

Grievous hurt comes under which section of IPC?

a) Section 319

b) Section 320

c) Section 324

d) Section 326

Correct Answer - B

Section 320

REF: Textbook of Forensic Medicine and Toxicology by Nagesh Kumar Rao Page 259

Section 320: Grievous hurt

The following kinds of hurt only are designated as "grievous"

1. Emasculation
2. Permanent privation of the sight of either eye
3. Permanent privation of the hearing of either ear
4. Privation of any member or joint
5. Destruction or permanent impairing of the powers of any member or joint
6. Permanent disfiguration of the head or face
7. Fracture or dislocation of a bone or tooth
8. Any hurt which endangers life or which causes the sufferer to be during the space of twenty days in severe bodily pain, or unable to follow his ordinary pursuits.

2. Four carpal bones are present at what age?

a) 3 years

b) 4 years

c) 5 years

d) 6 years

Correct Answer - B

4 years REF: Parikh 6' edition page 2.9

Between 2 to 6 years, the number of carpal bones present on X ray represents the approximate age in years, as for example, four carpal bones — 4 years.

3. Greivous hurt comes under section:

a) 319

b) 320

c) 324

d) 326

Correct Answer - B
320

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4. Magnan's phenomenon occurs in addiction of:

a) Alcohol

b) Cocaine

c) LSD

d) Opiates

Correct Answer - B
Cocaine

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5. "Last" to putrefy in male is:

a) Uterus

b) Prostate

c) Testes

d) Liver

Correct Answer - B
Prostate

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6. All the following are true regarding pseudocyesis, EXCEPT:

- a) The patients usually have an intense desire to have children
- b) Change in the breast may be present
- c) There may be considerable increase in the size of the abdomen
- d) The labour pain invariably continue to persist even if she is told that she is not pregnant

Correct Answer - D

Pseudocyesis or phantom pregnancy is usually seen in patients nearing menopause or in young women who intensely desire children.

Most of them suffer from some forms of psychic or hormonal disorder.

The abdomen may distend due to deposition of fat.

The pregnancy may progress to full term and the labour pain may stop abruptly when informed that she is not pregnant.

Ref: Textbook of Forensic Medicine and Toxicology by Narayan Reddy, Edition 21, Page - 333

7. Minimum age for giving consent for organ donation in India is?

a) 16 years

b) 18 years

c) 21 years

d) No age limit

Correct Answer - B

A legal age of 18 years has been set to consent for termination of pregnancy (MTP Act 1971), donation of blood and donation of organs (Transplantation of Human Organ Act 1994).

As per Transplantation of Human Organs Act 1994 "donor" means any person, not less than eighteen years of age, who voluntarily authorizes the removal of any of his organs for therapeutic purposes under subsection (1) or sub-section (2) of section 3.

Parents or Guardians consent will be required for any individual below 18 years wishing to donate an organ.

8. Choking is characteristic of the following weapon:

a) Revolver

b) Pistol

c) Shotgun

d) Rifle

Correct Answer - C

The **choking** lessens the rate of spread of shot after it leaves the muzzle, increases the explosive force and increases the velocity. Shotguns have variable choke adapters.

Different degrees are known as **full-choke, half-choke and quarter-choke or improved cylinder.**

Ref: The Essentials of Forensic Medicine and Toxicology by K S Reddy, 27th edition, Page 184.

9. Which of the following is meant by the term 'Sin of Gomorrah'?

a) Oral sex

b) Anal sex

c) Bestiality

d) Lesbianism

Correct Answer - A

Oral sex is also called **coitus per os** or **Sin of Gomorrah** or **buccal coitus**.

According to Bible the sin was common in a town called: **Gomorrah**, so the name.

It is included in Unnatural sexual offences Act (S.377 IPC).

Ref: The Essentials of Forensic Medicine and Toxicology by Dr. K. S. Narayan Reddy, 27th edition, Page 365.

10. Disputed maternity can be solved by using the following tests, EXCEPT:

a) Blood grouping

b) HLA typing

c) Precipitin test

d) DNA fingerprinting

Correct Answer - C

Precipitin test is an antigen-antibody reaction test, used to distinguish between species.

It uses species specific antiserum.

It will not be used for disputed maternity.

