular chamber is bounded anteriorly by the posterior surface of the iris & ciliary body and posteriorly by the lens and its zonules. It also contains aqueous humor.
5. Thus, both anterior and posterior chambers are part of anterior segment and both contain aqueous humor.

Posterior segment

1. Part of eye ball posterior to lens is called posterior segment.
2. It consists of vitreous humor, retina, choroid and optic disc.

191. Attachement of Vitreous is Strongest at

- a) Foveal region
- b) Back of lens
- c) Across ora serrata
- d) Margin of optic disc

Correct Answer - C

Ans. is 'c' i.e., Across ora serrata

Attachement of vitreous

- Vitreous is attached anteriorly to the lens (Hyloid capsular ligament of Wieger) and ciliary epithelium in front of the ora serrata.
- The part of vitreous about 4 mm across the ora serrata is known as the "base of vitreous" where the attachment is strongest
- Posteriorly vitreous is attached to the edge of the optic disc and macula lutea (foveal region) forming ring-shaped structure around them

192. Umbrella configuration on fluorescein angiography is seen in ?

- a) Retinitis pigmentosa
- b) Rheumatoid retinal detachment
- c) Central serous retinopathy
- d) Eale's disease

Correct Answer - C

Ans. is 'c' i.e., Central serous retinopathy

Central serous retinopathy

- Central serous retinopathy is caused by an accumulation of transparent fluid at the posterior pole especially at macula causing a circumscribed area retinal detachment in the macular region.
- There is detachment of neurosensory retina (layers of rods and cones) with or without retinal pigment epithelium detachment.
- The condition affects males between 20-40 years of age.
- Patient presents with a sudden onset of painless loss of vision associated with relative positive scotoma, micropsia and metamorphosia.
- Ophthalmoscopic findings include mild elevation of macular area demarcated by a circular ring reflex and foveal reflex is distorted or absent.
- The diagnosis is confirmed by fluorescein angiography. It shows focal leakage of fluorescein in following two patterns : ?

Ink-blot pattern or enlarging dot sign :- A small hyperfluorescent spot which gradually increases in size.

Smoke-stack pattern :- Small hyperfluorescent spot which ascends vertically like a smoke stack and gradually spreads laterally to take a mushroom or umbrella configuration

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193. Epithelial xerosis of conjunctiva is caused by ?

a) Trachoma

b) Diphtheria

c) Xerophthalmia

d) Pemphigus

Correct Answer - C

Ans. is 'c' i.e., Xerophthalmia

Xerosis of conjunctiva

- refers to a condition where the conjunctiva becomes dry and lusterless. Depending upon the etiology, conjunctival xerosis can be divided into two groups : ?

Parenchymatous xerosis : - It occurs following cicatricial disorganization of conjunctiva due to local causes which can be : ?

1. Trachoma
2. Diphtheric membranous conjunctivitis
3. Stevens - Johnson syndrome
4. Pemphigus
5. Thermal, chemical or radiational burn
6. Lagophthalmos due to symblepharon.

Epithelial xerosis : - It occurs due to vitamin 'A' deficiency (Xerophthalmia).

194. Cicatrising trachoma is seen in ?

a) Stage-1

b) Stage-2

c) Stage-3

d) Stage-4

Correct Answer - C

Ans. is 'c' i.e., Stage-3

- McCa Ian's classification-McCallan in 1908 divided the clinical course of trachoma into 4 stages

Stage 1

(Incipient trachoma)
Hyperaemia of palpebral

Immature follicle

Mild superficial punctate keratopathy

Stage 2
(Established tracoma)

Appearance of mature follicle & conjunctiva papillae

Progressive corneal pannus

Stage 3
(Cicatrising trachoma)

Scarring of palpebralconjunctiva

Scars are easily visibleas white bands Necrosis

Stage 4 (Healed trachoma)

Disease is cured or is not markable

Sequelae to cicatrisationcause symptoms

- Stage 2 is further subdivided into :-
- 2a (Ha) :- Presence of mature follicles
- b (Hb) :- Marked papillary hyperplasia

195. Non-sterile hypopyon is seen in ?

a) Pneumococcus infection

b) Pseudomonas infection

c) Fungal infection

d) Gonococcal infection

Correct Answer - C

Ans. is 'c' i.e., Fungal infection

- Hypopyon refers to accumulation of polymorphonuclear leucocytes in the lower angle of anterior chamber. Many
- pyogenic organisms (Staphylococcus, streptococci, gonococci, Moraxella) and fungi may produce hypopyon but
- by far the most dangerous are pseudomonas pyogenea and pneumococcus.
- Thus, any corneal ulcer may be associated with hypopyon, however, it is customary to reserve the term 'hypopyon
- corneal ulcer' for the characteristic ulcer caused by pneumococcus and the term 'corneal ulcer with hypopyon' for
- the ulcers associated with hypopyon due to other causes. The characteristic hypopyon corneal ulcer caused by
- pneumococcus is called "ulcus serpens" .
- It is worth noting that the hypopyon in bacterial causes is sterile since the outpouring of polymorphonuclear cells is due to toxin and not due to actual invasion by bacteria. On the other hand, hypopyon in fungal (mycotic) corneal ulcer is non-sterile as there is direct invasion by fungi.

196. Normal level of visual acuity is attained at which age

a) 6 months

b) 1 year

c) 3 years

d) 6 years

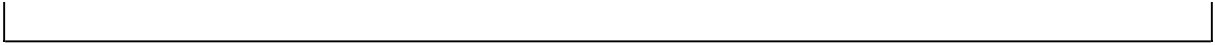
Correct Answer - C

Ans. is 'c' i.e., 3 years [Ref Khurana 4th

Eye in postnatal period

- Fixation starts developing by 4-6 weeks. **Critical period for development of fixation reflex is 2-4 months.** Development of fixation is completed by 6 months. So there are three points to remember : ?
- *Fixation starts developing 4-6 weeks (1-11/2 months).*
Critical period for development → 2-4 months.
- .. *Fixation development is completed → 6 months.*
- 2. *Macula is fully developed by 4-6 months.*
- 3. *Fusional reflex, stereopsis and accommodation is well developed by 4-6 months.*
Cornea attains normal adult diameter by 2 years of age.
- *Lens grows throughout life.*
- *Full visual acuity (6/6) is attained by 3 years of age.*

Age	Visual acuity
New born	6 / 240
1 month	6/180 - 6/90
4-6 months	6/18 - 6 /9
3 Years	6 / 6



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197. Duane syndrome involves?

a) Superior oblique

b) Inferior oblique

c) Lateral rectus

d) Superior rectus

Correct Answer - C

Ans. is 'c' i.e., Lateral rectus

- retraction syndrome represents the most frequent and most prominent congenital cranial dysinnervation disorder (CCDD).
- It is due to fibrosis of the lateral rectus or an innervational anomaly with Co-contraction of the lateral and medial recti.
- There is deficiency of abduction, associated with impaired adduction, contraction of palpebral fissure and oblique movements of the eye.

198. Birdshot retinopathy is characterized by all except?

a) Common in females

b) Unilateral

c) HLA-A29 positive

d) Creamy yellow spots

Correct Answer - B

Ans. is 'b' i.e., Unilateral

Bird-shot retinochoroidopathy

- It is a rare, idiopathic, bilaterally symmetrical chronic multifocal chorioretinitis characterised by numerous flat
- creamy-yellow spots due to focal chorioretinal hypopigmentation, resembling the pattern of "bird-shot scatter from a shotgun".
- The disease, more common in females than males, typically affects middle-aged healthy persons who are positive for HLA-A29.
- It runs a long chronic course of several years.
- Treatment with corticosteroids is usually not effective

199. Treatment of choice for anisoeikonia ?

a) Orthoptic exercise

b) Spectacles

c) Surgery

d) Contact lens

Correct Answer - D

Ans. is 'd' i.e., Contact lens

Anisoeikonia

- Anisoeikonia is defined as a condition wherein the images projected on the visual cortex from the two retinae are abnormally unequal in size or shape. Causes may be

Optical aniseikonia : - When the difference between refractive error of two eyes is of high degree, the image of an object may be of different size or shape in two eyes. So the defect is at refractive structures level.

Retinal aniseikonia : - Defect is at retinal level and occurs due to displacement of retinal elements towards the nodal point in one eye due to stretching or edema of the retina.

Cortical aniseikonia : - Defect is at higher central level. There is asymmetrical simultaneous perception inspite of equal size of images formed on the two retinae.

Up to 5 percent aniseikonia is well tolerated. For high degree of aniseikonia, treatment of choice is contact lenses.

200. Maximum correction of myopia can be done by ?

a) Radial keratotomy

b) LASIK

c) Photorefractive keratotomy

d) Orthokeratology

Correct Answer - B

Ans. is 'b' i.e., LASIK

- Amongst the given options, maximum correction can be achieved by LASIK.

Surgical ocedure

Myopia orrection

Radial keratotomy

-2 to -6 D

Photorefractive keratotomy

-2 to -6 D

LASIK

Upto -12D

Extraction of lens

-16 to -18 D

Phakic IOL

> -12 D

Interconaeal ring (ICR)

1-6 D

Orthokeratology

upto - 5D

201. Marcus Gunn pupil is due to ?

- a) Total afferent pupillary defect
- b) Relative afferent pupillary defect
- c) Efferent pathway defect
- d) Cerebral lesion

Correct Answer - B

Ans. is 'b' i.e., Relative afferent pupillary defect

Marcus Gunn pupil

- Marcus Gunn pupil is seen in relative afferent pathway defect (RAPD)
- An incomplete optic nerve lesion or retinal disease cause it (in contrast to amaurotic light reflex, where there is total afferent pathway defect). It is best tested by swinging flash light test.
- To perform this test, a bright flash light is shone to one pupil and constriction of that pupil is noted.
- Then the flashlight is quickly moved to the contralateral pupil and the response in that pupil is noted.
- This swinging to and fro of the flashlight is repeated several times while the pupillary response is observed.
- Normally, both pupils constrict equally and the pupil to whom light is transferred remains tightly constricted.
- In the presence of relative afferent pupillary defect in one eye, both the pupil will dilate when the flash light
- is moved from the normal to the abnormal eye.
- This is a paradoxical response.
- This is called Marcus Gunn pupil and is the earliest indicator of optic nerve disease even in the presence of a normal visual acuity.
- Relative afferent pupillary defect (RAPD) or Marcus Gunn pupil is a

reliable and objective sign of unilateral or asymmetric disease or any lesion in afferent papillary pathway, i.e., retina, optic nerve, optic chiasma, optic tract or midbrain (pretectal nucleus).

- However, RAPD is most characteristic of lesions in the optic nerve.

202. Distance of medial rectus from limbus -

a) 4.5 mm

b) 5.5 mm

c) 7.0 mm

d) 10 mm

Correct Answer - B

Ans. is 'b' i.e., 5.5 mm

Muscle	Distance of insertion from limbus
Medial rectus	5.5 mm
Inferior ectus	6.5 mm
Lateral rectus	6.9 mm
Superior ectus	7.7 mm

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203. All nerve are involved in superior orbital fissuresyndrome except ?

a) 1^t

b) 3rd

c) 4th

d) 6th

Correct Answer - A

Ans. is'a' i.e., 1st

Superior orbital fissure syndrome

- The superior orbital fissure is a cleft between the lesser and greater wing of sphenoid.
- The structures passed through superior orbital fissure are 3rd, 4th, 6th nerve, ophthalmic division of 5th nerve, superior & inferior division of ophthalmic vein and sympathetic fibres.
- Therefore symptoms of superior orbital fissure syndrome are same as in cavernous sinus thrombosis, i.e., painful ophthalmoplegia :-
- Pain (retro-orbital pain) and sensory disturbances in the V₁(ophthalmic division of 5th nerve)distribution
- Ipsilateral ophthalmoplegia (3rd, 4th and 6th nerve involvement).

204. Posterior lenticonus is seen in ?

a) Alport's syndrome

b) Lowe's syndrome

c) Marfan syndrome

d) Homocystinuria

Correct Answer - B

Ans. is 'b' i.e., Lowe's syndrome

- Lenticonus refers to cone-shaped elevation of the anterior pole (anterior lenticonus) or posterior pole (posterior lenticonus) of the lens.
- Anterior lenticonus is seen in Alport's syndrome.
- Posterior lenticonus is seen in Lowe's syndrome.
- On distant direct ophthalmoscopy, lenticonus present as an oil globule lying in the center of red reflex.
- Slit-lamp examination confirms the diagnosis.

205. Thickest portion of sclera is ?

a) Anterior to rectus muscle insertion

b) Posterior to rectus muscle insertion

c) Posterior pole

d) Limbus

Correct Answer - C

Ans. is 'c' i.e., Posterior pole

o The thickness of the sclera varies according to location : ?

- At the limbus, the sclera is 0.8 mm thick.
- Anterior to the rectus muscle insertions, it is 0.6 mm thick.
- Posterior to the rectus muscle insertions, it is 0.3 mm thick (Thinnest portion).
- At the equator, it is 0.5 to 0.8 mm thick.
- At the posterior pole, it is greatest than 1 mm thick.

206. Reis-Buckler dystrophy affects which layer of cornea

- a) Epithelium
- b) Stroma
- c) Bowman's membrane
- d) Endothelium

Correct Answer - C
Ans. is 'c' i.e., Bowman's membrane

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207. Down-beat nystagmus is seen in lesion of ?

a) Brainstem

b) Cerebellum

c) Basal ganglia

d) Hippocampus

Correct Answer - B

Ans. is 'b' i.e., Cerebellum

- Central vestibular nystagmus may be of following types ?

Up-beat nystagmus

In primary position of gaze, the fast component is upward.

It is seen in lesions of central tegmentum of brain-stem.

Down-beat nystagmus

In primary position of gaze, the fast component is downward.

It is usually associated with posterior fossa disease and is typical of compression at the level of foramen magnum.

It is a common feature of cerebellar lesions and Arnold-chiary syndrome.

Periodic alternative nystagms

It is a jerk nystagmus which shows fluctuations in amplitude and direction.

It may occur due to vascular or demyelinating vascular or brainstem-cerebellar lesions.

208. Von Herick angle grade '3' of anterior chamber denotes

- a) Wide open angle
- b) Moderately open angle
- c) Moderately narrow angle
- d) Closed angle

Correct Answer - B

Ans. is 'b' i.e., Moderately open angle

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209. Foldable lens is made up of?

a) PMMA

b) Silicon

c) Hydrogel

d) None

Correct Answer - B

Ans. is 'b' i.e., Silicon

Depending on the material of manufacturing, following types of IOLs are there :-

- **Rigid IOLs :-** Made entirely from polymethyl methacrylate (PMMA).
- **Foldable IOLs :-** Are used after phacoemulsification and are made of silicon, acrylic, hydrogel and collamer.
- **Rollable IOLs :-** Ultra thin IOLs and are used after phakemix technique (micro- incision : 1mm). These are made of hydrogel.

210. Arcuate field defect akin to glaucoma is seen in?

a) Pituitary tumor

b) Occipital lobe infarct

c) Optic nerve lesion

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Optic nerve lesion

- An arcuate visual field defect usually results from damage to retinal nerve fibers or ganglion cells in the superior or inferior arcuate nerve fiber bundles.
- In such cases there is a central field defect that is not circular but instead is limited above or below by the horizontal meridian.
- This visual field defect may occur in patients with occlusion of blood supply of the superior or inferior portion of macula or in patients with glaucoma.
- In both settings, the scotoma is associated with normal visual acuity, since it does not completely affect the macula.
- Virtually any lesion, whether ischemic, infiltrative or compressive, can cause arcuate field defect, and may be located in either the retina or optic nerve.

Important causes of arcuate scotoma are :-

1. Glaucoma
2. Optic neuritis
3. Anterior ischemic optic neuropathy (AION)
4. Branch retinal vascular occlusion (artery or vein)
5. Optic nerve drusen

211. Thinnest portion of sclera ?

a) Anterior to rectus muscle insertion

b) Posterior to rectus muscle insertion

c) Posterior pole

d) Limbus

Correct Answer - B

Ans. is.b, Posterior to rectus muscle insertion

- Thinnest portion of sclera → Posterior to insertions of rectus muscle.
- Thickest portion of sclera → Posterior pole.

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212. During retinoscopy of a 30 years old male, which cycloplegic is used routinely

- a) Atropine 1% ointment
- b) Cyclopentolate 1% drop
- c) Homatropine 2% drop
- d) None of the above

Correct Answer - D

Ans. is 'd' i.e., None of the above

- There is no need for cycloplegia as a routine in adults (20-40 years).
Cycloplegic in retinoscopy
- Cycloplegics are drugs which cause paralysis of ciliary muscles (accommodation) and dilatation of pupil. The use of cycloplegics is useful in refraction and there are certain situations where they are indicated.
- Because of their strong accommodative reserve, very young people (< 16 years) should always be refracted after
the use of cycloplegics : -
 - .. < 5 years of age : - Atropine 1% ointment is the drug of choice.
 - .. 15 - 20 years : - Homatropine (2% drop), cyclopentolate (1% drop) or tropicamide (5%, 10% drop) are used. Atropine must be used if the patient has a convergent squint or has high hypermetropia.
- There is no need for cycloplegia as a routine in adults (20-40 years). However cycloplegics are indicated in following situations : -
Accommodation is abnormally active (e.g., spasm of accommodation).
- .. Objective findings by retinoscopy do not agree with the patient's

- subjective requirement.
2. Symptoms of accommodative asthenopia are present.
 3. If the pupil is small.
 - If the patient is above 40 years, cycloplegia is rarely necessary. Only mydriatic (10% phenylephrine) may be needed when the pupil is narrow or media is slightly hazy.

213. In senile nuclear cataract what type of myopia is seen?

a) Curvature myopia

b) Index myopia

c) Axial myopia

d) Positional myopia

Correct Answer - B

Ans. is 'b' i.e., Index myopia

- Nuclear changes of aging induce a modification of refractive index of lens and produce an index myopia.
- "Nuclear cataracts cause a general decrease in the transparency of the lens nucleus. They are associated with index myopia"

Ophthalmic study guide

Causes of errors of refraction

- Possible causes of ametropia are : ?
1) Axial
- It is the commonest form of ametropia (both myopia and hypermetropia). In hypermetropia, there is an axial shortening of eyeball. So, image is formed behind the retina. In myopia, there is an axial lengthening of eyeball. So, image is formed in front of the retina. 1 mm change in axial length leads to ametropia of 3D. For example 1 mm shortening in axial length causes hypermetropia of 3D.
- **2) Curvature**
- Change in the curvature of cornea or lens will cause ametropia. In hypermetropia, the curvature of cornea or lens is lesser than normal. In myopia, there is increase in curvature of cornea or lens./ mm

change in corneal curvature leads to 6-7 D ametropia.

3) Index

- If refractive index of optical system is low, it will result in hypermetropia and high refractive index will result in myopia.

4) Positional (Due to relative position of the lens),

- A forward shift of lens causes myopia, backward shift result in hypermetropia. Absence of lens (aphakia) causes hypermetropia.

5) Excessive accommodation

- Excessive accommodation due to spasm of accommodation causes myopia.

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214. Panophthalmitis involves ?

- a) Inner coat of eyeball
- b) Inner and outer coat but sparing tenon's capsule
- c) All structure of eyeball including tenon's capsule
- d) None of the above

Correct Answer - C

Ans. is 'c' i.e., All structure of eyeball including tenon's capsule

Endophthalmitis

Endophthalmitis is defined as inflammation within the anterior segment (aqueous) or posterior segment (vitreous) or both together with partial thickness involvement of the adjacent ocular wall (one or more inner coats of the eye). Inflammation characteristically involves the inner structures of the eye ball i.e., uveal tissue (iris/ciliary body/ choroid) and Retina (Sclera is spared).

Panophthalmitis

Panophthalmitis is defined as inflammation within the anterior (aqueous) segment and/or posterior (vitreous) segment together with inflammation of all three coats of the eye. Panophthalmitis often starts as an endophthalmitis that then involves the sclera, tenon's capsule and may also involve the orbital tissue.

215. Cataract is caused by ?

a) Hypoparathyroidism

b) Cigarette smoking

c) Non-ionizing radiation

d) All of the above

Correct Answer - D
Ans. is 'd' i.e., All of the above

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216. Ameboid ulcer is a feature of

a) Parasitic corneal ulcer

b) Mycotic corneal ulcer

c) Herpetic corneal ulcer

d) Bacterial corneal ulcer

Correct Answer - C

Ans. is c i.e., Herpetic corneal ulcer

Herpetic Keratitis

- Most of the ocular infection are caused by HSV-1 except in neonates where eye infection can be caused by HSV2 through infected genitalia of mother. Ocular involvement by HSV may occur in two forms : -

Primary herpes : - Typically is a unilateral blepharoconjunctivitis which is characterized by vesicles on the skin of lids, follicular conjunctivitis, preauricular adenopathy and sometimes punctate keratitis.

Recurrent ocular herpes : - After primary infection, recurrent disease may involve any or all layers of the cornea. Recurrent herpetic keratitis is divided into : ?

1) **Epithelial keratitis** : - Manifestations of epithelial keratitis include : -

1. **Corneal vesicles** : - Vesicles coalesce and erupt to form dendritic or geographic ulcer.
2. **Superficial punctate keratitis**
3. **Dendritic ulcer** : - It is the most common presentation and is a typical lesion of herpes keratitis. There is an associated marked diminution of sensation.
4. **Geographic ulcer (amoeboid ulcer)**

2) **Stromal keratitis** : - Stromal keratitis may be of two types : -

.. **Disciform keratitis** : - This is due to damage to endothelial cells as a result of hypersensitivity reaction to the HSV antigen.

2. **Diffuse stromal necrotic keratitis** : - Caused by active viral invasion and tissue destruction.