Ref: Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology By Parikh, 6th Edition, Pages 7-21 ; The Essentials of Forensic Medicine and Toxicology By K S Narayan Reddy, 27th Edition, Pages 402

11. Post mortem staining gets fixed after :

a) 2-3 hrs.

b) 3-4 hrs.

c) 5-6 hrs..

d) 7-8 hours

Correct Answer - D
D i.e. 7-8 hours

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12. True about cadaveric spasm :

a) Develops immediately after death

b) May develop hours after death

c) Develops only in facial muscles

d) All

Correct Answer - A

A i.e. Develops immediately after death

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13. Adipocere formation is seen in:

- a) Dead body exposed to air
- b) Dead body buried in damp, clay soil
- c) Burial in dry hot air
- d) All

Correct Answer - B

B i.e. Dead body buried in damp, clay soil

Ideal condition for adipocere formation are *warm (hot) temperature, moisture (humid) & diminution of air* e.g. dead body immersed in water or damp soil

14. Heat Rupture is characterized by:

a) Regular margins

b) Irregular margins

c) Ruptured blood vessels

d) Ruptured Red Blood cells/clotted blood

Correct Answer - B
B i.e. Irregular margins

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15. Emphysema aquosum is seen in:

- a) Wet drowning
- b) Dry drowning
- c) Immersion syndrome
- d) Secondary drowning

Correct Answer - A

A i.e. Wet drowning

- Emphysema aquosum *is seen in wet (typical) drowning* where drowning fluid causes alveolar wall disruption & enters tissue & blood vessels. If dead body is thrown into water, due to hydrostatic pressure water passes into lungs known as hydrostatic lung. Oedema aquosum (no columns of froth) is seen in drowning of unconscious.
- ARDS & Fibrosing alveolitis is seen in near drowning or secondary drowning syndrome.
- **Dry Lung** is seen in **dry drowning** in which death occurs due to **laryngeal spasm**.
- If drowning is survived, the event is referred to as near drowning & complications as near (secondary) drowning syndrome..
- In Immersion syndrome death results from *cardiac arrest due to vagal inhibition*.

16. In a case of hanging neck ligature marks are example of

a) Contusion

b) Printed abrasion

c) Laceration

d) Bruise

Correct Answer - B
B i.e. Printed abrasion

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17. In case of death in lock up, the inquest is held by

a) A police officer

b) Magistrate

c) Panchayat officer

d) District Attorney

Correct Answer - B
B i.e. Magistrate

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18. Which of following tests in used to detect semen?

a) Phenolphthalein test

b) Reine's test

c) Barberio's test

d) Paraffin test

Correct Answer - C

C i.e. Barberio's test :

- Barberio's test is used for identification of seminal stains
Few drops of barberio's reagent (containing pieric acid) are added to the seminal stain.
Positive test is indicated by formation of Yellow and needle shaped crystals of spermine picrate.
(Spermine in seminal stain reacts with picric acid to form these crystals)
- Phenolphthalein test (Kastle-Meyer test) is used for identification of haemoglobin in blood stains - *Parikh 6th/7.16*
- Paraffin test (or Dermal nitrate test) is used to detect gun powder on skin i.e. to determine if suspect had discharged a firearm- *Parikh 6th/7.39*
- Reine's test has not been mentioned in forensic literature

Forensic tests to detect

Seminal Stain	Blood Stains
- Barberio's test	- Benzidine test
- Fluorence test	- Phenophthalein (Kastle?)

- | | |
|-----------------------------|---|
| - Acid phosphatase testQ | - Meyer) testQ |
| - Creatine phosphatase test | - Takayama's Haemochromogen crystal testQ |
| - Elisa test | - Teichmann's Haemin crystal testQ |
| | - Spectroscopic test |

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19. Transvestism is :

- a) Wearing clothes of opposite sex
- b) Touching ones own private parts to others
- c) Desire for sexual intercourse with dead bodies
- d) Orgasm from visualisation part of the body of a woman

Correct Answer - A
A i.e. Wearing clothes of opposite sex

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20. Paraphilias are all except :

a) Bisexuality

b) Homosexuality

c) Bestiality

d) Frottuerism

Correct Answer - A

A i.e. Bisexuality

- Abnormal & unorthodox sex play by using unusal objects or parts of body are known as paraphillia eg. Sadomasochism, Transvestism, Uranism, Beastality, Fortteurism, Urolangia, Homosexuality etc.

- Bisexuality means hermaphrodite i.e. an individual with both ovary & testis & external genitals of both sexes.

21. Widmark's formula helps in the measurements of blood level of:

a) Barbiturates

b) Cocaine

c) Alcohol

d) Benzodiazepines

Correct Answer - C
C i.e. Alcohol

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22. Postmortem wound best differs from the antemortem wound by :

a) Gaps on incising

b) No clots

c) Absence of erythema and cellular changes

d) All

Correct Answer - C

C i.e. Absence of erythema & cellular change

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23. Arsenic poisoning presents with symptoms mimicking

- a) Cholera
- b) Dhatura poisoning
- c) Barbiturates poisoning
- d) Morphine poisoning

Correct Answer - A

Ans:A.)Cholera.