3) **Metaherpatic keratitis (Epithelial sterile trophic ulceration)** : -

It is not an active disease, but is a mechanical healing problem at the site of previous herpetic ulcer.

217. Most common site of distant metastasis in intraorbital malignant melanoma is?

a) Brain

b) Lung

c) Liver

d) Lymph nodes

Correct Answer - C

Ans. is 'c' i.e., Liver

- Malignant melanoma mostly arise in uvea and uveal malignant melanoma is the most common primary intraocular tumor.
- The most common site for distant metastasis of uveal melanoma is liver.
- The liver is the most common site of metastasis of uveal melanoma" — Clinical oncology
- The liver is the most common site of metastasis from primary ocular melanoma" — Smith & Nesi's
- **Uveal melanoma**
- Uveal melanoma is the most common primary intraocular tumor in adults.
- Most of the (85%) uveal melanomas arise in the choroid.
- So, choroidal melanoma is the most common primary intraocular tumor in adults.
- Tumor arises from dendritic melanocytes (neural crest, neuroectodermal origin).
- Histologically choroidal melanoma can be divided into: -
• **Spindle cell melanomas** : - These melanomas contain predominantly spindle cells.
- These melanomas are further subdivided into Spindle A or Spindle B

depending upon the type of cells.

Epitheloid cell melanomas : - Contain epitheloid like cells.

Mixed cell melanomas : - Contain both spindle cells and epitheloid cells.

- Choroidal melanoma presents as a sessile or dome shaped mass located deep to the sensory retina.
- A secondary non-rheugmatogenous retinal detachment frequently occurs.

Involvement of vortex vein by tumor results in glaucoma.

- With continued growth, a choroidal melanoma can rupture Bruch's membrane and assume a mushroom shape.
- When that occurs, tumor has a tendency to bleed, and vitreal or subretinal hemorrhage may occur.

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218. Shortening of 2 mm of axial length of eye ball causes ?

a) 3D myopia

b) 6D myopia

c) 3D hypermetropia

d) 6D hypermetropia

Correct Answer - D

Ans. is. d., 6D hypermetropia

- Change in axial length can cause refractive error.
- It is the commonest form of ametropia (both myopia and hypermetropia).
- In *hypermetropia*, there is an axial shortening of eyeball.
- So, image is formed behind the retina.
- In *myopia*, there is an axial lengthening of eyeball.
- So, image is formed in front of the retina.
- 1 mm change in axial length leads to ametropia of 3D.
- For example 1 mm shortening in axial length causes hypermetropia of 3D.

219. Drug of choice for intermediate uveitis ?

a) Atropine

b) Antibiotics

c) Topical steroids

d) Systemic steroid

Correct Answer - D

Ans. is 'd' i.e., Systemic steroids

Drugs used in acute anterior uveitis (iridocyclitis)

Topical steroids (Drugs of choice)

Mydriatic - cycloplegics: Atropine (Drug of 2nd choice), Homatropine, cyclopentolate, tropicamide, rnydracain (mixture of atropine, adrenaline & procaine)

Systemic steroids

NSAIDs

Systemic immunosuppressives cyclosporine, methotrexate, cyclophosphamide

Intermediate uveitis

Systemic steroids are the drug of choice

Posterior uveitis

(choroiditis)

Systemic steroids are the drug of choice

220. Inverted image in Purkinje test is formed from ?

a) Anterior surface of cornea

b) Posterior surface of c

c) Anterior surface of lens

d) Posterior surface of lens

Correct Answer - D

Ans. is 'd' i.e., Posterior surface of lens

Purkinje images test

- Normally, when a strong beam of light is shown to the eye, four images (Purkinje images) are formed from the four different reflecting surfaces :-
 - 1st from anterior surface of cornea → Erect and moves in same direction.
 - 2nd from posterior surface of cornea → Erect and moves in same direction.
 - 3rd from anterior surface of lens → Erect and move in same direction.
 - 4th from posterior surface of lens → Inverted and moves in opposite direction
- First three reflecting surfaces are convex and produce erect images, while 4th surface is concave, therefore produces inverted image. Presence of all four images indicates presence of a clear lens. In aphakia 3rd & 4th images are absent and only first two images are present. In cataract 4th image is absent and first 3 images are present.

221. Forced duction test is to find out?

a) Ocular muscle palsy

b) Ocular muscle spasm

c) Angle of deviation

d) Refractive error

Correct Answer - A

Ans. is 'a' i.e., Ocular muscle palsy

Forced duction test

- It is performed to differentiate between the incomitant squint due to paralysis of extraocular muscle and that due to mechanical restriction of the ocular movements.
- FDT is positive (resistance encountered during passive rotation) in cases of incomitant squint due to mechanical restriction and negative in cases of extraocular muscle palsy.

222. Red keratic precipitates are seen in ?

- a) Granulomatous uveitis
- b) Hemorrhagic uveitis
- c) Old healed uveitis
- d) Acute anterior uveitis

Correct Answer - B

Ans. is .b i.e., Hemorrhagic uveitis

Keratic precipitates (KPs)

- KPs are proteinaceous cellular deposits occurring at the back of cornea (corneal endothelial deposits). Keratic precipitates are formed by the aggregation of polymorphonuclear cells, lymphocytes, and epithelioid cells. In the setting of uveitis, the microscopic appearance of KP may yield important diagnostic clues for the identification of the underlying inflammatory disorder :?

Mutton fat KP :- Large, yellowish KPs, are characteristic of granulomatous uveitis. These are composed of epithelioid cells and macrophages. They are large, thick fluffy, lardaceous KPs, having a greasy or waxy appearance.

Small or medium KPs (granular KPs):- These are composed of lymphocytes and are characteristic of non- granulomatous uveitis. These are small, round and whitish precipitates

Red KPs :- Composed of RBCs and inflammatory cells. These are seen in hemorrhagic uveitis.

Old KPs :- In healed uveitis. The above described KPs shrink, fade, become pigmented and irregular in shape with crenated margins.

223. Hardoleum internum is ?

- a) Acute infection of Zeis gland
- b) Acute infection of Moll gland
- c) Acute infection Meibomian gland
- d) Chronic infection of Zeis gland

Correct Answer - C

. Ans. is 'c' i.e., Acute infection Meibomian gland

- Acute infection of Zeis (Moll) gland → Sty (Hardoleum externum).
- Acute infection of tarsal gland (Meibomian gland) → Hardoleum internum o Chronic infection of tarsal gland (Meihonium gland) → Chalazion

Differences between sty (Hordeolum externum), chalazion and Hordeolum internum

	Stye (Hordeolum externum)	Chalazion	Hordeolum internum
Onset	Acute	Chronic	Acute
Gland	Zeis's gland	Meibomian gland	Meibomian gland
Types of inflammation	Suppurative	Lipogranulomatous	Suppurative
Symptoms	Acute pain and swelling	Painless disfigurement	Severe pain
Signs	Localized, hard and tender swelling near the lid margin	Hard nontender swelling away from lid margin	Yellow point seen on everting the lid
Treatment	Hot fomentation, Antibiotics	Drainage by incision	Incision and drainage

and removal of eye lash	and curettage Intralesional steroid Diathermy, antibiotic	Antibiotics and analgesic
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224. Snow banking is seen in?

a) White coats disease

b) Eales disease

c) Diabetic nephropathy

d) Intermediate uveitis

Correct Answer - D

Ans. is d i.e., Intermediate uveitis

- Pars planitis (Intermediate uveitis) denotes the inflammation of pars plana part of ciliary body and most peripheral part of the retina.
- Most common symptom is floaters; defective vision may also occur.
- Fundus examination in pars planitis reveals whitish exudates present near the ora serrata in the inferior quadrant.
- These typical exudates are referred as snow ball opacities.
- These may coalesce to form a grey white pique called snow banking.

225. Retrobulbar injection is given in

- a) Inside muscle cone
- b) Outside muscle cone
- c) Subtenon space
- d) Subperiosteum

Correct Answer - A

Ans. is 'a' i.e., Inside muscle cone

- Retrobulbar injection :- Injection in retrobulbar space inside the muscle cone.
- Peribulbar injection :- Injection in peribulbar/retrobulbar space outside the muscle cone.
- Sub-Tenon injection :- Injection beneath the tenon capsule, i.e. in subtenon space. It is also called parabolbar block.

226. Basal cell carcinoma is seen in most commonly in which eyelid?

a) Upper medial

b) Upper lateral

c) Lower medial

d) Lower lateral

Correct Answer - C

Ans. is 'c' i.e., Lower medial

- Basal cell carcinoma is the commonest malignant tumor of the lids (90%) usually seen in elderly people.
- It is locally malignant and involves most commonly lower lid (50%) followed by medial canthus (25%), upper lid (10-15%) and outer canthus.

"Basal cell carcinoma is seen in the lower lid near the inner canthus usually"

Renu Jogi

227. All are ophthalmological emergencies except ?

a) CRAO

b) CRVO

c) Acute congestive glaucoma

d) Endophthalmitis

Correct Answer - B

Ans. is 'b' i.e., CRVO

Ocular emergencies include those conditions that result in acute, severe pain in association with sudden vision loss, or that may lead to vision loss if left untreated; and traumatic conditions that affect globe or adnexa.

- Common ophthalmic emergencies are :-
 1. Acute congestive glaucoma
 2. Ulcerative or traumatic corneal diseases
 3. Hyphema
 4. Acute blindness
 5. Eyelid or conjunctival laceration
 6. Anterior lens subluxation
 7. Ruptured globe
 8. Optic neuritis
 9. Endophthalmitis
 10. Orbital cellulitis
 11. Central retinal arterial occlusion (CRAO)
 12. Retinal detachment

228. Diagnosis of all is made by fluorescein angiography except?

- a) Diabetes retinopathy
- b) Hypertensive retinopathy
- c) Central serous retinopathy
- d) Choroidal neovascularization

Correct Answer - B

Ans. is 'b' i.e., Hypertensive retinopathy

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229. Lacrimal punctum of upper and lower eyelids are?

- a) They are opposed
- b) No relation
- c) Upper punctum is medial
- d) Upper punctum is lateral

Correct Answer - A
Ans. is 'a' i.e., They are opposed

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230. Down beat nystagmus is seen in?

a) Arnold chiari malformation

b) Brain stem damage

c) Pontine hemorrhage

d) Labyrinthine damage

Correct Answer - A

Ans. is 'a' i.e., Arnold chiari malformation

- Down-beat nystagmus are seen in cerebellar lesion and Arnold-chiary malformation

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231. Not true about Fuch's corneal dystrophy ?

- a) Posterior dystrophy
- b) Endothelial dystrophy
- c) Unilateral condition
- d) Occurs in old age

Correct Answer - C

Ans. is 'c' i.e., Unilateral condition

- Corneal dystrophies are bilateral.
- **Fuch's epithelial endothelial dystrophy**
- Fuchs dystrophy is frequently seen as a slowly progressive bilateral condition affecting females more than males, usually between fifth and seventh decade of life.
- Primary open angle glaucoma is its common association.
- Clinical features can be divided into following four stages :?
 1. Stage of cornea guttata. It is characterised by the presence of Hassal-Henle type of excrescences in the central part of cornea. A gradual increase of central guttae with peripheral spread and confluence gives rise to the so called 'beaten-metal ' appearance. The stage is asymptomatic.
 2. Oedematous stage or stage of endothelial decompensation is characterised by the occurrence of early stromal oedema and epithelial dystrophy. Patients complains of blurring vision.
 3. Stage of bullous keratopathy. This stage follows long-standing stromal oedema and is characterised by marked epithelial oedema with formation of bullae, which when rupture cause pain, discomfort and irritation with associated decreased visual acuity.
 4. Stage of scarring. In this stage epithelial bullae are replaced by scar

tissue and cornea becomes opaque and vascularized. The condition may sometimes be complicated by occurrence of secondary infection or glaucoma.

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232. Positive forced duction test is seen in ?

- a) Extraocular muscle palsy
- b) Mechanical restriction of ocular movement
- c) Concomitant squint
- d) None

Correct Answer - B

Ans. is 'b' i.e., Mechanical restriction of ocular movement

- forced duction test : Resistance encountered during passive rotation and is seen in incomitant squint due to mechanical restriction.
- Negative forced duction test : No resistance during passive rotation and is seen in extraocular muscle palsy

233. Immune ring is a feature of ?

- a) Interstitial keratitis
- b) Fungal corneal ulcer
- c) Bacterial corneal ulcer
- d) Herpes simplex keratitis

Correct Answer - B

Ans. is 'b' i.e., Fungal corneal ulcer

Clinical features of fungal (mycotic) corneal ulcer

- Symptoms are similar to bacterial corneal ulcers but in general they are less marked than the equal sized bacterial ulcer. On the other hand signs are very prominent, i.e. signs are more prominent than symptoms. Following signs can be seen : -
 - 1. Greyish-white dry looking ulcer with the elevated rolled out feathery & hyphate margins.
 - 2. Feathery finger like extension into surrounding stroma under intact epithelium.
 - 3. A sterile immune ring (yellow line) of Wesseley.
 - 4. Multiple small satellite lesions.
 - 5. Non-sterile (infected) hypopyon (Pseudohypopyon).
 - 6. Perforation is rare and corneal vascularization is conspicuously absent.

234. In specular microscopy endothelial density is measured by?

a) Optical doubling

b) Fixed frame analysis

c) Optical focusing

d) None

Correct Answer - B

Ans. is 'b' i.e., Fixed frame analysis

- Endothelial cell density in specular microscopy is counted by fixed frame analysis and variable frame analysis.

$$\text{Cell density (cells/mm}^2\text{)} = \frac{\text{Cell count in frame}}{\text{Area of frame}}$$

235. Most common type of scleritis ?

a) Non-necrotizing

b) Necrotizing

c) Posterior

d) None

Correct Answer - A

Ans. is 'a' i.e., Non-necrotizing

SCLERITIS Scleritis refers to a chronic inflammation of the sclera proper. It is a comparatively serious disease which may cause visual impairment and even loss of the eye if treated inadequately.

It usually occurs in elderly patients (40-70 years) involving females more than the males.

Classification: I. Anterior scleritis (98%)

1. Non-necrotizing scleritis (85%)

(a) Diffuse (b) Nodular

2. Necrotizing scleritis (13%)

(a) with inflammation (b) without inflammation (scleromalacia perforans)

II. Posterior scleritis (2%)

1. Non-necrotizing anterior diffuse scleritis. It is the commonest variety, characterised by widespread inflammation involving a quadrant or more of the anterior sclera.

The involved area is raised and salmon pink to purple in colour.

236. Which of the following indicates activity of anterior uveitis?

a) Cells in anterior chamber

b) Circumcorneal congestion

c) Keratic precipitate

d) Corneal edema

Correct Answer - A

Ans. is 'a' i.e., Cells in anterior chamber

- Activity of acute anterior uveitis is indicated by presence of cells (aqueous cells) and flare in anterior chamber → Grading is done on these two.

Grade	Aqueous cells	Grade	Aqueous flare
	0 cells		0 no flare
+_	1-5 cells	+1	Just detectable
+1	6-10 cells	+2	Moderate flare
+2	11-20 cells	+3	Marked flare
+3	21-50 cells	+4	Intense flare
+4	> 50 cells		

237. Normal aqueous production rate -

a) 2 ml/min

b) 5 ml/min

c) 2 l/min

d) 5 l/min

Correct Answer - C

Ans. is 'c' i.e., 2 l/min

- The ciliary processes are the site of aqueous production. The aqueous humor is primarily derived from the plasma within the capillary network of the ciliary process. Three mechanisms play a part in aqueous formation at different levels :- (i) Active secretion (70%), (ii) ultrafiltration (20%), (iii) Diffusion / osmosis (10%). Active secretion occurs by the help of Na^+ IC AT Pase system and bicarbonate system mediated by carbonic anhydrase (convert CO_2 & H_2O into carbonic acid).
- The normal aqueous production is 2.3 micro lit/min. Total volume of aqueous is about 0.31 ml (0.25ml in anterior chamber and about 0.06 ml in the posterior chamber). As it is derived from plasma it has similar constituents as plasma, but at different concentrations :-
 - i) **Constituents having concentration less than plasma :-** Protein Na^+ , IC^+ , Ca^+ , Mg^+ , Urea, glucose.
 - ii) **Constituents having concentration more than plasma :-** Cl^- , HCO_3^- , Lactate, Pyruvate, Ascorbate.
- Aqueous humor is important in providing following functions :-
 - .. Maintenance of intraocular pressure (IOP):- Normal is between 10 -21 mm Hg (mean 16 ± 2.57 mm Hg).
 - .. it) Nutritional function:- Aqueous plays an important role by providing

substrate and by removing metabolites from avascular cornea and lens.

- 3. Optical function :- Maintains optical transparency
- 4. Clearing function :- Aqueous serves as a mechanism to clear blood, macrophages, remnants of lens matter and products of inflammation from the anterior chamber (takes place of lymph that is absent within the eyeball).

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238. Drug of choice for open angle glaucoma

-

a) Acetazolamide

b) Latanoprost

c) Timolol

d) Brimonidine

Correct Answer - C

Ans. is 'c' i.e., Timolol

Important acts

Angle closure glaucoma

Treatment of choice for acute congestive glaucoma Laser iridotomy (1st choice), Peripheral iridectomy (2nd choice)

Drug of choice for acute congestive glaucoma Pilocarpine

Initially IOP is controlled (first drug used) → Systemic mannitol or acetazolamide

Open angle glaucoma

Treatment of choice
drugs

Drug of choice
betaxolol, levobunolol)

Surgery of choice
trabeculoplasty

Topical antiglaucoma

β₃ - blocker (Timolol,

Argon or diode laser

239. Superficial corneal vascularization is caused by?

a) Contact lens

b) Graft rejection

c) Chemical burn

d) Interstitial keratitis

Correct Answer - A

Ans. is 'a' i.e., Contact lens & 'to' i.e., Graft rejection

Superficial

Superficial corneal
ulcer

Contact lens user

Trachoma

Rosacea keratitis

Phlyctenular

keratoconjunctivitis o

Cornea graft rejection

Interstitial
keratitis

Disciform

keratitis

Deep corneal

ulcer

Chemical burns

Sclerosing

keratitis

Deep

- Viral infection can cause superficial corneal ulcer as well as disciform keratitis.

240. Choroidal vascularization is seen in ?

a) Myopia

b) Hypermetropia

c) Presbyopia

d) Astigmatism

Correct Answer - A

Ans. is 'a' i.e., Myopia

Causes of choroidal neovascularization

- Age-related macular degeneration (ARMD)-most significant
- Choroidretinal scars
- Angioid streaks
- Intraocular inflammation
- Choroidal rupture (trauma)
- Choroidretinal dystrophy
- Pathological myopia

241. Contraindication of LASIK ?

a) >20 years

b) Keratoconus

c) Normal cornea

d) Myopia of - 8D

Correct Answer - B

Ans. is 'b' i.e., Keratoconus

Patient selection criteria for LASIK

- Patients above 20 years of age
- Stable refraction for at least 12 months
- Motivated patients
- Myopia upto -12D
- Absence of corneal pathology
- Corneal thickness > 500

Contraindications of LASIK

- Monocular patient
- Infections eg conjunctivitis,
- Glaucoma
- Autoimmune disease
- Thin cornea (< 450 micron
- Keratoconus
- Poor endothelial cell count in cornea (< 1500)
- Dry eye
- Diabetic retinopathy

Yoke Muscles

Right superior rectus Left inferior oblique

Movement

Dextro-elevation Left superior rectus Right inferior oblique

Levo-elevation Right inferior rectus Left superior oblique

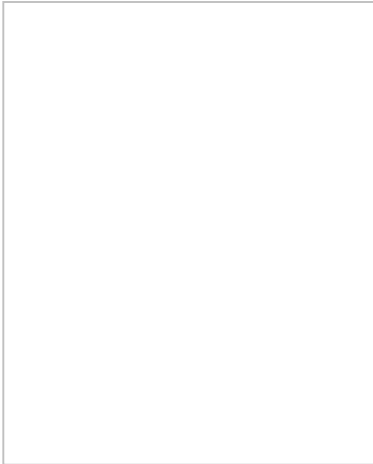
Dextro-depression Left inferior rectus Right superior oblique

Levodepression Right lateral rectus left medial rectus

Dextroversion

Levoversion

Left lateral rectus Right medial rectus



Yoke Muscles

Right superior rectus Left
inferior oblique

Left superior rectus Right
inferior oblique

Right inferior rectus Left
superior oblique

Left inferior rectus Right
superior oblique

Right lateral rectus left medial rectus

Left lateral rectus Right medial rectus

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242. Binocular single vision is tested by ?

a) Amsler grid

b) Synoptophore

c) Maddox rod

d) Cardboard test

Correct Answer - B

Ans. is 'b' i.e., Synoptophore

Grades of binocular single vision

- There are three grades of binocular single vision, which are best tested with the help of a synoptophore.
 - 1. Grade-I - Simultaneous perception**
 - It is the power to see two dissimilar objects simultaneously.
 - It is tested by projecting two dissimilar objects (which can be joined or superimposed to form a complete picture) in front of the two eyes.
 - For example, when a picture of a bird is projected onto the right eye and that of a cage onto the left eye, an individual with presence of simultaneous perception will see the bird in the cage.
 - 2. Grade-II - Fusion**
 - It consists of the power to superimpose two incomplete but similar images to form one complete image.
 - The ability of the subject to continue to see one complete picture when his eyes are made to converge or diverge a few degrees, gives the positive and negative fusion range, respectively.
 - 3. Grade-III - Stereopsis**
 - It consists of the ability to perceive the third dimension (depth perception).
 - It can be tested with stereopsis slides in syno

243. In aphakia purkinje images absent are ?

a) 1 & 3'

b) 2nd & 4^m

c) 2nd & 3rd

d) 3rd & 4th

Correct Answer - C
Ans. is 'c' i.e., 2nd & 3rd

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244. Keratitis in contact lens wearer is caused by all except ?

a) Pseudomonas

b) Pneumococcus

c) Aspergillus

d) Chlamydia

Correct Answer - B

Ans. is 'd' i.e., Chlamydia

Ectopia lentis

- o Ectopia lentis is defined as displacement or malposition of the crystalline lens of the eye. The lens is considered dislocated (luxated) when it lies completely outside the lens patellar fossa. The lens is **described** as subluxated when it is partially displaced but contained within the lens space. Causes are
 - i) **Homocystinuria**
 - ii) **Marfan syndrome**
 - iii) **Weil - Marchesani syndrome**
 - iv) Ehler Dan los syndrome
 - v) Hyperlysinemia
 - vi) **Sulphite oxidase deficiency**
 - vii) **Stickler syndrome**
 - viii) *Trauma*
 - ix) Consecutive / spontaneous (Hyper mature cataract, buphthalmos, high myopia)

245. Phlyctenular conjunctivitis is caused by -

a) Chlaymydia

b) Staphylococcus

c) Pneumococcus

d) Aspergillus

Correct Answer - B

Ans. is 'b' i.e., Staphylococcus

Phlyctenular keratoconjunctivitis

- Phlyctenular conjunctivitis is an allergic response of the conjunctival and corneal epithelium to some endogenous allergens and characterized by formation of the phlyctens. Phlyctens are grey, yellow or pinkish white nodules slightly raised above the surface, are seen on the bulbar conjunctiva, generally near the limbus. Peak age group is 3-15 years with slight female preponderance.

246. All are seen in non-proliferative diabetic retinopathy except ?

a) Microaneurysm

b) Neovascularization

c) Hard exudates

d) Macular edema

Correct Answer - B

Ans. is 'b' i.e., Neovascularization

Classification of Diabetic retinopathy

Nonproliferative

Proliferative

Background retinopathy

1. Microaneurysm
2. Dot and blot hemorrhage (deep hemorrhage)
3. Hard exudate
4. Macular edema

B) Preproliferative retinopathy

1. Cotton-wool spots (soft exudates)
2. Venous beading
3. Extensive hemorrhage
4. Intraretinal intravascular abnormalities (IRMA)

Neovascularization of the disc (NVD)

1. Neovascularization elsewhere in the retina (NVE)
2. Vitreous hemorrhage
3. Fibrovascular proliferation
4. Retinal detachment
5. Iris surface neovascularization (rubeosis iridis or neovascular glaucoma)

247. Surgery of choice for chronic acquired dacryocystitis

a) Dacryocystorhinostomy

b) Dacryocystectomy

c) Conjunctivo-cystorhinostomy

d) None

Correct Answer - A

Ans. is 'a' i.e., Dacryocystorhinostomy

Treatment of chronic dacryocystitis

Congenital

Adult (acquired)

- Massage over lacrimal sac with antibiotic eye drops
- **Conservative** :- Massage, antibiotic drops, probing,
- **Syringing** (irrigation) with normal saline & syringing
- antibiotic solution
- **Dacryocystorhinostomy** (DCR) :- Surgery of choice
- **Probing** of nasolacrimal duct
- Dactyocystectomy (DCT)
- Intubation with silicone tube
- Conjunctivocystorhinostom
- Dacryocystorhinostomy (DCR)

248. Posner-schlossman syndrome is ?

- a) Ipsilateral optic atrophy with contralateral papilloedema
- b) Unilateral glaucomatous changes with mild anterior uveitis
- c) Granulomatous uveitis with iris heterochromia
- d) None of the above

Correct Answer - B

. Ans. is 'b' i.e., Unilateral glaucomatous changes with mild anterior uveitis

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249. Antigaucomatous drug causing spasm of accommodation

a) Timolol

b) Pilocarpine

c) Dorzolamide

d) Latanoprost

Correct Answer - B

Ans. is 'b' i.e., Pilocarpine

- Ocular side effects of topical agents for POAG
- 13-blocker: Allergic blepheroconjunctivitis, corneal hyposthesia, blurred vision, dry eye, superficial punctate keratitis.
- Cholinomimetics (pilocarpine): Blurred vision, miosis, accommodative spasm, browache.
- Sympathomimetics
- Non-selective (Dipivefrine): Follicular conjunctivitis, rebound congestion, macular edema in aphakic
- Apraclonidine: Allergies, lid retraction, follicular conjunctivitis, fluctuation in visual acuity
- Brimonidine: Ocular allergy, conjunctival blanching.
- Carbonic anhydrase inhibitors (Dorzolamide, brinaolamide): Punctate keratitis, ocular allergies.
- Prostaglandin analogues (Latanoprost): Punctate keratitis, iris pigmentation.

250. Besides its properties of decreasing intraocular pressure, timolol is preferred in the treatment of glaucoma because it

- a) Produces no miosis
- b) Possess membrane stabilizing activity
- c) Increases outflow of aqueous humor
- d) Is a selective beta-adrenoceptor blocker

Correct Answer - A

Ans. is 'a' i.e., Produces no miosis

Advantages of topical β -blockers (timolol) over miotics (pilocarpine)

No change in pupil size (no miosis) I.O.T.	→	No fluctuation in
No induced myopia once/twice daily applications	→	Convenient
No ciliary spasm (no spasm of accommodation) side effects.	→	Few systemic

251. Rigid gas permeable lens are made of-

- a) Polymethylmethacrylate
- b) Hydroxymethylmethacrylate
- c) Co polymer of PMMA, Silicon containing monomer & cellulose acetyl butyrate
- d) Cellulose acetate Butyrate

Correct Answer - C

1. Hard lenses:

- Made of polymethylmethacrylate (PMMA)

2. Rigid gas permeable (RGP) lenses:

- Copolymer of PMMA, silicon containing vinyl monomer & cellulose acetate butyrate (CAB) are used to manufacture RGP lenses.

3. Soft lenses:

- These are made up of hydroxymethylmethacrylate (HEMA)

252. What is regular astigmatism?

- a) Astigmatism in which the principal meridians are parallel
- b) Astigmatism in which the principal meridians are perpendicular
- c) Asymptomatic astigmatism
- d) Astigmatism as a result of cataract surgery

Correct Answer - B

- **Regular stigmatism** → Principal meridians are pendicular
- **Irregular astigmatism** → Principal meridians are not perpendicular.

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253. Chemotherapy agents for retinoblastoma:

a) vincristine ,carboplatin and etoposide

b) vinblastine, etoposide and bleomycin

c) vinblastine , vincristine and etoposide

d) vinblastine , vincristine and cisplatin

Correct Answer - A

Answer. A. Vincristine, carboplatin and etoposide

- Chemotherapy for Retinoblastoma
- Chemotherapy (chemo) is the use of anti-cancer drugs to treat cancer.
- Chemo can be given in different ways to treat retinoblastoma.
Some of the chemo drugs used to treat retinoblastoma include:
 1. Carboplatin
 2. Cisplatin
 3. Vincristine
 4. Etoposide
 5. Cyclophosphamide
 6. Topotecan
 7. Doxorubicin
- Most often, 2 or 3 drugs are given at the same time.
- A standard combination is carboplatin, vincristine, and etoposide, although for very small tumors, only carboplatin and vincristine may be enough.
- Other drugs might be used if these are not effective.

254. Drug used in acute congestive glaucoma are:

a) Atropine

b) Pilocarpine

c) Acetazolamide

d) Both B & C

Correct Answer - D

Answer. D. Both Pilocarpine & Acetazolamide

Management of angle closure glaucoma

- Acute congestive glaucoma also is known as acute angle closure glaucoma.
- Immediate medical therapy in acute AC consists of commencing IOP-lowering eye medications such as topical β -blocker, α_2 -agonist and even prostaglandin analogues as soon as possible.
- Once the IOP is sufficiently reduced to allow iris reperfusion, pilocarpine is instilled to induce miosis in an attempt to widen the anterior chamber angles and reestablish aqueous outflow.
- Mydriatic drugs such as atropine, cyclopentolate, tropicamide and phenylephrine are precipitating factor for angle closure glaucoma, so not used (contraindicated) in its treatment.

255. Which is the Most common ocular finding in myasthenia gravis?

a) Ptosis

b) Lagophthalmos

c) Proptosis

d) Enophthalmos

Correct Answer - A

Answer .A. Ptosis

In more than half the people who develop myasthenia gravis, their first signs and symptoms involve eye problems, such as:

- 1. Drooping of one or both eyelids (ptosis).
- 2. Double vision (diplopia), which may be horizontal or vertical, and improves or resolves when one eye is closed.

256. In Retinitis pigmentosa decreased level of?

a) Arachidonic

b) Trielonic

c) Thromboxane

d) Docosa hexanoic acid

Correct Answer - D
Answer. D. Docosa hexanoic acid

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257. What is against the rule correction in astigmatism:

a) -1.25 cyl 90

b) -2 spherical 180

c) -3 cyl 180

d) +2 cyl 180

Correct Answer - A:D

Types of regular astigmatism Depending upon the axis and the angle between the two principal meridians, regular astigmatism can be classified into the following types :

1. With-the-rule astigmatism. In this type the two principal meridians are placed at right angles to one another but the vertical meridian is more curved than the horizontal. Thus, correction of this astigmatism will require the concave cylinders at $180^\circ \pm 20^\circ$ or convex cylindrical lens at $90^\circ \pm 20^\circ$. This is called 'with-the-rule' astigmatism, because similar astigmatic condition exists normally (the vertical meridian is normally rendered 0.25 D more convex than the horizontal meridian by the pressure of eyelids).

2. Against-the-rule astigmatism refers to an astigmatic condition in which the horizontal meridian is more curved than the vertical meridian. Therefore, correction of this astigmatism will require the prescription of convex cylindrical lens at $180^\circ \pm 20^\circ$ or concave cylindrical lens at $90^\circ \pm 20^\circ$ axis.

*****WE HAVE TO MUG THIS UP: A plus at 90 , or minus at 180 accounts for "with the rule astigmatism"*****

258. Morbid fear of darkness known as:

a) Claustrophobia

b) Xenophobia

c) Mysophobia

d) Nyctophobia

Correct Answer - D

Answer. D. Nyctophobia

- **Nyctophobia** is an extreme fear of night or darkness that can cause intense symptoms of anxiety and depression.
- A fear becomes a phobia when it's excessive, irrational, or impacts your day-to-day life.
- **Claustrophobia** is a form of anxiety disorder, in which an irrational fear of having no escape or being closed-in can lead to a panic attack.
- **xenophobia**. : fear and hatred of strangers or foreigners or of anything that is strange or foreign.
- **Mysophobia**, also known as verminophobia, germophobia, germaphobia, bacillophobia and bacteriophobia, is a pathological fear of contamination and germs.

259. Which drug causes ocular hypotension with apnea in an infant?

a) Latanoprost

b) Timolol

c) Brimonidine

d) Dorzolamide

Correct Answer - C

Answer. C. Brimonidine

- Brimonidine is a relatively selective alpha-agonist, which reduces intraocular pressure (IOP) by decreasing aqueous production and increasing uveoscleral outflow.
- Brimonidine passes through the blood-brain barrier, potentially causing central nervous system (CNS) toxicity.
- There have been reports of bradycardia, hypotension, hypothermia, hypotonia, and apnea in infants after topical brimonidine.

260. A child has ptosis and poor levator function. What surgery will you do?

- a) Levator muscle resection
- b) Mullerectomy
- c) Fasanella Servat surgery
- d) Frontalis suspension surgery

Correct Answer - D

Answer D. Frontalis suspension surgery

- Muller muscle resections are typically used for repair of minimal ptosis (2 mm) and are generally considered superior to the Fasanella-Servat procedure (tarsconjunctival mullerectomy) in maintaining eyelid contour and preserving the tarsus.
- When levator function is poor, the surgeon should consider utilizing the accessory elevators of the eyelid in ptosis repair. This type of surgery is most commonly required in congenital ptosis with poor levator function or in various forms of neurogenic ptosis with poor levator function.
- Frontalis suspension surgery performed when levator function is poor or absent, the eyelid is suspended directly from the frontalis muscle so that movement of the brow is efficiently transmitted to the eyelid. Thus, the patient is able to elevate the eyelid by using the frontalis muscle to lift the brow. Frontalis suspension can be performed transcutaneously or transconjunctivally. This surgery connects the eyelid to the brow with a sling material and utilizes the power of the frontalis muscle to elevate the poorly functioning eyelid.

261. Esotropia is usually associated with:

a) Myopia

b) Hypermetropia

c) Astigmatism

d) Presbyopia

Correct Answer - B

Ans. B. Hypermetropia

- Accommodative esotropia is one of the most common types of strabismus in childhood.
- The incidence is estimated at 2% of the population.
- It is usually found in patients with moderate amounts of hyperopia.
- As the patient accommodates or focuses the eyes, the eyes converge.

262. Corneal ulcer resembling fungal ulcer is seen in infection with which of the agents?

- a) Nocardia asteroides
- b) Mycobacterium
- c) Klebsiella pneumoniae
- d) Chlamydia trachomatis

Correct Answer - A

Ans: A. Nocardia asteroides

(Ref: Yanoff & Duker 4le p219; Smolin and Thoft's The Cornea 4le p248)

- Keratitis caused by Nocardia asteroides, which is a filamentous bacteria, closely resembles the morphology of corneal ulcers caused by fungi.
- Corneal infections with Nocardia, Actinomyces, and Streptomyces typically follow an indolent clinical course, which may simulate mycotic keratitis with hyphal edges, satellite lesions, and elevated epithelial lesions.
- The ulcer is characteristically superficial, with a wreath-shaped gray-white infiltrate and an undermined necrotic edge.
- The base might assume a cracked windshield appearance.
- Nocardia keratitis often resembles fungal infection, with a filamentous appearing border and satellite lesions. Infection appears to be indolent; the anterior chamber reaction is often minimal.
- However, rarely, more severe anterior chamber reaction and hypopyon seen.

263. Anisocoria in Horner's syndrome is due to

- a) Oculo sympathetic palsy
- b) Oculo parasympathetic palsy
- c) Oculomotor nerve palsy
- d) Abducens nerve palsy

Correct Answer - A

Answer- A. Oculo sympathetic palsy

Anisocoria is a condition characterized by an unequal size of the eyes' pupils.

It can be an entirely harmless condition or a symptom of more serious medical problems.

Anisocoria has various causes:

- **Physiological anisocoria**: About 20% of normal people have a slight difference in pupil size which is known as physiological anisocoria. In this condition, the difference between pupils is usually less than 1 mm.^[3]
- **Horner's syndrome**
Horner's syndrome is oculo sympathetic palsy.
- Horner's syndrome consists of classical triad of ipsilateral:-
 1. Ptosis,
 2. Miosis,
 3. Anhydrosis (loss of sweating)
- Other features are :- Loss of cilio-spinal reflex, Enophthalmos, Heterochromia (ipsilateral iris is of light colour), the pupil is slow to dilate, slight elevation of inferior eyelid, normal pupillary reflex.

264. Dioptric power is related -

- a) Directly to square of focal length
- b) Inversely to focal length
- c) Directly to focal length
- d) Inversely to square of focal length

Correct Answer - B

Answer- B. Inversely to focal length

- Optical power (also referred to as dioptric power, refractive power, focusing Power, or convergence Power) is the degree to which a mirror, or other optical system converges or diverges light.

265. All are seen in CMV retinitis except

- a) Immunosuppression
- b) Brush-fire appearance Pattern
- c) Crack mud appearance
- d) Perivasculitis

Correct Answer - C

Answer- C. Crack mud appearance

- CMV retinitis is the most common ophthalmic manifestation of CMV.
- There is characteristic hemorrhagic, full thickness retinitis.
- Occuring as a congenital infection in infants or an opportunistic infection in the immunocompromised host.
- CMV retinitis is a white granular geographic lesion that clears centrally as it enlarges, leaving a quiet central area of retinal atrophy and mottled pigment epithelium. This has also been described as "brush-fire pattern."
- Perivascular retinitis- Frosted branch angitis with retinal perivasculitis.

266. Optic vesicle is derived from -

- a) Endoderm
- b) Mesoderm
- c) Neuroectoderm
- d) Surface Ectoderm

Correct Answer - C

Answer- C. Neuroectoderm

- An outgrowth from prosencephalon forms optic vesicle (neuroectodermal structure).
- Proximal part of optic vesicle becomes constricted and elongated to form optic stalk
- Growing optic vesicle comes in contact with surface ectoderm which is thickened to form lens placode.

267. Goblet cells are seen in -

a) Cornea

b) Conjunctiva

c) Retina

d) Vitreous

Correct Answer - B

Answer B. Conjunctiva

Goblet cells within the conjunctival epithelium are specialized cells that secrete mucins onto the surface of the eye.

Histology of conjunctiva

The epithelium is non-keratinizing and around five cell-layers deep. Mucin-secreting goblet cells are located within the epithelium, and they are most dense inferonasally (nasal > inferior) and in the fornices.

The stroma (substantia propria) consists of richly vascularized, loose connective tissue. The accessory lacrimal glands of Krause and Wolfring are located deep within the stroma.

Conjunctiva-associated lymphoid tissue (CALT) is critical in the initiation and regulation of ocular surface immune responses.

**268. Neovascularization in uveal tissue
[Rubeosis Iridis] is most commonly
caused by**

a) Diabetic Retinopathy

b) CRVO

c) CRAO

d) Choroidal melanoma

Correct Answer - A

Answer- A. Diabetic Retinopathy

It is a secondary angle closure glaucoma which results due to formation of neovascular membrane over the iris i.e., neovascularization of iris (rubeosis iridis).

Causes of rubeosis iridis are:-

- Common :- Diabetic retinopathy (most common cause), central retinal vein occlusion, Eale's disease, sickle-cell retinopathy.

269. All of the following are causes of posterior subcapsular cataract except -

a) Myotonic dystrophy

b) Wilson's Disease

c) Ionizing radiation

d) Congenital cataract

Correct Answer - D

Answer- D. Congenital cataract

- Myotonic dystrophy
- Wilson's disease
- Atopic dermatitis
- Corticosteroids
- Trauma
- Galactosemia
- Infrared/heat cataract (glass-blower's or glass worker)

270. Ectopia lentis is/are associated with:

a) Homocystinuria

b) Alport syndrome

c) Lowe syndrome

d) Marfan syndrome

e) Sulphite oxidase deficiency

Correct Answer - A:D:E

Answer- (A) Homocystinuria (D) Marfan syndrome (E) Sulphite oxidase deficiency

- Marfan syndrome
- Homocystinuria
- Weil-Marchesani syndrome
- Sulfite oxidase deficiency
- Hyperlysinemia

271. All are true regarding cornea except:

- a) Endothelium help in maintaining dehydrated state
- b) Oxygen is mostly derived by epithelium directly from the air through tear film
- c) Glucose supply for corneal metabolism is mainly derived from the aqueous
- d) Corneal thickness is more at center than periphery
- e) Richly vascular

Correct Answer - D:E

**Answer- (D) Corneal thickness is more at center than periphery
(E) Richly vascular**

Outer & fibrous coat of EYEBALL.

Transparent, anterior 1/6th segment of eyeball.

Non-vascular

Most of the refraction in eye occur at anterior surface of cornea (air-tear interface) ,i.e., Anterior surface of cornea is the most important refractive structure of eye.

The most actively metabolising layers of the cornea are epithelium & endothelium.

272. Feature (s) of Infantile glaucoma is/are except:

- a) Aniridia may be associated
- b) Treatment includes trabeculotomy
- c) Buphthalmos can occur
- d) Cornea is thin & clear
- e) May be associated with Sturge-weber syndrome

Correct Answer - D

Answer- D. Cornea is thin & clear

Answer- D. Cornea is thin & clear

Primary infantile glaucoma is a rare developmental defect in the iridocorneal filtration angle of the anterior chamber that prevents aqueous fluid from properly draining from the eye. This obstruction increases the intraocular pressure, which, if untreated, damages the optic nerve. Infantile glaucoma can cause complete blindness if left untreated.

Glaucoma can also occur in infants after trauma or intraocular surgery (eg, cataract extraction). Glaucoma associated with another ocular disorder, such as aniridia, Lowe syndrome, or [Sturge-Weber syndrome](#), is called secondary glaucoma. Buphthalmos (blue and thin sclera, stretched limbus) is seen. Treatment: Trabeculotomy, Goniotomy, combined trabeculotomy and trabeculotomy +/- MMC(Mitomycin)

273. In Snellen's chart, eye subtends an angle of how many minutes with letters on Snellen's chart?

a) 1 min of arc

b) 5 min of arc

c) 10 min of arc

d) 15 min of arc

Correct Answer - B

Ans. is 'b' i.e., 5 min of arc

Indications:

- To provide a baseline recording of visual acuity (VA)
- To aid examination and diagnosis of eye disease or refractive error
- For medico-legal reasons

Equipment:

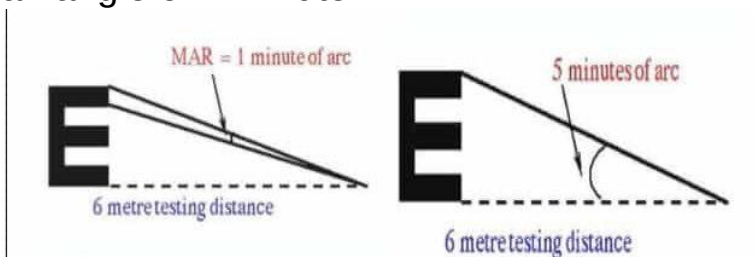
- Multi-letter Snellen chart
- E or C Snellen chart or a chart with illustrations for patients who cannot read or speak
- Plain occluder (not essential)
- Pinhole occluder
- Torch or flashlight
- Patient's documentation

Procedure:

- At the given distance, each letter subtends an angle of 5 min at the nodal point of the eye
- Snellen chart is used for distant vision.
- The patient should read the chart at a distance of 6 m.