ARSENIC

- Copper arsenite - sheele's green
- Copper acetoarsenite - paris green
- Permissible limits of arsenic in ground water - 0.05mg/L
- The gastroenteric type of poisoning resembles cholera
- Greatest quantity is seen in - liver
- Red velvety appearance of mucosa of stomach
- Most affected part of the stomach – pylorus
- Subendocardial petechial hemorrhages of the ventricle is typical of arsenic poisoning (also found in phosphorus, barium, mercury and in cases of heat stroke and acute infectious disease e.g. influenza)
- Rigor mortis lasts longer than usual, Delays putrefaction

Acute poisoning

- Necrosis of intestinal mucosa with hemorrhagic gastroenteritis
- Hypotension, delayed cardiomyopathy

Chronic poisoning

- Aldrich Mee's line on finger nails
- Rain drop pigmentation on skin(measles like rash)
- Chronic consumption of water containing high arsenic concentrations lead to vasospasm and peripheral vascular

insufficiency - black foot disease

- Diabetes, peripheral neuropathy, gangrene
- Cancer of skin, lung, liver (angiosarcoma), bladder, kidney.
- Arsenophagists - some people take arsenic daily as tonic or aphrodisiac and acquire tolerance
- Chelating agent - Dimercaprol

Arsenic poisoning	Cholera
Pain in the throat - before vomiting	After vomiting
Purging - after vomiting	Before vomiting
Dark colored bloody stools initially, later rice water stools	Rice water stools, never blood stained
Tenesmus and anal irritation present	Absent
Vomitus contains mucus, bile and blood	Watery without mucus, bile and blood
Conjunctiva inflamed	Not inflamed

Arsenic was used as murder weapons in royal families, and called as "the poison of kings and king of poisons"

**24. Amyl Nitrate is used as an antidote
in...poisoning :**

a) CO₂

b) CO

c) Cyanide

d) Nitric acid

Correct Answer - C
C i.e. Cyanide

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25. Meaning of term vitriolage is:

- a) Using vitriol for suicide
- b) Using vitriol for murder
- c) Vitriol throwing
- d) Perforation of stomach caused by H_2SO_4

Correct Answer - C

C i.e. Vitriol throwing

Vitriolage (Vitriol throwing) is *throwing of any corrosive, not necessarily sulphuric acid (H_2SO_4) on another person*. Eyes are the most affected organs.

26. Best method of treatment of Methyl alcohol poisoning is :

a) Calcium gluconate

b) Ethyl alcohol

c) Amphetamines

d) 1 % Ammonia

Correct Answer - B
B i.e. Ethyl alcohol

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27. Charas is :

a) Leaves of *Cannabis Indica*

b) Flowers of *Cannabis Indica*

c) Stem of *Cannabis Indica*

d) Resin exudate of *Cannabis Indica*

Correct Answer - D

D i.e. Resin exudates of *cannabis Indica*

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28. True about strychnine poisoning is :

a) All muscles affected at the same time

b) Shoulder girdle affected first

c) Pelvic girdle affected first

d) None of the above

Correct Answer - A

A i.e. All muscles affected at same time

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29. Nux vomica seeds contain 2 alkaloids, strychnine and :

a) Hyoscine

b) Hyoscyamine

c) Brucine

d) Atropine

Correct Answer - C
C i.e. Brucine

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30. A sea snake is:

a) Neurotoxic

b) Hemotoxic

c) Musculotoxic

d) All of the above

Correct Answer - C
C i.e. Musculo toxic

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31. Not a grievous injury: *September 2005*

a) Multiple scars of face

b) Fracture of femur

c) Emasculation

d) Contusion of breast

Correct Answer - D

Ans. D: Contusion of breast

Sec 320 IPC: any of the following injures are grievous?

- Emasculation
- Permanent privation of sight or either eye
- Permanent privation of Hearing or either ear
- Permanent privation of any member or joint
- Permanent disfiguration of the head or face
- Destruction or permanent impairing of the power of any member or joint
- Fracture or dislocation of a bone or tooth
- Any hurts which endangers life, or which causes the victim to be in severe bodily pain or unable to follow his ordinary pursuits for a period of twenty days

32. Police inquest is required in all except:

b) Accidental death

c) Dowry death

d) Murder

Correct Answer - C

Ans. C: Dowry death

In police inquest, sub-inspector or officer in charge of the police station conducts the inquest in suicide, murder, accidental deaths or death under suspicious circumstances.

Magistrate inquest is done in:

- Custodial death
- Death due to police firing
- Death in prison
- Death in a psychiatric hospital
- Dowry deaths
- Exhumation

In dowry deaths, inquest should be carried out by a magistrate or police officer, not below the rank of deputy superintendent of police.