Principle:

- It consists of letters arranged in lines, with progressively diminishing size.
- Each letter subtends an angle of 5 minutes at the nodal point of an eye when viewed from its respective distance
- Each letter is so constructed that the width (of each stroke) subtends an angle of 1 minute = MAR.



Interpretation:

Normal visual acuity for far is 6/5

Best visual acuity for far is 6/3

Minimum recordable VA on Snellen's chart is 1/60.

Snellen's chart:

E	1	20/200
F P	2	20/100
T O Z	3	20/70
L P E D	4	20/50
P E C F D	5	20/40
E D F C Z P	6	20/30
F E L O P Z D	7	20/25
D E F P O T E C	8	20/20
L E F O D F C T	9	
F D F L T C E O	10	
F E X O L C F T D	11	

274. Listers perimeter is used for

- a) Kinetic Visual field testing
- b) Static Visual field testing
- c) Both kinetic and static visual testing
- d) None of these

Correct Answer - A

Ans. is 'a' i.e., Kinetic Visual field testing [Ref Kanski's 8th/e chapter 10, p. 325]

- Static perimetry: A method of assessing fields, usually automated, in which the location of a stimulus remains fixed, with intensity increased until it is seen by the subject (threshold is reached) or decreased until it is no longer detected.
- Kinetic (dynamic) perimetry is now much less commonly performed than static perimetry. A stimulus of constant intensity is moved from a non-seeing area to a seeing area at a standardized speed until it is perceived, and the point of perception is recorded on a chart; points from different meridia are joined to plot an isopter for that stimulus intensity.
- Stimuli of different intensities are used to produce a contour map of the visual field. Kinetic perimetry can be performed by means of a manual (Goldmann) or an automated perimeter if the latter is equipped with an appropriate software program.

275. What is the type of Goldman tonometry?

- a) Applanation Tonometry
- b) Dynamic countour tonometry
- c) Rebound tonometry
- d) Impression tonometry

Correct Answer - A

Ans. is 'a' i.e., Applanation Tonometry [Ref Anatomy & physiology of eye 2nd/e p. 79]

Measurement of intraocular pressure (10P)

Measurement of IOP is done by :?

A) Manometry :- It is the only *direct measure* of IOP.

B) Tonometry :- It is an *indirect method* of measurement of IOP.

Following types of tonometers are there :-

1. Indentation (impression) tonometer :- These are the most commonly used tonometers. Example is Schiotz tonometer.
2. Applanation tonometer Goldmann applanation tonometer is the most accurate tonometer. Other types of applanation tonometers are perkin's tonometer, pneumatic tonometer, air-puff tonometer, Pulse air tonometer, Tono pen

276. Spasm of accommodation mimics

a) Myopia

b) Hypermetropia

c) Amblyopia

d) Presbiopia

Correct Answer - A

Ans. is 'a' i.e., Myopia [Ref Khurana 11th/e p. 42]

Pseudomyopia

- Spasm of accommodation occurs due to excessive contraction of the ciliary muscles.
- This makes the zonules loose and hence the lens becomes more convex.
- This leads to the image be formed in front of the retina thereby mimicking myopia.
- This is called pseudomyopia.

277. Subretinal haemorrhage at the macula in myopia is known as?

- a) Lacquer cracks
- b) Foster Fuchs spot
- c) Staphyloma
- d) Macular retinoschisis

Correct Answer - B

Ans. is 'b' i.e., Foster fuchs spot

Degenerative myopia:

- Refractive error may increase upto 20-25D with degenerative changes in eye.
- Temporal myopic crescent is a feature of pathological/degenerative myopia.
- It is a white crescent at the temporal border of the disc.
- **Some of the most typical features of degenerative myopia are:**
- Vitreous liquefaction and posterior vitreous detachment
- Peripapillary atrophy appearing as temporal choroidal or scleral crescents or rings around the optic disc
- Lattice degeneration in the peripheral retina
- Tilting or malinsertion of the optic disc, usually associated with myopic conus
- Thinning of the retinal pigment epithelium with resulting atrophic appearance of the fundus
- Ectasia of the sclera posteriorly (posterior staphyloma)
- Breaks in Bruch's membrane and choriocapillaris, resulting in lines across the fundus called "lacquer cracks"
- Foster Fuch's spot in the macular area.

278. Dispersive prism functions for

a) Splitting light into different wavelengths

b) Reflecting light

c) Polarizing light

d) None

Correct Answer - A

Ans. is 'a' i.e., Splitting light into different wavelengths [Ref "*The Discovery of the Spectrum of Light*".]

- "Prisms may be used for polarising and reflecting light but dispersive prisms like the commonly used triangular prism split the light into different colours based on wavelengths"
- In optics, a prism is a transparent optical element with flat, polished surfaces that refract light. At least two of the flat surfaces must have an angle between them. The exact angles between the surfaces depend on the application. The traditional geometrical shape is that of a triangular prism with a triangular base and rectangular sides.
- Light changes speed as it moves from one medium to another (for example, from air into the glass of the prism). This speed change causes the light to be refracted and to enter the new medium at a different angle (Huygens principle). The degree of bending of the light's path depends on the angle that the incident beam of light makes with the surface, and on the ratio between the refractive indices of the two media (Snell's law). The refractive index of many materials (such as glass) varies with the wavelength or color of the light used, a phenomenon known as dispersion. This causes light of different colors to be refracted differently and to leave the prism at different angles, creating an effect similar to a rainbow.

279. Corneal epithelial repair includes all of the following phases except

a) Cell proliferation

b) Cell migration

c) Cell adhesion

d) Cell fusion

Correct Answer - D

Ans. is 'd' i.e., Cell fusion [Ref Corneal Epithelial wound healing: BJO 1994, 78; 401-408]

Corneal epithelial repair

- The processes involved in the healing of corneal epithelial wounds can be divided into three distinct components: cell migration, **cell proliferation, and cell adhesion.**
- All three components are part of a continuous process but the contribution of each can vary depending on the size and depth of the wound and nature **of** injury.

280. Conjunctival staining is done by all except

a) Fluorescein

b) India ink

c) Rose Bengal

d) Lissamine

Correct Answer - B

Ans. is 'b' i.e., India ink [Ref Can J Ophthalmol. 2015 Aug;50(4):273-7. doi: 10.1016/j.jcjo.2015.05.007.]

Common dyes used for conjunctival staining : Rose Bengal, Fluorescein and Lissamine.

281. Pseudogerontoxon is seen in

- a) Vernal keratopathy
- b) Choroidal melanoma
- c) Trachoma
- d) Retinoblastoma

Correct Answer - A

Ans. is 'a' i.e., Vernal keratopathy [Ref Kanski 8^{1*} Chap. 5, p. 138]

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282. A 50 year old male presents with cicatricial entropion of upper and lower eyelid. On eversion of upper eyelid, linear conjunctival scars - Arlt line are seen. What is the diagnosis?

- a) Trachoma
- b) Spring catarrh
- c) Ligneous conjunctivitis
- d) Parinaud oculoglandular syndrome

Correct Answer - A

Ans. is 'a' i.e., Trachoma [Ref Kanski 8th /e Chap. 5, p. 138]

Arlt line is a feature of trachoma.

Signs of Trachoma

- Conjunctival signs :- Congestion, conjunctival follicles (boiled sagograin like), Papillary hyperplasia, conjunctival scarring (Arlt line), concretion.
- Corneal signs :- Superficial keratitis, Herbert follicles, Pannus, Corneal ulcer, Herbert pits, Corneal opacity.

283. Pain is out of proportion to signs in which corneal ulcer?

a) Herpes simplex keratitis

b) Acanthamoeba keratitis

c) Fungal keratitis

d) Pneumococcal keratitis

Correct Answer - B

Ans. is 'b' i.e., Acanthamoeba keratitis [Ref Kanski 8th le Chap. 6, p. 197]

- In human, acanthamoeba causes :- (i) Keratitis; (ii) Granulomatous encephalitis, (iii) Fulminant meningoencephalitis
- Patient presents with very severe pain (which is out of proportion to the degree of clinical signs), watering, photophobia, blurred vision and blepharospasm. On examination, following characteristic features are seen : ?
- .. **Initial lesions (Epithelial lesions)** :- Initially the Acanthamoeba keratitis shows typical reticular pattern due to radial keratoneuritis (Radial perineuritis). At this stage it is commonly mistaken for herpes simplex keratitis because of pseudodendritic epithelial lesion (dendritic ulcer morphology).
- 2. **Advanced cases (Stromal involvement)** :- Over a period of weeks stromal signs develop with central or paracentral ring shaped lesion with stromal infiltrate and an overlying epithelial defect, ultimately presenting as ring abscess. There may be radial perineuritis, Wessely (inflammatory) ring and hypopyon.

284. Oblate ellipsoid appearance of cornea is seen in which of the following conditions?

a) Post myopic LASIK surgery

b) With the rule astigmatism

c) Bi-oblique astigmatism

d) Oblique astigmatism

Correct Answer - A

Ans. is 'a' i.e., Post myopic LASIK surgery [Ref Quality of vision: Essential Optics for the cataract and refractive surgeon, chap. 3, p. 30]

The cornea is a three dimensional prolate ellipsoid, like a bullet or a tulip. It is steeper in the centre and flatter in the periphery.

After refractive surgeries like myopic LASIK, cornea is converted to oblate ellipsoid, which is steeper in the periphery and flatter in the centre.

**285. Which of the following
Glycosaminoglycans are not present in
cornea**

a) Keratin sulfate

b) Chondroitin sulfate

c) Chondroitin

d) Heparin sulfate

Correct Answer - D

Ans. is 'd' i.e., Heparin sulfate [Ref Khurana Anatomy and Physiology of Eyes, 2nd ed, chapter 2, p. 26)

- GAGs (Glycosaminoglycans) or so called acid-mucopolysaccharides represent 4-4.5% of the dry weight of the cornea.
- Cornea contains three major GAG fractions namely: Keratan sulfate (50%), chondroitin sulfate (25%) and chondroitin (25%)-present exclusively in cornea.
- The GAG are present in the interfibrillar space of the corneal stroma and account for the `stromal swelling pressure'(normal-60 mmHg) ie. Its tendency to imbibe water and thus plays an important role in the maintenance of corneal hydration level and transparency. An abnormal accumulation of GAG occurs in the corneal stroma of the patients affected by the inborn errors of GAG metabolism known as mucopolysaccharidosis.

286. Iron deposition line at edge of pterygium on corneal epithelium is known as?

a) Stocker's line

b) KF Ring

c) Fleischer ring

d) Ferrys line

Correct Answer - A

Ans. is 'a' i.e., Stocker's line [Ref: Khurana 4th/e p. 80; Parson 21st/e p. 181; Yanoff & Ducker Ophthalmology 4th ed p

287. Which order neuron is optic nerve in the visual pathway?

- a) First order
- b) Second order
- c) Third order
- d) None of these

Correct Answer - B

Ans. is 'b' i.e., Second order [Ref Khurana 4th/e p. 286-289; Concise textbook of physiology 2nd/e p. 336]

Sensory organs → Photoreceptors (Rods & cones)

Neurons of first order → Axon of bipolar cells (in Retina)

Neurons of second order → Axons of ganglionic cell (Retina i.e., Optic disc, Optic nerve, Optic chiasma, optic tracts)

Neurons of third order → Axons from nerve cells in lateral geniculate body (optic radiation)

288. Purkinje image test is used in

- a) Keratomoter
- b) Retinoscopy
- c) Optical coherence tomography
- d) Pachymeter

Correct Answer - D

Ans. is 'd' i.e., Pachymeter [Ref Elkington's clinical optics 3rd/e chapter 14, p. 207]

- Pachymetry is the measurement of corneal thickness. Pachymeters employ either optical or ultrasound principles.
- Optical pachymeters use the Purkinje-Sanson images formed by the anterior and posterior surfaces of the cornea (images I and II) to measure corneal thickness, and the Purkinje-Sanson images formed by the posterior surface of the cornea and the anterior surface of the lens (images II and III) to measure the depth of the anterior chamber.

289.

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Which of the following is not a part of uveal

a) Iris

b) Ciliary body

c) Choroid

d) Retina

Correct Answer - D

Ans. is 'd' i.e., Retina [Ref Khurana's 2nd ed Chap. 3, p. 44]

- Uveal tissue constitutes the middle vascular coat of the eyeball (Inner coat is retina and outer coat is cornea & sclera). From anterior to posterior it can be divided into three parts :- Iris, ciliary body and choroid. Iris and anterior part (2 mm) of ciliary body (pars plicata) are considered as anterior uveal tissues.
- Posterior part (4mm) of ciliary body (pars plana) and adjacent choroid are considered as intermediate uveal tissue. Choroid is considered as posterior uveal tissue. The entire uveal tract is developmentally, structurally and functionally one individual structure.

290. All except one are true for Scleromalacia perforans

- a) It is non inflammatory scleritis
- b) It affects only males
- c) Perforation of the globe is extremely rare
- d) Vision is unaffected

Correct Answer - B

Ans. is 'b' i.e., It affects only males [Ref Kanski's Clinical Ophthalmology 8thVe chapter 8, p. 259]

Scleromalacia perforans

- Scleromalacia perforans (5% of scleritis) is a specific type of progressive scleral thinning without inflammation that typically affects elderly women with longstanding rheumatoid arthritis, but has also been described in association with other systemic disorders. Despite the nomenclature, perforation of the globe is extremely rare as integrity is maintained by a thin layer of fibrous tissue. Differential diagnosis is from the innocuous scleral hyaline plaque and senile scleromalacia.

291. Blue dot cataract is caused by

- a) Diabetes
- b) Wilson's disease
- c) Atopic dermatitis
- d) Chalcosis

Correct Answer - C

Ans. is 'c' i.e., Atopic dermatitis [Ref Parson's 21st ed p. 259]

Blue dot cortical cataract is caused by myotonic dystrophy and atopic dermatitis.

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292. Which of the following is complication of prolonged use of corticosteroid eye drops?

a) Posterior Subcapsular cataract

b) Nuclear cataract

c) Capsular cataract

d) Cortical cataract

Correct Answer - A

Ans. is 'a' i.e., Posterior Subcapsular cataract

Causes of posterior subcapsular cataract :

Myotonic dystrophy	Down's syndrome	Ionizing radiation
Wilson's disease	Corticosteroids	Galactosemia
DM	Busulfan	Senile cataract
Infrared/heat cataract	Chloroquine	Trauma
(glass-blower's or glass worker)	Atopic dermatitis	

293. False about treatment of cataract in children is

- a) ECCE is the treatment of choice
- b) In case of bilateral cataract impairing vision surgery must be done by 4-6 weeks of age
- c) Lensectomy is not one of the methods of extracapsular extraction
- d) Intraocular lens implantation must be done only after 2 years of age

Correct Answer - C

Ans. is 'c' i.e., Lensectomy is not one of the methods of extracapsular extraction [Ref Textbook of pediatric cataract surgery p. 194]

- The critical period for developing the fixation reflex in both unilateral and bilateral visual deprivation disorders is between 2-4 months of age. Any cataract dense enough to impair vision must be dealt with before this age and the earliest possible time is preferred.

294. What is the new advance in cataract surgery?

a) Femtosecond Laser

b) Neodymium Laser

c) Nanosecond Laser

d) Picosecond Laser

Correct Answer - A

Ans. is 'a' i.e., Femtosecond laser [Ref Femtosecond laser-assisted cataract surgery: Kendall E. Donaldson, Rosa Braga-Mele, Florence Cabot, for the ASCRS Refractive Cataract Surgery Subcommittee]

- Femtosecond laser-assisted cataract surgery provides surgeons an exciting new option to potentially improve patient outcomes and safety.
- In this surgery a femtosecond laser is used for various steps like lens fragmentation and capsulotomy.
- Although the results have been good the technology is currently very expensive.

295. Which of the following step is not done during phacoemulsification surgery for cataract?

- a) Irrigation and drainage of cortex
- b) Continuous curvilinear capsulorrhexis
- c) Foldable IOL implantation
- d) Sclerocorneal tunnel

Correct Answer - D

Ans. is 'd' i.e., Sclerocorneal tunnel [Ref Phacoemulsification by vajpayee]

- The steps in phacoemulsification include : (i) Corneoscleral incision, (ii) Continuous curvilinear capsulorrhexis, (iii) Hydrodissection and hydrodelineation, (iv) Emulsification and aspiration of nucleus and then cortex, (v) Foldable IOL implantation in posterior chamber.

296. Phacoemulsification uses

a) High frequency sound waves

b) Infrared waves

c) Ultraviolet rays

d) None of these

Correct Answer - A

Ans. is 'a' i.e., High frequency sound waves [Ref Kanski's 8th/e chapter 9, p. 281]

In Phacoemulsification, lens nucleus is emulsified using high frequency sound waves.

297. Post operative complications of cataract are all except?

a) After cataract

b) Endophthalmitis

c) Glaucoma

d) Scleritis

Correct Answer - D

Ans. is 'd' i.e., Scleritis [Ref Ophthalmology by Duker 2nd/e p. 484]

There are so many complications of cataract surgery, Here are only important ones:?

- After cataract (opacification of capsule)
- Retinal detachment
- Vitreous prolapse & loss
- Neovascular glaucoma
- Cystoid macular edema
- Anterior uveitis (iridocyclitis)
- Endophthalmitis
- Iris prolapse
- Aphakic glaucoma
- Stria keratopathy & Pseudophakic bullous keratopathy
- Fibrous & endothelial growth
- Corneal endothelial damage

298. Hemeralopia is seen in

- a) Retinal detachment
- b) Retinitis pigmentosa
- c) Optic neuritis
- d) Subcapsular cataract

Correct Answer - D

Ans. is 'd' i.e., Subcapsular cataract [Ref Kanski 8th/e Chap. 9, p. 270]

Hemeralopia is the inability to see clearly in bright light (also known as day blindness) and is the exact opposite of nyctalopia (night blindness).

Subcapsular cataract

- Anterior subcapsular cataract lies directly under the lens capsule and is associated with fibrous metaplasia of the lens epithelium.
- Posterior subcapsular opacity lies just in front of the posterior capsule and has a granular or plaque-like appearance on oblique slit lamp biomicroscopy, but typically appears black and vacuolated on retroillumination; the vacuoles are swollen migratory lens epithelial cells (bladder or Wedl), similar to those commonly seen postoperatively in posterior capsular opacification. Due to its location at the nodal point of the eye, a posterior subcapsular opacity often has a particularly profound effect on vision.
- Patients are characteristically troubled by glare, for instance from the headlights of oncoming cars, and symptoms are increased by miosis, such as occurs during near visual activity and in bright sunlight (day blindness).

299. Which of the following is a good dye is used for lens in cataract surgery?

a) Trypan Blue

b) Fluorescein

c) India ink

d) None

Correct Answer - A

Ans. is 'A'

Trypan blue dye for anterior segment surgeries

- Trypan blue has been used as an adjunct for improving visualization of the anterior capsule during phacoemulsification of mature white cataracts for the past few years.
- Surgeons have long used dyes like indocyanine green, fluorescein, and trypan blue to stain the anterior capsule in order to facilitate the surgical procedure.
- **studies comparing these 3 dyes have concluded that trypan blue provides significantly more intensive staining of the anterior lens capsule than the others**
- **Trypan blue is easier to use than indocyanine green, because it comes in a premixed solution, and it is available at a more economical price.**

300. Which of the following is a layer between choroid and retina?

- a) Bruch's membrane
- b) Descemet's membrane
- c) Photoreceptors
- d) Ganglion cell layer

Correct Answer - A

Ans. is 'a' i.e., Bruch's membrane [Ref Parson's 21st ed p. 321]

Bruch's membrane is the innermost layer of the choroid. It is also called the vitreous lamina, because of its glassy microscopic appearance. It is 2-4 μ m thick. It lies between choroid and the retina.

301. 100 day glaucoma is caused by

a) CRVO

b) CRAO

c) Buphthalmos

d) Age related macular degeneration

Correct Answer - A

Ans. is 'a' i.e., CRVO

- 100-day glaucoma is typically seen in Ischemic CRVO.
- Following central retinal vein occlusion, flame-shaped haemorrhages develop in the nerve fiber layer of the retina, especially around the optic disc, as a result of the high intravascular pressure that dilates the veins and collateral vessels.
- Edema of the optic disc and retina occur because of impaired absorption of interstitial fluid.
- Vision is generally poor but may recover surprisingly well, considering the severity of the fundusoscopic changes.
- Intractable closed-angle glaucoma, with severe pain and repeated haemorrhages, commonly occurs 2 to 3 months after central retinal vein occlusion ('100-day glaucoma'; 'thrombotic glaucoma'), owing to neovascularization of the iris and adhesions between the iris and the anterior chamber angle (peripheral anterior synechiae).

302. Keith Wagner classification is for

a) Hypertensive retinopathy

b) Diabetic maculopathy

c) CRVO

d) CRAO

Correct Answer - A

Ans. is 'a' i.e., Hypertensive retinopathy [Ref Robert W. Schrier 8th ed p. 1377]

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303. In which of the following, intraocular pressure is very high and inflammation is minimum?

a) Glaucomatocyclic crisis

b) Acute iridocyclitis

c) Hypertensive uveitis

d) Angle closure glaucoma

Correct Answer - A

Ans. is 'a' i.e., Glaucomatocyclic crisis [Ref Khurana 4th/e p. 160]

Glaucomatocyclic crisis

- Glaucomatocyclic crisis (Posner - Schlossman syndrome) is a unilateral recurrent non-granulomatous iritis that is associated with an elevated ocular pressure during the attacks. This self-limiting condition tends to occur in persons during the third to sixth decade and the visual fields, the optic nerve head, and anterior chamber angle are normal.
- A mild inflammatory reaction is very rarely present as evidenced by a few keratic precipitates on the posterior surface of the cornea. The cause of the glaucoma remains unknown, but a trabeculitis is suspected. Many patients (55%) subsequently develop open angle glaucoma

304. Cell bodies of Muller's Cells are present in which layer of retina?

a) Inner limiting membrane

b) Outer nuclear layer

c) Retinal pigment epithelium

d) Ganglion cell layer

Correct Answer - A

Ans. is 'a' i.e., Inner limiting membrane [Ref Histology of the Eye, edited by William Krause, Dept. Pathology and Anatomical science, University of Missouri School of Medicine]

- Inner limiting membrane - basement membrane elaborated by Muller cells.
- Nerve fibre layer - axons of the ganglion cell nuclei (note that a thin layer of Muller cell footplates exists between this layer and the inner limiting membrane).
- Ganglion cell layer - contains nuclei of ganglion cells, the axons of which become the optic nerve fibres for messages and some displaced amacrine cells.
- Inner plexiform layer - contains the synapse between the bipolar cell axons and the dendrites of the ganglion and amacrine cells.
- Inner nuclear layer - contains the nuclei and surrounding cell bodies (perikarya) of the amacrine cells, bipolar cells and horizontal cells.
- Outer plexiform layer - projections of rods and cones ending in the rod spherule and cone pedicle, respectively. These make synapses with dendrites of bipolar cells. In the macular region, this is known as the Fiber layer of Henle.
- Outer nuclear layer - cell bodies of rods and cones.
- External limiting membrane - layer that separates the inner segment

- portions of the photoreceptors from their cell nucleus.
- Layer of rods and cones - layer of rod cells and cone cells.
 - Retinal pigment epithelium - single layer of cuboidal cells. This is closest to the choroid.

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305. Which of the following is true about signs of angle in closure glaucoma except

- a) Vertical semi dilated pupil
- b) Edematous cornea
- c) Multiple iris nodules
- d) Edematous and hyperemic optic disc

Correct Answer - C

Ans. is 'c' i.e., Multiple iris nodules [Ref Parson's 21st ed p. 290]

Clinical features of angle closure glaucoma

- Conjunctiva is chemosed and congested (both conjunctival & ciliary vessels are congested).
- Cornea is oedematous and insensitive
- Anterior chamber is very shallow & with aqueous flare Angle of anterior chamber is closed (on gonioscopy)
- Iris is discoloured
- Pupil is semidilated, vertically oval and fixed. It is non reactive to both light and accommodation.
- IOP is markedly raised (40- 70 mm Hg)
- Optic disc is oedematous & hyperemic
- Fellow eye shows shallow anterior chamber and a narrow angle.

306. Which of the following is false statement about vitreous?

- a) Anatomically, vitreous is present in anterior segment
- b) Vitreous largely contain water and hyaluronic acid
- c) Strongest attachment of vitreous base is at ora serrata
- d) Vitreous is attached anteriorly to the lens

Correct Answer - A

Ans. is 'a' i.e., Anatomically, vitreous is present in anterior segment [Ref Kanski 8thie Chap. 17, p. 722]

- Vitreous is present in posterior segment of eye.
- Vitreous humor is a jelly like fluid liquid that fills most (80%) of the eye (from the lens back, i.e., in the posterior segment). The vitreous consists largely of water (99%), a network of collagen fibrils, large molecules of hyaluronic acid, peripheral cells (hyalocytes), and mucopolysaccharides, forming a gel - like material.
- There is a potential space between vitreous and retina, called subhyaloid space. As we age, vitreous changes from a gel to a liquid and gradually shrinks separating from the retina. This is when people start seeing floaters (black spots in front of the eye).

307. Phacodonesis is seen in all except

a) Traumatic injury to the eye

b) Hypermature cataract

c) Pseudoexfoliation

d) Diabetes mellitus

Correct Answer - D

Ans. is 'd' i.e., Diabetes mellitus [Ref Kanski 8thie p. 300]

Phacodonesis is the tremulousness or vibration of the lens with eye movement.

It is seen in:

1. Trauma
2. Pseudoexfoliation syndrome
3. Hypermature cataract
4. Ectopia lentis

308. Which of the following is true about divergent squint

- a) It is also called exotropia
- b) It is more common than convergent squint
- c) It is a feature of 6th nerve palsy
- d) All of the following

Correct Answer - A

Ans. is 'a' i.e., It is also called exotropia [Ref Pediatric strabismus 4th/e p. 218-224]

- Divergent squint is also called as exotropia.
- It less common than convergent squint (esotropia).
- 6th nerve palsy causes convergent squint.

309. Crossed eye fixation is positive in -

a) Esotropia

b) Exotropia

c) Hypertropia

d) Hypotropia

Correct Answer - A

Ans. is 'a' i.e., Esotropia [Ref Internet]

- Cross fixation is the use of the right eye to view the left visual field and the use of the left eye to view the right visual field. This behavior is very common in children with infantile esotropia. Cross fixation often causes the appearance of not looking directly at a target and parents often wonder if vision is reduced.

310. Partial ptosis is oculomotor nerve injury is due to intact -

a) Supply from opposite oculomotor nerve

b) Sympathetic innervation

c) Parasympathetic innervation

d) Action of orbicularis oculi

Correct Answer - B

Ans. is 'b' i.e., Sympathetic innervation [Ref Textbook of ophthalmic reconstructive surgeries p. 786]

Motor nerve supply of lid is through three sources :?

1. Facial nerve supplying orbicularis oculi, (closing of lid)
2. Oculomotor supplying levator palpebrae superioris;
3. Sympathetic fibres supplying muller's muscle.
4. Both LPS and Muller muscle function to retract the lid, hence only partial ptosis is seen in oculomotor nerve palsy.

311. Retinoblastomas show all of the following except

- a) Small round cells
- b) Necrosis
- c) Pseudorosettes and Fleurettes
- d) None

Correct Answer - D

Ans. 'd' is None (All are seen) [Ref Khurana 4thie p. 281]

Histology of retinoblastomas

- The tumor arises from small round cells with large nuclei, i.e., it is a tumor of a group called small round blue cell tumors.
- Microscopic features of a well differentiated tumor include Flexnerwintersteiner rosettes (specific for retinoblastoma), Homer Wright rosettes, pseudorosettes and fleurettes formation.

312. Which of the following is most common visual defect in papilloedema

- a) Amourosis fugax
- b) Homonymous hemianopia
- c) Homonymous quadrantopia
- d) Glare

Correct Answer - A

Ans. is 'a' i.e., Amourosis fugax [Ref Clinical ophthalmology 2nd ed p. 349, 350]

- Initially the symptoms of papilloedema are due to increased ICT, e.g. headache, nausea, projectile vomiting and papilloedema.
- Vision is normal initially.
- In 25% of patients visual symptoms occur only in advanced severe papilloedema, when optic atrophy sets in.
- Typically, there is recurring brief episodes (transient) of visual obscurations (Amaurosis fugax) lasting less than 30 seconds, in which vision turns grey or blacks, sometimes described as if a veil has fallen over the eyes.
- The symptoms usually affect both eyes at once as papilloedema is bilateral.
- Central vision is affected late in the disease.
- Initially there is enlargement of blind spot and progressive contraction of the visual field (visual field becomes smaller).
- Complete blindness sets in eventually.
- Thus, characteristically there is gradually progressive painless loss of vision

313. What is the treatment of meibomianitis ?

- a) Cleansing the lid edges
- b) Application of moist heat
- c) Local antibiotics
- d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Foster CS. The eye in skin and mucous membrane disorders. In: Tasman W, Jaeger EA, eds. Duane's Ophthalmology . 15th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2009:chap 27]

Meibomianitis

- Meibomianitis is inflammation of the meibomian glands, a group of oil-releasing (sebaceous) glands in the eyelids.

Causes

- Any condition that increases the oily secretions of the meibomian glands will allow excess oils to build up on the edges of the eyelids. This allows for the excess growth of bacteria that are normally present on the skin.
- These problems can be caused by allergies, hormone changes during adolescence, or skin conditions such as rosacea and acne.
- Meibomianitis is often associated with blepharitis, which can cause a buildup of a dandruff-like substance at the base of the eyelashes.
- In some people with meibomianitis, the glands will be plugged so that there is less oil being made for the normal tear film. These people often have symptoms of dry eye.

314. Most common site of basal cell carcinoma of the eye is

- a) Eyelid
- b) Conjunctiva
- c) Cornea
- d) Lacrimal apparatus

Correct Answer - A

Ans. is 'a' i.e., Eyelid [Ref Renu Jogi 4th/e p. 420; Khurana 4th/e p. 360]

- Basal cell carcinoma is the commonest malignant tumor of the lids (90%) usually seen in elderly people.
- It is locally malignant and involves most commonly lower lid (50%) followed by medial canthus (25%), upper lid (10-15%) and outer canthus.
- "Basal cell carcinoma is seen in the lower lid near the inner canthus usually

315. Ankyloblepharon is defined as

- a) Adhesion of the lid to the eyeballs
- b) Adhesion of the lid margins to each other
- c) Inturned eyelash
- d) Inflammation of the lid margin

Correct Answer - B

Ans is 'b' i.e., Adhesion of the lid margins to each other [Ref: Kanski 8th le p. 52]

Disorders of the eyelids

- Blepharitis :- Chronic inflammation of lid margin.
- Blephritis acarica : Inflammation of lid margin caused by Demodex folliculorum. Madarosis :- Loss of eye lashes.
- Trichiasis :- Misdirected eyelashes which rub against the eyeball in normal position of lid margin. Distichiasis :- an abnormal extra row of cilia taking place of meibomian glands.
- Entropion :- Inward rolling or inturning of lid margin.
- Ectropion :- Out rolling or outward turning of lid margin.
- Symblepharon :- Adhesion of the lids to eyeball.
- Ankyloblepharon :- Adhesion of margins of two eyelids.
- Blepharophimosis Palpebral fissure appears to be contracted at the outer canthus. Lagophthalmos :- Incomplete closure of the palpebral aperture when eyes are shut. Tylosis :- Thickening of lid margin.
- Basal cell carcinoma :- Most common malignant tumor of eyelid
- Cloboma of lid :- Triangular gap in nasal side of upper lid

316. The globe is displaced to which side in lacrimal gland tumour?

a) Inferotemporal

b) Inferonasal

c) Superotemporal

d) Nasal

Correct Answer - B

Ans. is 'b' i.e., Inferonasal [Ref Bernardini FP, Devoto MH, Croxatto JO. Epithelial tumors of the lacrimal gland: an update. Curr Opin Ophthalmol 2008;19:409-13]

- All lacrimal gland tumors typically share the following symptoms: facial asymmetry due to displacement of the globe, diplopia, ptosis, limited ocular motility, and enlargement of the lacrimal gland.
- Epithelial lesions tend to develop mostly in the orbital lobe of the lacrimal gland and are principally unilateral.
- The initial sign is usually inferior and nasal displacement of the globe and proptosis, due to the superotemporal location of the lacrimal gland in the anterior aspect of the orbit.

317. 'D' shaped pupil is seen in

- a) Glaucoma
- b) Dislocation of lens
- c) Iridodialysis
- d) Iridocyclitis

Correct Answer - C

Ans. is 'c' i.e., Iridodialysis [Ref Khurana 4thie p. 404]

Iridodialysis is detachment of iris from its root at the ciliary body. It results in D shaped pupil and a lack biconvex area seen at the periphery.

318. Investigation of choice for optic neuritis is ?

a) MRI Brain and orbit

b) Ct scan Brain and orbit

c) Vitreous biopsy

d) Electrooculogram

Correct Answer - A

Ans. is 'a' i.e., MRI Brain and orbit [Ref Kanski 8th/e Chap. 19, p. 784]

Magnetic Resonance Imaging (MRI) is far more superior for the study of soft tissue and thus, for most neuro-ophthalmic conditions, MRI is the investigation of choice.

319. Ocular findings in diabetes are all except

-

a) Retinopathy

b) Early senile cataract

c) Neovascular glaucoma

d) Blepharophimosis

Correct Answer - D

Ans. is 'd' i.e., Blepharophimosis [Ref Kanski's 8th Ve chapter 13, p. 520]

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320. Which of the following is a long term side effect of phakic IOLs

a) Chronic glaucoma

b) Retinal detachment

c) Optic neuritis

d) None

Correct Answer - A

Ans. is 'a' i.e., Chronic glaucoma [Ref Chen LI, et al. Metaanalysis of cataract development after phakic intraocular lens surgery. J Cataract Refract Surg 2008;34:1181-200.]

Phakic intraocular lenses (pIOLs) are artificial lenses that are inserted either on top of the iris or in between the iris and the natural lens. They are used to treat refractive error without removing cornea tissue or the lens.

Long term risks of phakic IOLS

- Chronic intraocular pressure elevation can produce indolent vision damage from angle closure glaucoma.
- The surgical procedure itself also induces some endothelial cell damage and if the prosthetic is in close proximity to the cornea, chronic loss could be induced.
- Finally, chronic inflammation or prosthetic-lens touch can induce cataract formation

321. Most common protozoan causing keratitis is

a) Plasmodium

b) Acanthamoeba

c) Toxoplasma

d) W. bancrofti

Correct Answer - B

Ans. is 'b' i.e., Acanthamoeba [Ref Kanski 8th/e p. 197]

"Acanthamoeba keratitis is the most common keratitis caused by a protozoan especially in contact lens users".

322. Most common protozoan causing keratitis is

a) Plasmodium

b) Acanthamoeba

c) Toxoplasma

d) W. bancrofti

Correct Answer - B

Ans. is 'b' i.e., Acanthamoeba [Ref Kanski 8th/e p. 197]

"Acanthamoeba keratitis is the most common keratitis caused by a protozoan especially in contact lens users".

323. Treatment of acute dacrocystitis in stage of cellulitis is ?

a) Antibiotics

b) Abscess drainage

c) DCT

d) DCR

Correct Answer - A

Ans. A. Antibiotics

Treatment of acute dacrocystitis

- During cellulitis stage
- It consists of systemic and topical antibiotics to control infection; and systemic anti-inflammatory analgesic drugs and hot fomentation to relieve pain and swelling.

324. What is the correct sequence of xerophthalmia

- a) Nightblindness 4 Conjunctival xerosis → corneal xerosis - corneal ulcer
- b) Conjunctival xerosis → corneal xerosis → corneal ulcer → Nightblindness
- c) Corneal xerosis → corneal ulcer 4 Nightblindness → Conjunctival xerosis
- d) Corneal ulcer → Nightblindness → Conjunctival xerosis -3 corneal xerosis

Correct Answer - A

Ans. A. Nightblindness 4 Conjunctival xerosis → corneal xerosis - corneal ulcer

325. Which eye muscle has radial, longitudinal and circular fibres?

- a) Sphinctor Pupillae
- b) Dilator Pupillae
- c) Levator palpebrae Superioris
- d) Ciliary muscle

Correct Answer - D

Ans. D. Ciliary muscle

The ciliary muscle is a ring of smooth muscle in the eye's middle layer (vascular layer) that controls accommodation for viewing objects at varying distances and regulates the flow of aqueous humour into Schlemm's canal.

It changes the shape of the lens within the eye.

The ciliary fibers have circular, longitudinal (meridional) and radial orientations.

326. Required for IOL power calculation ?

a) Corneal topography

b) Gonioscopy

c) Indirect Ophthalmoscopy

d) Keratometry

Correct Answer - D

Ans, D. Keratometry

IOL power calculation requires keratometry and biometry (axial length of eyeball).

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327. Immediate treatment of acute dacryocystitis is?

a) Antibiotics and drainage of abscesss if present

b) Dacryocystorhinostomy

c) Dacryocystectomy

d) Nasal decongestants

Correct Answer - A

Ans. A. Antibiotics and drainage of abscesss if present

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328. True about imaging spectrometry is ?

- a) Allows simultaneous measurements of reflectance spectra along a line
- b) Is useful in diagnosing against the rule astigmatism
- c) Spectrometry is an essential investigation before trabeculectomy
- d) It is based on the principle of Sturm's Conoid

Correct Answer - A

Ans. A. Allows simultaneous measurements of reflectance spectra along a line

'Imaging sPectrometry is a new technique that permits simultaneous measurements of reflectance spectra at different locations along a line.

Results are three-dimensional images, whose coordinates are location, wavelength, and reflectance.

A conventional fundus camera is adapted to a spectrograph and an intensified charge coupled device (CCD) matrix detector system.

Considering the radiation transPort in single fundus layers, the local distribution of the concentration-thickness product of xanthophyll, melanin, and choroidal blood can be calculated'

329. The principle of total internal reflection is used by?

a) Gonioscope

b) Pachymeter

c) Ophthalmoscope

d) Lensometer

Correct Answer - A

Ans. A

Gonioscopy is an essential diagnostic tool and examination technique used to visualize the structures of the anterior chamber angle.

Mastering the various techniques of gonioscopy is crucial in the evaluation of glaucoma patients.

Gonioscopy is required to visualize the chamber angle because under normal conditions light reflected from the angle structures undergoes total internal reflection at the tear–air interface. At the tear–air interface, the critical angle (approximately 46°) is reached and light is totally reflected back into the corneal stroma. This prevents direct visualization of the angle structures. All gonioscopy lenses eliminate the tear–air interface by placing a plastic or glass surface adjacent to the front surface of the eye. The small space between the lens and cornea is filled by the patient's tears, saline solution, or a clear viscous substance. Depending on the type of lens

330. Refractory error measured by all except ?

a) Keratometry

b) Retinoscopy

c) Refractometry

d) Spectrometry

Correct Answer - D

Ans. D. Spectrometry

The procedure of determining and correcting refractive errors is termed as refraction. The refraction comprises two complementary methods : -

1. Objective methods: Objective methods of refraction include :- (i) Retinoscopy, (ii) Refractometry, (iii) Keratometry,
2. Subjective methods: These are :- (i) Subjective verification of refraction, (ii) Subjective refining of refraction, (iii) Subjective binocular balancing.

331. Anisokonia is ?

- a) Projection of different coloured images into visual cortex
- b) Projection of different shaped images into visual cortex of two retinae
- c) Change in the velocity of perceived objects
- d) Partial intermittent visual loss

Correct Answer - B

Ans. B. Projection of different shaped images into visual cortex of two retinae

Anisoeikonia is defined as a condition wherein the images projected on the visual cortex from the two retinae are abnormally unequal in size or shape-

332. Parasitosis of extraocular eye muscles is seen in?

a) Trichinosis

b) Cysticercosis

c) Amoebiasis

d) Ascariasis

Correct Answer - A

Ans, A. Trichinosis

'Although many parasites can theoretically involve the extraocular muscle the most frequent form of parasitic infestation of extraocular muscles is trichinosis'

333. Most powerful refractory surface of eye is -

a) Conjunctiva

b) Cornea

c) Vitreous

d) Lens

Correct Answer - B

Ans. B. Cornea

The cornea, with the anterior chamber and lens, refracts light, with the cornea accounting for approximately two-thirds of the eye's total optical power.

In humans, the refractive power of the cornea is approximately 43 dioptries.

The dioptric power of reduced eye is + 50D, of which + 44D is contributed by cornea and + 16D by the crystalline lens.

Total diopter power of schematic eye is + 58D, of which cornea contributes +43D and the lens +15D.

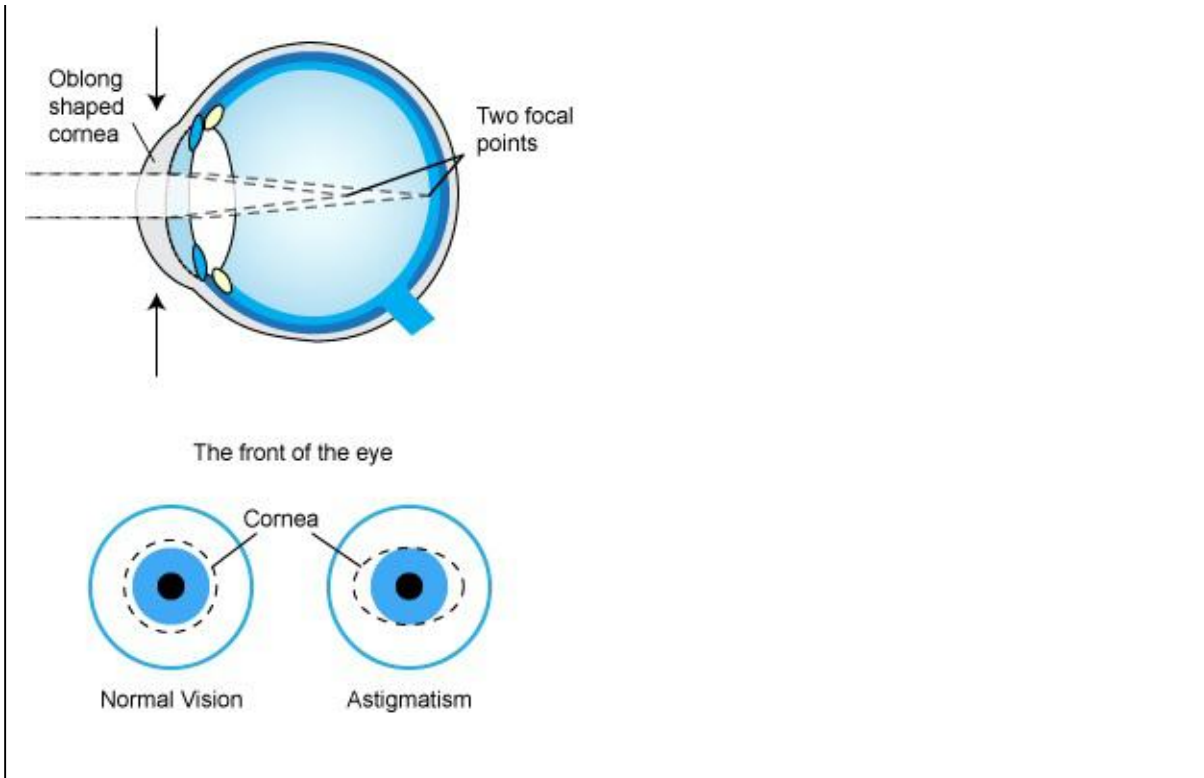
334. Astigmatism is defined as ?

- a) Refractory error wherein refraction varies along different meridians
- b) Refractory error due to long AP length of eye ball
- c) Varying refractory error in both eyes
- d) Varying Shape perception by both eyes

Correct Answer - A

Ans. A. Refractory error wherein refraction varies along different meridians

- Astigmatism is a type of refractive error wherein the refraction varies in the different meridia.
- Consequently, the rays of light entering in the eye cannot converge to a point focus but form focal lines.
- The refractive error of the astigmatic eye stems from a difference in degree of curvature refraction of the two different meridians (i.e., the eye has different focal point in different planes).
- For example, the image may be clearly focused on retina in the horizontal plane, but not in the vertical plane.
- The most common cause of astigmatism is abnormality of corneal curvature.
- Other less common cause are lenticular (curvature abnormality of lens, oblique position of lens) and retinal (oblique placement of macula).



335. CHARGE syndrome includes all except ?

- a) Eye Coloboma
- b) Congenital heart disease
- c) Urinary tract defects
- d) Esophageal Atresia

Correct Answer - D

Ans, D. Esophageal Atresia

CHARGE SYNDROME

- C - Coloboma of the eye, central nervous system anomalies.
- H-Heartdefects.
- A - Atresia of the choanae.
- R - Retardation of growth and/or development.
- G - Genital and/or urinary defects (Hypogonadism, undescended testicles, besides hypospadias).
- E - Ear anomalies and/or deafness and abnormally bowl-shaped and concave ears, known as 'lop ears'.

336. Anteroposterior change in length of eye is called ?

a) Anisokonia

b) Curvatural anisotropia

c) Axial Ametropia

d) Emmetropia

Correct Answer - C

Ans. C. Axial Ametropia

- Ametropia (a condition of refractive error) is defined as a state of refraction, wherein the parallel rays of light coming from infinity are not focused on retina, rather focused either in front (in myopia) or behind (in hypermetropia) the sensitive layer of retina.

Axial Ametropia:

- It is the commonest form of ametropia (both myopia and hypermetropia).
- In hypermetropia, there is an axial shortening of eyeball.
- So, image is formed behind the retina.
- In myopia, there is an axial lengthening of eyeball.
- So, image is formed in front of the retina.
- 1 mm change in axial length leads to ametropia of 3D.
- For example 1 mm shortening in axial length causes hypermetropia of 3D.

337. Features of Usher's Syndrome include all except ?

a) Night Blindness

b) Visual Impairment

c) Multiple Neurofibromas

d) Hearing deficit

Correct Answer - C

Ans. C. Multiple Neurofibromas

Usher syndrome

- Usher syndrome is a relatively rare genetic disorder caused by a mutation in any one of at least 11 genes resulting in a combination of hearing loss and visual impairment, and is a leading cause of deafblindness.
- Usher syndrome is incurable at present.
- Other names for Usher syndrome include Hallgren syndrome, Usher-Hallgren syndrome, retinitis pigmentosadysacusissyndrome, and dystrophia retinae dysacusis syndrome.
- This syndrome is characterized by hearing loss and a gradual visual impairment. The hearing loss is caused by a defective inner ear, whereas the vision loss results from retinitis pigmentosa (RP), a degeneration of the retinal cells.
- Usually, the rod cells of the retina are affected first, leading to early night blindness and the gradual loss of peripheral vision.
- In other cases, early degeneration of the cone cells in the macula occurs, leading to a loss of central acuity.
- In some cases, the foveal vision is spared, leading to 'doughnut vision'; central and peripheral vision are intact, but an annulus exists around the central region in which vision is impaired.

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338. In a case of myopia, LASIK will provide correction upto ?

a) 20D

b) 12D

c) 6D

d) 4D

Correct Answer - B

Ans. B. 12D

Surgical Procedure	Myopia correction
Radial Keratotomy	-2to - 6D
Photorefractive keraotomy	2to 6D
LASIK	Upto - 12D
Extraction of lens	-16to -18D
Phakic IOL	>-12D
Intercorneal ring (ICR)	1-6D

339. What is the most common eye lesion in HIV?

a) Kaposi Sarcoma of Lid

b) CMV Retinitis

c) Cotton wool spots

d) Choroiditis

Correct Answer - C

Ans. C. Cotton wool spots

The most common abnormal finding on fundoscopic examination is cotton-wool spots.

340. What is reverse hypopyon?

- a) Collection of pus in the vitreous
- b) Collection of emulsified silicon oil in anterior chamber
- c) Abscess in the orbit
- d) Seen in corneal ulcer close to being ruptured

Correct Answer - B

Ans, B. Collection of emulsified silicon oil in anterior chamber
Reverse hypopyon

- Collection of silicon oil in the anterior chamber may lead to the appearance of a reverse hypopyon.
- This is due to the emulsified oil being less denser than the aqueous layer

341. Silk retina is seen in ?

a) Hypermetropia

b) Myopia

c) Astigmatism

d) Presbyopia

Correct Answer - A

Ans. A. Hypermetropia

Clinical findings of hypermetropia

1. Small eyeball and cornea
2. Shallow anterior chamber
3. Fundus shows pseudopapillitis and shot silk appearance.
4. Degenerative retinoschisis

342. All of the following drugs increase the risk of postoperative nausea and vomiting after squint surgery in children except ?

a) Halothane

b) Opioids

c) Propofol

d) Nitrous Oxide

Correct Answer - C

Ans, C. Propofol

Strabismus surgery on children is an independent risk factor for postoperative nausea and vomiting.

Propofol Is Used In Predisposed Individuals As It Has Very Less Emetogenicity

343. All of the following are complications of traumatic hyphema except?

a) Rebleeding

b) Pupillary Block

c) Corneal Ulcer

d) Posterior synechiae

Correct Answer - C

Ans. C. Corneal Ulcer

Complications of traumatic hyphema

1. Obstruction of trabecular meshwork with associated intraocular pressure elevation
2. Peripheral anterior synechiae (PAS)
3. Posterior synechiae
4. Corneal bloodstaining
5. Rebleeding: Can occur when the initial clot retracts and lyses allowing for a second episode of bleeding. Rebleeds are generally more severe than the initial bleed, more likely to lead to glaucoma, corneal blood staining, and synechiae formation. It has been reported to occur 3.5% to 38% of the time and probably 5-10% overall.
6. Pupillary block
7. Amblyopia (pediatric patients)

344. Pseudopapilitis with silk shot appearance is seen in?

a) Hypermetropia

b) Myopia

c) Astigmatism

d) Presbyopia

Correct Answer - A

Ans.A. Hypermetropia

Clinical findings of hypermetropia

1. Small eyeball and cornea
2. Shallow anterior chamber
3. Fundus shows pseudopapillitis and shot silk appearance.
4. Degenerative retinoschisis

345. 1mm change axial length of the eyeball would change the refracting power of the eye by ?

a) 1D

b) 2D

c) 3D

d) 4D

Correct Answer - C

Ans. C. 3D

1 mm change in axial length leads to ametropia of 3D.

For example 1 mm shortening in axial length causes hypermetropia of 3D.

346. D Shaped pupil is seen in ?

a) Iridodialysis

b) Iridodonesis

c) Anterior Uveitis

d) Anterior synechiae

Correct Answer - A

Ans., A. Iridodialysis

Iridodialysis is detachment of Iris from its root at the ciliary body. It results in D shaped pupil and a black biconvex area seen at the periphery.

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347. Lensometer detects ?

- a) Correct power of a pair of glasses
- b) Corneal topography
- c) Biochemical constitution of lens
- d) Power of IOL

Correct Answer - A

Ans. A. Correct power of a pair of glasses

Lensometer

- A lensmeter or lensometer, also known as a focimeter or vertometer, is an ophthalmic instrument.
- It is mainly used by optometrists and opticians to verify the correct prescription in a pair of eyeglasses, to properly orient and mark uncut lenses, and to confirm the correct mounting of lenses in spectacle frames.
- Lensmeters can also verify the power of contact lenses, if a special lens support is used.

348. Sixth cranial nerve palsy causes of left eye causes?

a) Accommodation paresis in left gaze

b) Ptosis of left eye

c) Adduction weakness of left eye

d) Diplopia in left gaze

Correct Answer - D

Ans. D. Diplopia in left gaze

Sixth nerve supplies lateral rectus, therefore its palsy results in abduction weakness (not adduction weakness).

In left gaze, there is abduction of left eye and adduction of right eye.

If there is paralysis of lateral rectus of left eye (6th nerve paralysis), abduction of left eye will not be possible in left gaze, while adduction of right eye is normal.

Therefore, there will be diplopia in left gaze.

349. All of the following are treatments of myopia except?

a) LASIK

b) Phakic intraocular lens

c) Radial Keratotomy

d) Holmium laser thermoplasty

Correct Answer - D

Ans. D. Holmium laser thermoplasty

Refractive surgeries for myopia

- Radial keratotomy
- Laser insitu keratomileusis (LASIK)
- Phakic intraocular lens (IOL)
- Orthokeratology
- Photorefractive keratotomy (PRK)
- Extraction of lens (Fucala's operation)
- Intercorneal ring implantation

350.

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Pupillary reflex pathway- All of the following are a part except ?

a) Edinger Westphal nucleus

b) Pretectal nucleus

c) Medial geniculate body

d) Retinal ganglion cell

Correct Answer - C

Ans. C. Medial geniculate body

Sensory (efferent) component of light reflex = Optic (1st) nerve

Motor (efferent) component of light reflex = Oculomotor (3rd) nerve

351. Index myopia is seen in ?

a) Nuclear cataracts

b) Chorioretinitis

c) Choroidal melanoma

d) Posterior uveitis

Correct Answer - A

Ans. A. Nuclear cataracts

Nuclear changes of aging induce a modification of refractive index of lens and produce an index myopia.

'Nuclear cataracts cause a general decrease in the transparency of the lens nucleus. They are associated with index myopia'

352. Sudden painless loss of vision- All are causes except?

a) CRAO

b) CSR

c) Acute congestive glaucoma

d) Vitreous Hemorrhage

Correct Answer - C

Ans. C. Acute congestive glaucoma

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353. The most common type of strabismus seen in myopes is?

- a) Intermittent Exotropia
- b) Intermittent Esotropia
- c) Esotropia hypotropia complex
- d) Exotropia Hypotropia complex

Correct Answer - A

Ans. A. Intermittent Exotropia

Myopia and Intermittent exotropia

- Traditionally, it is believed that the presence of myopia may be associated with a decreased demand for accommodation and hence lower convergence.
- This may predispose to an increased risk of developing exotropia
- Alternately, it is hypothesized that intermittent exotropia may lead to development of myopia due to increased accommodative demand and increased convergence may be necessary to control the exodeviation that can contribute to increased accommodation and myopia in intermittent distance exotropia.

354. Muscae volitantes is seen in ?

- a) Vitreous detachment
- b) Vitreous Hemorrhage
- c) Remains of primitive hyaloid vasculatur
- d) Eale's disease

Correct Answer - C

Ans, C. Remains of primitive hyaloid vasculatur

Muscae volitantes are physiological vitreous opacities and represent the residues of primitive hyaloid vasculature.

355. All of the following are causes Crystal keratopathy except?

a) Cystinosis

b) Schnyder's Dystrophy

c) Bietti's Dystrophy

d) Diabetes

Correct Answer - D

Ans. D. Diabetes

Causes of Crystalline Keratopathy :- Infections, Schnyder corneal dystrophy, Bietti corneoretinal dystrophy, Cystinosis, Lymphoproliferative disorders, Medication-induced.

356. Most common age related change in vitreous ?

a) Anterior vitreous detachment

b) Posterior vitreous detachment

c) Vitreous hemorrhage

d) Vitritis

Correct Answer - B

Ans. B. Posterior vitreous detachment

Yanoff Writes (Most common age related event in vitreous is posterior vitreous detachment'

357. What is true about retinal hemorrhage in new born?

- a) More common in instrumented deliveries
- b) Resolve in 6 - 8 months
- c) Commonly unilateral
- d) Associated with intrauterine infection

Correct Answer - A

Ans. A. More common in instrumented deliveries

Birth-related RH in infants occurs in one-quarter of normal deliveries and are far more common after instrumental deliveries.

Commonly bilateral, they were predominantly intraretinal, posterior, resolved rapidly, and very rarely persisted beyond 6 weeks.

358. Subhyaloid hemorrhage is ?

a) Boat shaped

b) Crescent shaped

c) Round

d) Flame shaped

Correct Answer - A

Ans,. A. Boat shaped

Retrohyaloid (subhyaloid) hemorrhage ('Boat- shaped or scaphoid) :-
Located anterior (internal) to the retina, within the retrohyoid space.
(note - the term hyaloid refers to hyaloid body, another name for vitreous humor).

359. Prutchners retinopathy in associated with -

a) Diabetes Mellitus

b) Wilson's disease

c) Head trauma

d) Rheumatoid arthritis

Correct Answer - C

Ans. C. Head trauma

Purtscher's retinopathy

- Near-confluent cotton-wool spots clustered around an otherwise normal optic nerve head in an eye of a patient who had sustained a severe blunt injury to the head and chest.
- Later, it was discovered to be associated with several non-traumatic systemic diseases.

Conditions associated:

- Severe head, chest & long bone diseases.
- Fat embolism syndrome.
- Amniotic fluid embolism
- Acute pancreatitis.
- SLE

360. Snowball appearance is seen in ?

- a) Posterior uveitis
- b) Sarcoidosis
- c) Anterior uveitis
- d) Vitreous Hemorrhage

Correct Answer - B

Ans. B. Sarcoidosis

Causes of intermediate uveitis, thus Snowball Opacities of Vitreous –

- Candidiasis
- TB, syphilis
- Sarcoidosis
- Multiple sclerosis
- Lyme disease.

361. Unilateral frontal blisters with upper lid edema with conjunctivitis is seen in ?

- a) Acanthamoeba Keratitis
- b) Herpes Simplex
- c) Herpes Zoster Ophthalmicus
- d) Neuroparalytic Keratitis

Correct Answer - C

Ans. C. Herpes Zoster Ophthalmicus

Ocular lesions : Combination of 2 or more of the following with subsidence of skin eruptions : -

- i) Conjunctivitis (Most common ocular lesion)
- ii) Zoster keratitis :
 - Punctate keratitis, Microdendritic corneal ulcer (Pseudodendritic Keratitis.), nummular anterior stromal keratitis, Disciform keratitis, neuroparalytic ulceration, exposure keratitis, mucous plaque keratitis, Keratouveitis with endothelitis , Sclerokeratitis (least common).
 - The endothelium is a favoured site of attack and acute endothelial cell loss occurs during herpes zoster keratouveitis.
- iii) Episcleritis/Scleritis, Iridocyclitis (Uveitis).
- iv) Acute retinal necrosis, anterior segment necrosis, phthisis bulbi.
- v) Secondary glaucoma.

362. What is false about Eale's disease amongst the following?

a) Retinal detachment may occur

b) AKT is given

c) Optic neuritis

d) Vitreous Hemorrhage

Correct Answer - C

Ans. C. Optic neuritis

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363. A 44 year old woman presents Sudden painless loss of vision with history of previous similar episode fundoscopy shows no glow. What could be the possible diagnosis?

- a) Vitreous Hemorrhage
- b) Rhegmatogenous Retinal Detachment
- c) Acute congestive glaucoma
- d) Fungal Keratitis

Correct Answer - A

Ans., A. Vitreous Hemorrhage

Vitreous hemorrhage refers to bleeding into the vitreous chamber or a space created by vitreous detachment.

Patients present with sudden onset of floaters (black spots in front of the eye) where the hemorrhage is small, and there may be sudden painless loss of vision if the hemorrhage is large.

364. Glaucoma drainage devices ?

- a) Drain aqueous humour to the posterior segment
- b) Drain aqueous humour to an external device
- c) Open the trabeculae mechanically
- d) Reduce the aqueous secretion by compressing the ciliary epithelium

Correct Answer - B

Ans. B. Drain aqueous humour to an external device

Glaucoma drainage devices are designed to divert aqueous humor from the anterior chamber to an external reservoir, where a fibrous capsule forms about 4-6 weeks after surgery and regulates flow.

These devices have shown success in controlling intraocular pressure (IOP) in eyes with previously failed trabeculectomy and in eyes with insufficient conjunctiva because of scarring from prior surgical procedures or injuries.

They also have shown success in complicated glaucomas, such as uveitic glaucoma, neovascular glaucoma, and pediatric and developmental glaucomas, among others.

365. What is the cause of glaucoma in retinoblastoma?

a) Blockage of trabecular network

b) Neovascularisation

c) Mass effect of the tumour

d) Lysis of the lens

Correct Answer - B

Ans. B. Neovascularisation

Retinoblastoma is a cause of neovascular glaucoma,

366. Mioitics are treatment of choice for ?

a) Angle closure glaucoma

b) Open angle glaucoma

c) Buphthalmos

d) Sympathetic Ophthalmia

Correct Answer - A

Ans. A. Angle closure glaucoma

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367. Which organism can penetrate corneal endothelium?

a) *Aspergillus fumigatus*

b) *Staphylococcus Aureus*

c) *Neisseriae Gonorrhoe*

d) *Hemophilus influenza*

Correct Answer - A

Ans. A. *Aspergillus fumigatus*

Fungi - Can penetrate intact corneal endothelium

Neisseria sp, *C. Diphtheriae*, *H. Aegyptus*, *Listeria*- Can penetrate intact corneal epithelium

368. Earliest sign of primary congenital glaucoma ?

a) Corneal edema with watering

b) Haab's Striae

c) Blue sclera

d) Myopia

Correct Answer - A

Ans., A. Corneal edema with watering

Most common symptom - Watering (lacrimation)

2d most common symptom - Photophobia

Most troublesome symptom - Photophobia (Child avoids light)

First sign - Corneal edema with watering

369. The zonules suspending the lens are attached to the?

- a) Root of iris
- b) Ciliary body
- c) Anterior vitreous
- d) Limbus

Correct Answer - B

Ans. B. Ciliary body

The ciliary zonules (Zonules of zinn or suspensory ligaments of lens) hold the lens in position and enable the ciliary muscle to act on it. These consist essentially of a series of fibres which run from the ciliary body and fuse into the outer layer of the lens capsule around the equatorial zone.

370. Descemet membrane breach is seen in ?

- a) Angle closure glaucoma
- b) Buphthalmos
- c) Acute Iridocyclitis
- d) Subconjunctival hemorrhage

Correct Answer - B

Ans. B. Buphthalmos

Haab striae are discrete corneal opacities appear as lines with double contour due to rupture in Descemet's membrane.

371. Lens attached to ciliary body via ?

a) Limbus

b) Zonules

c) Vitreous Humour

d) Root of iris

Correct Answer - B

Ans. B. Zonules

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372. What is not true about congenital glaucoma of eye?

a) Photophobia is most common symptom

b) Haab's Striae maybe seen

c) Thin and blue sclera seen

d) Anterior chamber is shallow

Correct Answer - A

Ans. A. Photophobia is most common symptom

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373. The intraocular lens in cataract surgery is placed in ?

- a) Surface of iris
- b) Capsular bag
- c) Over the face of vitreous
- d) Around the limbus

Correct Answer - B

Ans. B. Capsular bag

A saclike structure remaining within the eye following extracapsular cataract extraction or Phacoemulsification.

The implanted intraocular lens is placed within this structure to recreate the usual phakic state.

374. Non foldable lens is made of -

a) Silicon

b) Acrylic

c) PMMA

d) Hydrogel

Correct Answer - C

Ans. C. PMMA

Types of IOL

Depending on the material of manufacturing, following types of IOLs are there

1. Rigid IOLs:- Made entirely from polymethyl methacrylate (PMMA) .
2. Foldable IOLs:- Are used after phacoemulsification and are made of silicon, acrylic, hydrogel and collamer.
3. Rollable IOLs: Ultra-thin IOLs and are used after phakic technique (micro- incision: 1 mm). These are made of hydrogel.

375. What is the type of Galactosemia cataract?

a) Snowflake

b) Oil drop

c) Blue dot

d) Polychromatic lustre

Correct Answer - B

Ans, B. Oil drop

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376. In head injury unilateral dilatation of pupil is seen due to ?

a) Oculomotor nerve compression

b) Ophthalmic N. compression

c) Trigeminal N. compression

d) None

Correct Answer - A

Ans. A. Oculomotor nerve compression

Pupil dilation is thought to be the result of uncal herniation causing mechanical compression of IIIrd cranial nerve and subsequent brain stem compromise,

377. The junction between Retina & Ciliary body is ??

- a) Equator
- b) Pars plicata
- c) Pars plana
- d) Ora serrata

Correct Answer - D

Ans.D. Ora serrata

Ora serrata is the serrated peripheral margin where the retina ends' Here retina is firmly attached both to vitreous and choroid. Pars plana (of ciliarybody) extends anteriorly from ora serrata.

378. "Bread-crumb" appearance is seen in ?

a) Diabetic cataract

b) Toxoplasmosis

c) CMV retinitis

d) Complicated cataract

Correct Answer - D

Ans. D. Complicated cataract

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379. Yoke muscle for left superior rectus is ?

- a) Right superior rectus
- b) Left inferior rectus
- c) Right inferior oblique
- d) Right superior oblique

Correct Answer - C

Ans. C. Right inferior oblique

Yoke muscles (contralateral synergists).

It refers to the pair of muscles (one from each eye) which contract simultaneously during version movements.

For example, right lateral rectus and left medial rectus act as yoke muscles for dextroversion movements.

Other pair of yoke muscles are right MR and left LR, right LR and left MR, right SR and left IO, right SO and left IR and right IO and left SR.

380. Downward and outward moment of eye is effected in injury of?

a) 3rd nerve

b) 4th nerve

c) 5th nerve

d) 6th nerve

Correct Answer - B

Ans. B. 4th nerve

Downward and outward movement is caused by superior oblique, supplied by trochlear (4th nerve).

381. Irregular pupil is seen in ?

- a) Glaucoma
- b) Trauma
- c) Occulomotor pulsy
- d) Retinal detachment

Correct Answer - B

Ans, B. Trauma

Irregular:- It is jagged looking and occurs most often after orbital trauma.

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382. Low astigmatism in dim light is due ?

a) Pupil constriction

b) Pupil dilatation

c) Increased curvature of lens

d) Decreased curvature of lens

Correct Answer - B

Ans. B. Pupil dilatation

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383. Disciform keratitis is seen ?

a) HSV

b) HIV

c) HBV

d) Rubella

Correct Answer - A

Ans. A. HSV

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384. Corneal dystrophy, true is -

- a) Inflammatory
- b) Neovascularization
- c) Bilateral
- d) All

Correct Answer - C

Ans. C. Bilateral

Corneal dystrophy is a group of disorders, characterized by a non-inflammatory, inherited, bilateral opacity of the cornea.

There is no vascularization of cornea.

Dystrophies are classified according to the anatomical involvement.

385. Following corneal transplantation, most common infection occur ?

a) Staph epidermidis

b) Streptococcus

c) Klebsiella

d) Pseudomonas

Correct Answer - A

Ans. A. Staph epidermidis

Pneumococcus and staphylococcus aureus have been found to be the commonest microorganisms in the developed world, whereas staph epidermidis is the commonest in developing countries, for causing infectious keratitis after corneal transplantations.

386. 1st sign of anterior uveitis ?

a) Keratic precipitate

b) Aqueous flare

c) Hypopyon

d) Miosis

Correct Answer - B

Ans. B. Aqueous flare

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387. 1st sign of iridocyclitis ?

a) Retrolental flare

b) KP

c) Congestion

d) Trichiasis

Correct Answer - A

Ans. A. Retrolental flare

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388. Most common cause of anterior uveitis ?

a) CMV

b) Ankylosing spondylitis

c) Toxoplasma

d) None

Correct Answer - A

Ans, A. CMV

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389. Iritis in young patient with joint pain -

a) Gout

b) RA

c) AS

d) Toxoplasma

Correct Answer - C

Ans, C. AS

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390. Commonest complication of pars planitis ?

a) Glaucoma

b) Cataract

c) Retinal detachment

d) Vitreous hemorrhage

Correct Answer - B

Ans. B. Cataract

The most common complication of intermediate uveitis (pars planitis) is cystoid macular edema, which may decrease the visual acuity.

2nd most common complication is complicated cataract'

Other complication includes retinal detachment.

391. Metamorphopsia is seen in ?

a) Anterior uveitis

b) Posterior uveitis

c) Cataract

d) Glaucoma

Correct Answer - B

Ans. B. Posterior uveitis

Matamorphopsia is a condition in which patients perceive distorted images of the object.

It occurs in Posterior uveitis due to alteration in retinal contour'

392. Recurrent anterior uveitis with increased intraocular tension is seen in ?

- a) Posner schlossman syndrome
- b) Foster kennedy syndrome
- c) Vogt-koyanagi-harada syndrome
- d) None

Correct Answer - A

Ans. A. Posner schlossman syndrome

Glamatocyclitic crisis (posner - Schlossman syndrome) is a unilateral recurrent non- granulomatous iritis that is associated with an elevated ocular pressure during the attacks'

393. Congenital cataract commonly associated with visual defect?

a) Punctate Cataract

b) Blue dot cataract

c) Zonular cataract

d) Fusiform cataract

Correct Answer - C

Ans. C. Zonular cataract

Lamellar (Zonular) cataract is the most common type of congenital cataract presenting with visual impairment.

It is usually bilateral and frequently causes severe visual defects'

394. Decreased reading ability is seen in ?

a) Fusiform cataract

b) Zonular cataract

c) Blue dot cataract

d) Punctate cataract

Correct Answer - B

Ans, B. Zonular cataract

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395. Lens subluxates in homocystinuria ?

a) Inferotemporal

b) Inferonasal

c) Superonasal

d) Superotemporal

Correct Answer - B

Ans. B. Inferonasal

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396. Second sight is seen in ?

a) Nuclear cataract

b) Cortical cataract

c) Zonular cataract

d) Punctate cataract

Correct Answer - A

Ans. A. Nuclear cataract

When a nuclear cataract develops, it can bring about a temporary improvement in near vision, called 'second sight'.

397. Congenital cataract with visual disturbances surgery should be done ?

a) Immediately

b) After 2 months

c) After 4 months

d) After 1 year

Correct Answer - A

Ans. A. Immediately

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398. Most common type of congenital cataract is ?

a) Capsular

b) Zonular

c) Coralliform

d) Blue dot

Correct Answer - D

Ans D. Blue dot

Most common type of congenital cataract = punctate (blue dot) cataract.

Most common type of cataract which is clinically (visually) significant + zonular or lamellar cataract.

399. Treatment of traumatic cataract in children ?

a) ECCE + IOL

b) Lensectomy

c) Contact lens

d) Glasses

Correct Answer - A

Ans. A. ECCE + IOL

Traumatic cataract in children is a common cause of unilateral loss of vision.

Penetrating injuries are usually more common than blunt injuries.

At the time of presentation after trauma to eye, primary repair of the corneal or scleral wound is usually preferred,

Cataract surgery (ECCE) with IOL implantations is performed later following complete evaluation of damage to the intraocular structures by ancillary methods such as B-scan ultrasonography.

400. Jack in box scotoma is seen after correction of Aphakia by?

a) IOL

b) Spectacles

c) Contact lens

d) None

Correct Answer - B

Jack-in-the-box phenomenon is seen in the correction of aphakia by spectacles due to the prismatic effects at the edge of the lens. Other difficulties in the correction of aphakia by spectacles include the following:

- Image magnification by 25–30%.
- Pin Cushion distortion - a spherical aberration due to thick spectacles.
- Restricted field with Jack in the Box phenomenon/Roving Ring scotoma - a prismatic aberration.
- Cosmetically, the eyes look enlarged (Frog eyes) behind the thick spectacles.
- Physical inconvenience.

Treatment of choice:

- correction is obtained by intraocular lens (IOL).

401. False about phacolytic glaucoma ?

- a) Due to contact of iris to lens
- b) Open angle glaucoma
- c) Seen in hypermature stage of cataract
- d) Lens induced glaucoma

Correct Answer - A

Ans. A. Due to contact of iris to lens

Phacolytic glaucoma is an open angle glaucoma in hypermature stage of cataract due to blockage of trabecular meshwork by swollen macrophages.

Glaucoma due to contact of iris to lens (pupillary block glaucoma) is seen in phacomorphic glaucoma.

402. Neovascular glaucoma is seen in all except?

- a) Diabetes
- b) CRVO
- c) Eale's disease
- d) Open angle glaucoma

Correct Answer - D

Ans. D. Open angle glaucoma

It is a secondary angle closure glaucoma which results due to formation of neovascular membrane over the iris i.e., neovascularization of iris (rubeosis iridis).

403. Laser iridotomy is done in ?

a) Angle closure glaucoma

b) Open angle glaucoma

c) Pigmentary glaucoma

d) None

Correct Answer - A

Ans. A. Angle closure glaucoma

Treatment of choice for PACG is peripheral laser iridotomy.

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404. In acute angle closure glaucoma, primary mechanism of pathogenesis is ?

- a) Increased secretion
- b) Increased absorption but increased secretion
- c) Outflow obstruction
- d) None

Correct Answer - C

Ans, C. Outflow obstruction

In acute angle closure glaucoma, rise in IOP occurs due to blockage of aqueous outflow by closure of a narrower angle of anterior chamber.

405. Not a risk factor for angle closure glaucoma ?

a) Small eye

b) Hypermetropia

c) Small cornea

d) Small lens

Correct Answer - D

Ans. D. Small lens

Predisposing factors for PACG :- i) Shallow anterior chamber, ii) Short eye (short axial length), iii) Smaller corneal diameter, iv) Anterior location of iris-lens diaphragm, v) Hypermetropic eye, vi) Large lens (older cataractous).

406. Staphlyoma involvement ?

- a) Iris with conjunctiva
- b) Conjunctiva with cornea
- c) Choroid with retina
- d) Iris with cornea

Correct Answer - D

Ans. D. Iris with cornea

Staphyloma is an abnormal protrusion of uveal tissue (iris or ciliary body or choroid) through a weak and thin portion of cornea or sclera. So, staphyloma is lined internally by uveal tissue (iris or ciliary body or choroid) and externally by weak cornea or sclera.

407. Best drug for open angle glaucoma ?

a) Latanoprost

b) Pilocarpine

c) Physostigmine

d) Apraclonidine

Correct Answer - A

Ans. A. Latanoprost

Medical therapy :- Total medical therapy is the treatment of choice for POAG. Topical β -blockers (Timolol, Betoxalol, Levobunolol, carteolol) are the drugs of choice.

Topical prostaglandin analogues (latanoprost, bimatoprost, travoprost) are the second choice drugs.

408. Corneal tattooing is done by ?

a) Gold chloride

b) Silver chloride

c) Titanium chloride

d) Aluminium chloride

Correct Answer - A

Ans. A. Gold chloride

For tattooing Indian black ink gold chloride or platinum may be used.

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409. Broadest neuroretinal rim is seen in -

a) Sup pole

b) Inf pole

c) Nasal pole

d) Temporal lobe

Correct Answer - B

Ans., B. Inf pole

The neuroretinal rim is the area of optic disc which contains neural elements and is located between the edge of the optic disc and the physiological cup.

The neuroretinal rim is broadest Inferiorly, followed by Superior, Nasal and Temporal regions in decreasing order of thickness (the ISNT) rule.

410. Enucleation is indicated in ?

a) Acute congestive glaucoma

b) Panophthalmitis

c) Retinoblastoma

d) None

Correct Answer - C

Ans, C. Retinoblastoma

Indications of Enucleation

- Absolute = Retinoblastoma, malignant melanoma.
- Relative = Painful blind eye, mutilating ocular injury, anterior staphyloma, phthisis DalEi, endophthalmitis, congenital anophthalmia or severe microphthalmia.

411. Retinitis pigmentosa is due to defect in which gene-

- a) Scotopsin
- b) Rhodopsin
- c) Pigmented epithelium
- d) None

Correct Answer - B

Ans. B. Rhodopsin

Several different rhodopsin gene mutations have been identified in the pedigrees with autosomal dominant retinitis pigmentosa.

412. Iris cloboma is most common in ?

a) Inferotemporal

b) Soperotemporal

c) Inferonasal

d) Soperonasal

Correct Answer - C

Ans. C. Inferonasal

All clobomas (including iris) are mostly inferonasal.

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413. Eales disease is ?

- a) Recurrent optic neuritis
- b) Recurrent papilloedema
- c) Recurrent periphelbitis retinae
- d) None

Correct Answer - C

Ans, C. Recurrent periphelbitis retinae

Eale's disease is an idiopathic inflammatory venous occlusion (phelbitis) that primarily effects the peripheral retina i.e., periphelbitis and is characterized by recurrent bilateral vitreous hemorrhage.

414. Shaffer's sign is seen in ?

a) Retinitis pigmentosa

b) Retinal detachment

c) CRVO

d) CRAO

Correct Answer - B

Ans. B. Retinal detachment

Vitreous show pigment in the anterior vitreous (tobacco dusting or shaffer sign), with posterior vitreous detachment.

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415. Deposit in retinal macular degeneration ?

a) Iron

b) Drusen

c) Lipochrome

d) Hemosiderine

Correct Answer - B

Ans. B. Drusen

Dry form of ARMD begins with characteristic yellow deposits in the macula called drusen between the retinal pigment epithelium and the underlying choroid

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416. Vitreous hemorrhage in diabetic retinopathy ?

a) Non-proliferative diabetic retinopathy

b) Proliferative diabetic retinopathy

c) Both

d) None

Correct Answer - B

Ans. B. Proliferative diabetic retinopathy

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417. Head light in fog appearance is seen in ?

a) Syphilis

b) Toxoplasmosis

c) Toxocara

d) Herpes

Correct Answer - B

Ans. B. Toxoplasmosis

On fundoscopic examination, there is diffuse "headlight in the fog" appearance, in congenital toxoplasmosis.

This is due to combination of active retinal lesion in the center with depigmentation (the headlight) and severe vitreous inflammation (the fog).

418. Coloboma, most common site ?

a) Superotemporal

b) Inferonasal

c) Inferotemporal

d) Superonasal

Correct Answer - B

Ans. B. Inferonasal

A coloboma is a hole in one of the structures of eye, such as iris, retina, choroid or optic disc.

The eye develops in the embryo, from the optic cup and optic fissure. The optic fissure fuses at 5-7 weeks development.

Failure of this fusion leads to a gap in ocular tissue known as coloboma, typically located in the inferonasal quadrant.

419. Salt & pepper fundus ?

a) Cong toxoplasmosis

b) Cong histoplasmosis

c) Congenital syphilis

d) None

Correct Answer - C

Ans. C. Congenital syphilis

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420. Expulsive hemorrhage in cataract surgery is from?

a) Vortex vein

b) Ciliary artery

c) Choroidal vein

d) None

Correct Answer - B

Ans, B. Ciliary artery

Expulsive hemorrhage after cataract extraction or glaucoma surgery = Rupture of ciliary artery.

Expulsive hemorrhage in Retinal/Vitrous operation = Direct trauma to choroidal or vortex vein.

421. Cattle track appearance ?

a) CRVO

b) CRAO

c) Diabetic retinopathy

d) Syphilitic retinopathy

Correct Answer - B

Ans. B. CRAO

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422. Eale's disease is ?

- a) Retinal hemorrhage
- b) Vitreous hemorrhage
- c) Conjunctival hemorrhage
- d) Choroidal hemorrhage

Correct Answer - B

Ans. B. Vitreous hemorrhage

Eale's disease is an idiopathic inflammatory venous occlusion that primarily affects the peripheral retina of young adult (20-30 yrs) male.

It is characterized by recurrent bilateral vitreous hemorrhage; therefore, also referred to as primary vitreous hemorrhage.

423. Extra retinal fibrovascular proliferation at ridge is?

- a) Normal
- b) Stage I ROM
- c) Stage II ROM
- d) Stage III ROM

Correct Answer - D

Ans. D. Stage III ROM

Disease Severity (Stage)

Prior to the development of ROP in the premature infant, vascularization of the retina is incomplete or "immature" (Stage 0).

Stage 1: Demarcation Line: This line is thin and flat (in the retina plane) and separates the avascular retina anteriorly from the vascularized retina posteriorly.

Stage 2: Ridge: The ridge arises from the demarcation line and has height and width, which extends above the plane of the retina. The ridge may change from white to pink and vessels may leave the plane of the retina posterior to the ridge to enter it. Small isolated tufts of neovascular tissue lying on the surface of the retina, commonly called "popcorn" may be seen posterior to this ridge structure and do not constitute the degree of fibrovascular growth that is a necessary condition for stage 3.

Stage 3: Extraretinal Fibrovascular Proliferation: Neovascularization extends from the ridge into the vitreous. This extraretinal proliferating tissue is continuous with the posterior aspect of the ridge, causing a ragged appearance as the proliferation becomes more extensive.

Stage 4: Partial Retinal Detachment: Stage 4, in the initial

classification was the final stage and initially known as the cicatricial phase. It was later divided into extrafoveal (stage 4A) and foveal (stage 4B) partial retinal detachments. Stage 4 retinal detachments are generally concave and most are circumferentially oriented. Retinal detachments usually begin at the point of fibrovascular attachment to the vascularized retina and the extent of detachment depends on the amount of neovascularization present.

Stage 5: Total Retinal Detachment: Retinal detachments are generally tractional and usually funnel shaped. The configuration of the funnel itself is used for subdivision of this stage depending if the anterior and posterior portions are open or narrowed

424. All are seen in 3rd nerve palsy ?

a) Mydriasis

b) Loss of light reflex

c) Loss of abduction

d) Ptosis

Correct Answer - C

Ans. C. Loss of abduction

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425. Swinging light test is positive in ?

a) Conjunctivitis

b) Glaucoma

c) Retrobulbar neuritis

d) Keratoconus

Correct Answer - C

Ans. C. Retrobulbar neuritis

Swinging flash light is used for relative efferent pathway defect (RAPD) which is most characteristic of lesions in the optic nerve. Thus it is positive in retrobulbar neuritis.

426. Optic tract lesion causes ?

a) Wernicke's hemianopic pupil

b) Amauratic pupil

c) Amauratic pupil

d) None

Correct Answer - A

Ans, A. Wernicke's hemianopic pupil

Wernicke's hemianopic pupil is seen in complete lesion of optic tract.

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427. Amblyopia is caused by ?

a) Methyl alcohol

b) Penicillin

c) Propranolol

d) None

Correct Answer - A

Ans. A. Methyl alcohol

Toxic amblyopia is chronic retrobulbar neuritis which results from the damage to optic nerve by the exogenous poisons.

The toxic agents involve may be: Tobacco, ethyl alcohol, ethylene glycol, lead, arsenic, cannabis indica, carbon disulphide various drugs

428. Vitamin B₁₂ deficiency causes ?

a) Centrocaecal scotoma

b) Binasal hemianopia

c) Constriction of peripheral field

d) Bitemporal hemianopia

Correct Answer - A

Ans., A. Centrocaecal scotoma

Vitamin B₁₂ deficiency causes optic neuritis.

Most common visual field defect in optic neuritis is central or centrocaecal scotoma.

429. Cause of bilateral optic atrophy ?

a) Trauma to optic nerve

b) Intracranial neoplasma

c) CRAO

d) Optic neuritis

Correct Answer - B

Ans. B. Intracranial neoplasma

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430. Earliest muscle to involve in thyroid ophthalmopathy?

a) MR

b) LR

c) IR

d) SR

Correct Answer - C

Ans. C. IR

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431. Which of the following is longest extraocular muscle?

a) SR

b) MR

c) SO

d) IO

Correct Answer - C

Ans. C. SO

The superior oblique is the longest, thinnest extraocular muscle.

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432. Treatment of choice for amblyopia is ?

a) Convergent exercises

b) Spectacles

c) Surgery

d) Conventional occlusion

Correct Answer - D

Ans. D. Conventional occlusion

The treatment of amblyopia should begin as early as possible. The amblyopic eye fails to develop vision and visual impairment remains Permanent unless it is treated before the age of 7 years. Amblyopic therapy works best when initiated in young children under 3 years of age.

433. Alkali causes ?

a) Symblepharon

b) Papilloedema

c) Optic neuritis

d) Retinal detachment

Correct Answer - A

Ans, A. Symblepharon

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434. Unilateral lacrimal gland destruction may be caused by?

a) Inferior orbital fissure fracture

b) Fracture of roof of orbit

c) Fracture of lateral wall

d) Fracture of sphenoid

Correct Answer - B

Ans. B. Fracture of roof of orbit

Damage to the superior orbital structures, in fracture of roof of orbit, can cause diplopia, ptosis, optic neuropathy, ptosis, neuroPathy and lacrimal gland injury.

435. After trauma, A person cannot move eye outward beyond mid point. The nerve injured is ?

a) 2nd

b) 3rd

c) 4th

d) 6th

Correct Answer - D

Ans, D. 6th

All the extraocular muscles are supplied by 3rd cranial (oculomotor) nerve except for superior oblique and lateral rectus. superior oblique muscle is supplied by 4th cranial (trochlear) nerve, and lateral rectus muscle is supplied by 6th cranial (abducent) nerve. Beside these extraocular muscles, oculomotor (3rd) nerve also supplies levator palpebrae superioris, sphincter pupillae (causes pupillary constriction), and ciliary muscle (causes accommodation).

436. Bilateral ptosis is seen in all except ?

a) Hyperthyroidism

b) Congenital

c) Trauma

d) Myotonic dystrophy

Correct Answer - C

Ans, C. Trauma

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437. Angle of squint is measured by ?

a) Gonioscopy

b) Prism

c) Retinoscopy

d) Keratometry

Correct Answer - B

Ans. B. Prism

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438. Most common cause of intermittent proptosis ?

- a) Orbital varix
- b) Thyroid ophthalmopathy
- c) Neuroblastoma
- d) Retinoblastoma

Correct Answer - A

Ans. A. Orbital varix

Intermittent proptosis:- Proptosis developing intermittently and rapidly in one eye when venous stasis is induced by forward bending or lowering the head, turning the head forcibly, hyperextension of the neck, coughing, forced expiration with or without compression of the nostrils, or pressure on jugular veins. The most important cause is orbital varix (varicocele).

439. Most common cause of ophthalmoplegia ?

a) Aneurysm

b) Infection

c) Myasthenia gravis

d) None

Correct Answer - A

Ans. A. Aneurysm

The most common identifiable etiologies are ischemia, aneurysm, tumor and trauma; some 20% remain unexplained.

440. Massaging of nasolacrimal duct is done in ?

- a) Acute dacryocystitis
- b) Congenital dacryocystitis
- c) Conjunctivitis
- d) None

Correct Answer - B

Ans. B. Congenital dacryocystitis

Massage over lacrimal sac is the mainstay of treatment in congenital dacryocystitis.

441. Ataxia, nystagmus and ophthalmoplegia is seen in -

a) Myasthenia gravis

b) Chronic progressive external ophthalmoplegia

c) 3rd nerve palsy

d) None

Correct Answer - B

Ans. B. Chronic progressive external ophthalmoplegia

The most common identifiable etiologies are ischemia, aneurysm, tumor and trauma, some 20% remain unexplained.

442. Abnormally eccentric placed pupil is called ?

a) Polycoria

b) Corectopia

c) Corectopia

d) Ectopia lentis

Correct Answer - B
Ans. B. Corectopia

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443. Child with mild squint. Intrauterine, birth history, developmental history till date all normal. Corneal reflex normal. All other eye parameters normal except exaggerated epicanthal fold. Diagnosis ?

a) Pseudostrabismus

b) Accommodative squint

c) Exophoria

d) Esophoria

Correct Answer - A

Ans, A. Pseudostrabismus

Pseudoesotropia (apparent convergent squint - Due to prominent epicanthal fold.

Pseudoexotropia (apparent divergent squint - Due to hypertelorism.

444. Madarosis is seen in ?

a) Addison's disease

b) Hypothyroidism

c) Acromegaly

d) None

Correct Answer - B

Ans. B. Hypothyroidism

Madarosis may be seen in -

- Rubella
- Congenital Syphilis
- Congenital leber amaurosis
- Mayous Batten disease
- Thioridazine toxicity

445. MC orbital tumor ?

a) Nerve sheath tumor

b) Hemangioma

c) Lymphoma

d) Meningioma

Correct Answer - B

Ans. B. Hemangioma

Most common orbital tumor - Cavernous hemangioma.

Most common malignant orbital tumor – Lymphoma.

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446. Loss of eyelashes is ?

a) Tylosis

b) Madarosis

c) Trichiasis

d) Ectropion

Correct Answer - B

Ans. B. Madarosis

Madarosis refer to loss of eyelashes and sometimes also eyebrows

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447. Fusion of palpebral and bulbar conjunctiva is -

a) Symblepharon

b) Trichiasis

c) Ectropion

d) Tylosis

Correct Answer - A

Ans. A. Symblepharon

Adhesion of the lids to eyeball is called symblepharon.

It occurs due to fusion of palpebral conjunctiva (covering inner surface of lid) to bulbar conjunctiva (covering outer surface of eyeball).

448. Most common orbital tumor has its origin from?

a) Blood vessels

b) Nerves

c) Muscle

d) Lymph node

Correct Answer - A

Ans, A. Blood vessels

Most common orbital tumors are benign vascular tumors -
Cavernous hemangioma.

449. Retinal astrocytoma is seen in ?

- a) Tuberous sclerosis
- b) Sturge weber syndrome
- c) Von Hippel-Lindau syndrome
- d) None

Correct Answer - A

Ans. A. Tuberous sclerosis

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450. Most common malignant tumour of eyelid is ?

a) Sebaceous gland carcinoma

b) Basal cell carcinoma

c) Squamous cell carcinoma

d) Malignant melanoma

Correct Answer - B

Ans, b. Basal cell carcinoma

Basal cell carcinoma is the most common malignant tumour of the eyelids and constitutes 85-90% of all malignant epithelial eyelid tumours.

451. Most common carcinoma of conjunctiva ?

a) Squamous cell Ca

b) Basal cell ca

c) Melanoma

d) Lymphoma

Correct Answer - A

Ans. A. Squamous cell Ca

Squamous cell carcinoma is the most common malignant lesion of the conjunctiva"

452. Astigmatism in emmetropic eye of elderly person contribute to:

a) +1d

b) +2D

c) +3d

d) +4d

Correct Answer - C

Answer C. +3d

Laser vision enhancements

- When planning presbyopia-correcting IOL(Intra ocular lens) surgery in a patient with a high level of pre-existing astigmatism (**ie, more than 3 D**), a bioptics approach (ie, IOL followed by laser vision enhancement) may be needed.
- LRIs alone are unlikely to correct the astigmatism completely. Limbal Relaxing Incisions (**LRI**) are a refractive surgical procedure to correct minor astigmatism in the **eye**.
- There are several different strategies for these planned laser vision enhancements. The first is to perform the presbyopia-correcting IOL surgery followed by LASIK or PRK.

453. 100 day Glaucoma seen in which of the following condition:

a) Central retinal vein occlusion (CRVO)

b) Neovascular glaucoma

c) Central retinal artery occlusion (CRAO)

d) Steroid induced Glaucoma

Correct Answer - A

Answer- A, Central retinal vein occlusion (CRVO)

100 days glaucoma is a neovascular glaucoma occurring in CRVO.

Central Retinal vein occlusion (CRVO)

1. Predisposing factors:-

- Increasing age – seen in 6th - 7th-decades of life.
- Systemic hypertension is the most common cause.
- Blood dyscrasias – hyperviscosity due to chronic leukemias and polycythemia
- Raised IOP (POAG)
- Periphlebitis – sarcoidosis, Behçet's disease

2. Classification of CRVO:-

- Non – Ischemic
- Ischemic

3. Clinical Features:-

- Tortuosity and dilation of retinal veins
- Flame shaped hemorrhage – develop in the nerve fiber layer of the retina, especially around the optic disc, as a result of the high intravascular pressure that dilates the veins and collateral vessels.
- Cotton – wool spots and appearance of collaterals at the optic disc are its prominent diagnostic signs.

- Optic disc edema and hyperemia are seen.
- 4. Complications:- Rubeosis iridis and neovascular glaucoma (NVG) occur in more than 50 percent cases within 3 months (so also called as 90 days glaucoma), a few cases develop vitreous hemorrhage and proliferative retinopathy.**
- 5. Treatment:- Panretinal photocoagulation (PRP) or cryo-application, if the media is hazy, may be required to prevent neovascular glaucoma in patients with widespread capillary occlusion.**
- Photocoagulation should be carried out when most of the intraretinal blood is absorbed, which usually takes about 3-4 months.
- 100-day glaucoma or NVG results from conditions which lead to neovascularization in the eye eg. PDR, CRVO, Retinal malignancies and rarely in CRAO.
- Hemorrhagic glaucoma is also known as 100 day glaucoma** because it starts 3 months after the episode of central retinal vein occlusion.

454. Q Roth spots is seen in:

- a) Uveal melanoma
- b) Acute leukaemia
- c) Both a & b
- d) None of the above

Correct Answer - B

Answer- B. Acute leukaemia

Roth's spots are retinal hemorrhages with white or pale centers. Composed of coagulated fibrin including platelets, focal ischemia, inflammatory infiltrate, infectious organisms, or neoplastic cells. Roth's spots may be observed in leukemia, diabetes, subacute bacterial endocarditis, pernicious anemia, ischemic events, hypertensive retinopathy and rarely in HIV retinopathy. Roth's spots are named after Moritz Roth.

455. Yoke muscle of right lateral rectus:

- a) Lt medial rectus
- b) Lt superior rectus
- c) Lt lateral rectus
- d) Lt inferior oblique

Correct Answer - A

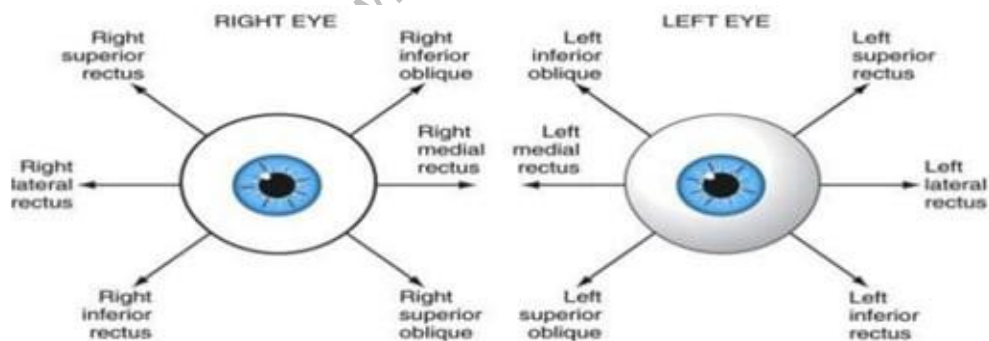
Answer - A. Lt medial rectus

Contralaterally **paired extraocular muscles** that work synergistically to direct the gaze in a given direction.

For example, in directing the gaze to the right, the right lateral rectus and left medial rectus operate together as yoke muscles.

Yoke Muscles: 2 Muscles (1 in each eye) that are the prime movers of their respective eyes in a given position of gaze

For - Example - when the eyes move into right gaze (dextroversion), the right lateral rectus & the left medial rectus muscle are yoke muscles.



456. Severe Conjunctivitis caused by:

- a) Neisseria
- b) Staphylococcus
- c) Streptococcus
- d) Haemophilus

Correct Answer - A

ANSWER- A. Neisseria

The most common causes of acute bacterial conjunctivitis are *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Haemophilus influenzae*.

Hyperacute cases are usually caused by *Neisseria gonorrhoeae* or *N. meningitidis*.

Chronic cases of bacterial conjunctivitis are those lasting longer than 3 weeks, and are typically caused by *Staphylococcus aureus*, *Moraxella lacunata*, or gram-negative enteric flora.

Neisseria gonorrhoeae causes gonococcal conjunctivitis, which usually results from sexual contact with a person who has a genital infection.

The incidence rates of gonococcal conjunctivitis increase during spring and summer.

This is a potentially devastating ocular infection, because *N. gonorrhoeae* can cause **severe ulcerative keratitis**, which may rapidly progress to corneal perforation.

457. Which is example of the Simple Myopic Astigmatism among the prescriptions given below:

a) Rx (+) sphere

b) Rx will be plano (-)

c) Rx will be (-) sphere

d) (-)(+) (+)(-) on both 90 and 180 degree axis

Correct Answer - B

Answer- B. Rx will be plano (-)

When eyewear prescriptions are written, they can be classified into different areas depending on the power or refractive error.

There are seven categories to which prescriptions can fall:

1. **Simple Hyperopia**, the Rx will be (+) sphere
2. **Simple Myopia**, the Rx will be (-) sphere
3. **Simple Myopic Astigmatism**, the Rx will be plano (-)
4. **Simple Hyperopic Astigmatism**, the Rx will be (+)
5. **Compound Hyperopic Astigmatism**, major meridian power will be (+) (+) on both 90 and 180 degree axis
6. **Compound Myopic Astigmatism**, major meridian power will be (-) (-) on both 90 and 180 degree axis
7. **Mixed Astigmatism**, major meridian powers will be opposites (-) (+) (+)(-) on both 90 and 180 degree axis

458. Blow out fracture of orbit involves:

a) Floor

b) Medial wall

c) Lateral wall

d) Roof

Correct Answer - A

Answer-A. Floor

- **Orbital floor fracture**, also known as “blowout” fracture of the orbit.
Blow out fracture of orbit involves:
 - 1. Fractures of the orbital floor are common: it is estimated that about 10% of all facial fractures are isolated orbital wall fractures (the majority of these being the orbital floor), and that 30-40% of all facial fractures involve the orbit.
 - 2. The anatomy of the orbital floor predisposes it to fracture.
 - 3. The inferior orbital neurovascular bundle (comprising the infraorbital nerve and artery) courses within the bony floor of the orbit; the roof of this infraorbital canal is only 0.23mm thick, and the bone of the posterior medial orbital floor averages 0.37 mm thick.
 - 4. By contrast, the bone of the lateral portion of the orbital floor averages 1.25 mm thick, over 5 times the thickness of the bone over the neurovascular bundle. As one might suspect, it is this very thin area of the orbital floor overlying the neurovascular bundle where isolated orbital floor fractures invariably occur.



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459. A diabetic patient 2 days after post cataract surgery develops develops hypopyon. What will be the management?

a) Intravitreal antibiotics

b) Eye drops

c) Surgery

d) No treatment required

Correct Answer - A

Ans. A. Intravitreal antibiotics

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460.

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What is the Thinnest part of neuro-retinal rim according to ISNT rule?

a) Inferior

b) Superficial

c) Temporal

d) Medial

Correct Answer - C

Ans. C. Temporal

The **ISNT rule** is an easy way to remember how the optic nerve is supposed to look in a normal eye. Normally the neuro-retinal rim is thickest Inferiorly and thinnest Temporally. With glaucoma, however, you begin to see vertical thinning, with atrophy along the inferior and superior rims.

461. What causes shifting fluid?

- a) Exudative Retinal detachment
- b) Tractional Retinal Detachment
- c) Rhegmatogenous retinal detachment
- d) Retinodialysis

Correct Answer - A

Ans.a.Exudative Retinal detachment.

>In exudative retinal detachment, the subretinal fluid may be confined to a localized area, usually the posterior pole, or may extend to the periphery, even forming bullous retinal detachment.

>**The characteristic feature of a significant exudative retinal detachment is the presence of shifting subretinal fluid.**

>The fluid shifts to the most dependent location when patients change body position.

<https://clinicalgate.com/nonrhegmatogenous-retinal-detachment/>

462. Conjunctival injection, pharyngeal injection, polymorphic rash, cervical lymphadenopathy can be seen in

a) Kawasaki syndrome

b) Measles

c) Thrombocytopenia

d) Mumps

Correct Answer - A

Ans: a.Kawasaki syndrome.

>Kawasaki disease is a generalized vasculitis that affects medium-sized arteries.

> It is characterized by systemic inflammation that manifests as persistent fever, erythema of the mucous membranes, bilateral nonexudative conjunctivitis, rash, swelling and redness of the hands and feet, and cervical lymphadenopathy

Ref: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3034467/>

463. Incongruous Homonymous hemianopia with Wernicke's hemianopia pupil is seen with the lesion of

- a) Optic radiation
- b) Lateral geniculate body
- c) Optic tract
- d) Anterior occipital cortex

Correct Answer - C

Ans:c. Optic tract

>Anterior optic tract lesion produces Incongruous Homonymous hemianopia, decreased visual acuity, afferent pupil defect(Wernicke's hemianopia pupil) and atrophy of optic discs with characteristic Bow-tie atrophy are contralateral.

>A complete Homonymous hemianopia results from posterior optic tract lesions.

Ref:[https://books.google.co.in/books?](https://books.google.co.in/books?id=bDpl9n4q3e0C&pg=PA376&lpg=PA376&dq=Incongruous+Homonymous+hemianopia&fCi_bmAhuoxzgGHf56An8Q6AEwFXoECAoQAQ#v=onepage&q=Incongruous+Homonymous+hemianopia)

[id=bDpl9n4q3e0C&pg=PA376&lpg=PA376&dq=Incongruous+Homonymous+hemianopia&fCi_bmAhuoxzgGHf56An8Q6AEwFXoECAoQAQ#v=onepage&q=Incongruous+Homonymous+hemianopia](https://books.google.co.in/books?id=bDpl9n4q3e0C&pg=PA376&lpg=PA376&dq=Incongruous+Homonymous+hemianopia&fCi_bmAhuoxzgGHf56An8Q6AEwFXoECAoQAQ#v=onepage&q=Incongruous+Homonymous+hemianopia)

464. The patient came with proptosis, restriction of eye movements, and was Euthyroid. What could this be from?

- a) Orbital Cellulitis
- b) Orbital Lymphoma
- c) Orbital pseudotumor
- d) Thyroid ophthalmopathy

Correct Answer - C

Ans: C.Orbital pseudotumor

>Proptosis and restricted eye movement is most commonly associated with thyroid ophthalmopathy

>But in question asked is Euthyroid.

>So, the best option to select is Orbital pseudotumor(Idiopathic orbital inflammatory syndrome)

Ref. Comprehensive Ophthalmology by AK Khurana - 6th Edition Page no 335

465. Prerequisite for sympathetic ophthalmitis

a) Penetrating injury to the eye

b) Blunt ocular tumor

c) Chemical injury

d) Urinary tract infection

Correct Answer - A

Ans: a. Penetrating injury to the eye.

>Sympathetic ophthalmia is a rare type of uveitis that causes small abnormal clumps of cells (granulomas) to form.

>This disorder occurs in the uninjured eye after a penetrating injury (such as when a pencil, pen, or stick punctures the eye) or surgery to the other (injured) eye.

Ref:<https://www.msmanuals.com/en-in/home/eye-disorders/uveitis-and-related-disorders/sympathetic-ophthalmia>.

466. Photostress test to differentiate

- a) Lens and cornea
- b) The macula and Optic nerve diseases
- c) Cataract and glaucoma
- d) Retinal and vitreous diseases

Correct Answer - B

Ans: b. The macula and Optic nerve diseases.

> **To distinguish optic nerve conduction defects from the macular disease in patients** with otherwise unexplained loss of central vision we first determined the best visual acuity with correction at distance in unilateral defects.

> The normal eye was tested first and **photo stressed for ten seconds** by looking at an ordinary penlight held 2 to 3 cm from the eye.

> The time required to read three letters on three **Snellen test** lines just larger than the best acuity was used as the endpoint.

> **Recovery time will be prolonged with maculopathy.**

> **Prolonged recovery time will not be observed in patients who have optic nerve disease.**

<https://www.ncbi.nlm.nih.gov/pubmed/836667>

467. Which layer of cornea helps in the hydration of stroma of cornea

- a) Endothelium
- b) Epithelium
- c) Descemet membrane
- d) Stroma

Correct Answer - A

Ans: a.Endothelium

>The corneal endothelium is responsible for maintaining the hydration of the cornea.

> This is through a "Pump-Leak" mechanism where the active transport properties of the endothelium represent the "Pump" and the stromal swelling pressure represents the "Leak"

Ref:https://www.researchgate.net/publication/51238307_Molecular_Me

468. A 65 old male with a history of hypertension and diabetes, presents to the OPD with complaints of diplopia and squint. On examination, the secondary deviation is more than the primary deviation. Which of the following is most likely diagnosis

a) concomitant squint

b) paralytic squint

c) Restrictive squint

d) Pseudo squint

Correct Answer - B

Ans:b.paralytic squint.

>Paralytic or incomitant squint occurs when there is an acquired defect of the movement of an eye.

> The squint (and double vision) is maximally demonstrated by looking in the direction of action of the weakened muscle.

>Paralytic squints occur due to disease of the III, IV and VI cranial nerves.

Ref:<https://www.gponline.com/basics-strabismus/ophthalmology/article/1055827>

469. Esotropia is common in

a) Myopia

b) Hypermetropia

c) Emmetropia

d) Astigmatism

Correct Answer - B

And: B. Hypermetropia

>Patients with refractive esotropia are typically farsighted (hyperopic).

> This means that the eyes must work harder to see clearly, particularly when the object of regard is up close.

<https://aapos.org/glossary/accommodative-esotropia>

470. An extra row of cilia posterior to the grey line

a) Distichiasis

b) Tylosis

c) Madarosis

d) Trichiasis

Correct Answer - A

And: a. Distichiasis

>Distichiasis is a rare disorder defined as the abnormal growth of lashes from the orifices of the meibomian glands on the posterior lamella of the tarsal plate.

Ref:<https://emedicine.medscape.com/article/1212908-overview>

471. The patient came with unilateral Proptosis and bilateral Abducent nerve palsy. This could be from

a) Cavernous sinus

b) Orbital cellulitis

c) Orbital pseudotumor

d) Orbital lymphoma

Correct Answer - A

Ans: a.Cavernous sinus

>Proptosis is initially seen unilaterally ultimately becomes bilateral.
>6th cranial nerve(Abducent) passes through the cavernous sinus.so in cavernous sinus thrombosis bilateral abducens palsy is seen.

Parson's Diseases of the Eye -Ed. 22 Pg 497

472. The characteristic finding of fungal ulcers?

a) Satellite lesions

b) Dendritic ulcer

c) Ring abscess

d) White hypopyon

Correct Answer - A

And.a.Satellite lesions

>Fungal keratitis or keratomycosis refers to an infective process of the cornea caused by any of the multiple pathologic fungi capable of invading the ocular surface.

>when the epithelial integrity is broken either due to trauma or ocular surface disease and the organism gains access into the tissue and proliferates.

>Multifocal stromal infiltrates or "satellite lesions" have been considered a characteristic feature of fungal keratitis.

Ref: https://eyewiki.aao.org/Fungal_Keratitis

473. A drug used in a patient with increased IOP and optic disc changes, ciliary congestion for decrease IOP acts by increasing uveoscleral outflow is

a) Latanoprost

b) Pilocarpine

c) Dorzolamide

d) Timolol

Correct Answer - A

Ans: a. Latanoprost

>Latanoprost selectively stimulates the prostaglandin F2 alpha receptor and this results in a decreased intraocular pressure (IOP) via the increased outflow of aqueous humor, which is often implicated in cases of elevated intraocular pressure.

Ref: [https://www.google.com/url?](https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.drugbank.ca/drugs/DB00654&Nz08_cOFzeYemAzeWf&cshid=1578651404060)

[sa=t&source=web&rct=j&url=https://www.drugbank.ca/drugs/DB00654&Nz08_cOFzeYemAzeWf&cshid=1578651404060](https://www.drugbank.ca/drugs/DB00654&Nz08_cOFzeYemAzeWf&cshid=1578651404060)

474. A patient diagnosed with Rheumatoid arthritis was on medications. After 2 years, he developed a blurring vision and was found to have corneal opacity. Which drug is most likely to cause this?

a) Sulfasalazine

b) Chloroquine

c) Methotrexate

d) Leflunomide

Correct Answer - B

Ans: B. Chloroquine

In long-term chloroquine therapy Ocular complications were observed

>This therapy is usually used in patients with rheumatoid arthritis, lupus erythematosus, sarcoidosis, discoid lupus, and other chronic "collagen disease".

>Retinal changes, corneal opacifications, blurring of vision are some complications seen in long term use of Chloroquine.

Ref: <https://www.ncbi.nlm.nih.gov/pubmed/1427503>