33. Brain death is said to occur if there is:

March 2008

- a) Absent spinal reflexes
- b) Cortical death following widespread brain injury
- c) Absence of brainstem reflexes
- d) Core temperature of the body is below 35 degree C

Correct Answer - C

Ans. C: Absence of brainstem reflexes

Brainstem is responsible for the respiratory drive and mostly for the maintenance of BP. All motor outputs from the brain travel through the brainstem. Apart from smell and vision. All sensory traffic coming into the brain comes through the brainstem. The brainstem also mediates the cranial nerve reflexes. Hence a properly functioning brain stem is a precondition for full consciousness.

Irreversible brain damage and loss of brain function, is evidenced by cessation of breathing and other vital reflexes (mediated by brain stem), unresponsiveness to stimuli, absence of muscle activity, and a flat electroencephalogram for a specific length of time.

34. First permanent teeth to erupt is:
September 2008

a) First premolar

b) Second premolar

c) First molar

d) Second molar

Correct Answer - C

Ans. C: First molar

At the age of about 6-7 year, first permanent molar teeth erupts behind the second temporary molar.

At the age of 9, there are 12 permanent teeth. At the age of 11, there are 20 permanent teeth At the age of 14, there are 28 permanent teeth

35. Rigor mortis occurs due to: *September 2008*

- a) Muscle of the body began to relax
- b) Capillo-venous distension in the most dependent body parts
- c) Muscle of the body began to stiffen
- d) Mummification of the body tissues

Correct Answer - C

Ans. C: Muscle of the body began to stiffen

A few hours after the death, the joints of the body stiffen and become locked in place. This stiffening is called *rigor mortis*.

Depending on temperature and other conditions, rigor mortis lasts approximately 24- 48 hours in winter and 18-36 hours in summer.

The phenomenon is caused by the skeletal muscles partially contracting. The muscles are unable to relax, so the joints become fixed in place. Rigor mortis can be used to help estimate time of death.

The onset of rigor mortis may range from 1-2 hours, depending on factors including temperature (rapid cooling of a body can inhibit rigor mortis, but it occurs upon thawing). Maximum stiffness is reached around 12-24 hours post mortem. It first starts in involuntary muscles (myocardium)

Eyelids, neck and jaw muscles are affected first, with the rigor then spreading to other parts of the body.

The joints are stiff but after some time general tissue decay and leaking of lysosomal intracellular digestive enzymes will cause the muscles to relax.

36. Best method for methanol poisoning treatment: *March 2007*

a) Ethanol

b) Calcium gluconate

c) Desferroxamine

d) BAL

Correct Answer - A

Ans. A: Ethanol

When metabolized by hepatic alcohol and aldehyde dehydrogenase, methanol forms formaldehyde and formic acid, both of which are toxic.

Formic acid is the primary toxin that accounts for the majority of the anion gap, metabolic acidosis, and ocular toxicity. Formic acid inhibits cytochrome oxidase in the fundus of the eye. Swelling of axons in the optic disc and edema result in visual impairment. Degradation of formic acid is folate dependent. Thus, if a folate-deficient person ingests ethanol, toxicity may be more severe due to the increased accumulation of formic acid.

Approximately 90-95% of methanol metabolism occurs in the liver, while 5-10% is excreted unchanged through the lungs and kidneys.

Methanol is primarily metabolized by alcohol and aldehyde dehydrogenase.

Formaldehyde has a short half-life, lasting only minutes.

Formic acid is metabolized much more slowly, and it bioaccumulates with significant methanol ingestion. Physical Sign

- Ocular physical findings include sluggishly reactive or fixed and

dilated pupils.

Retinal edema or hyperemia

Edema of the optic disc may be seen.

Optic atrophy may appear in late stages (permanent blindness).

- CNS signs include lethargy and confusion.
- Respiratory signs include dyspnea (rare cases) or even Kussmaul respiration, despite acidosis.
- Cardiac signs (e.g., hypotension, bradycardia) are late signs associated with a poor prognosis.

Lab studies

- Methanol concentration: This study confirms ingestion and helps guide treatment. Remember that low serum concentration do not rule out significant toxicity; late presenters may have low methanol concentrations but elevated formic acid levels and severe clinical toxicity (e.g., severe metabolic acidosis, blindness, coma).

Treatment

- Supportive measures
- Attempted correction of acidosis using sodium bicarbonate is indicated if pH is less than 7.20. An alkalemic pH makes it more likely that formic acid will exist as its anion (formate), which cannot access the CNS and optic nerve as readily.
- Administer folic acid for several days to potentiate the folate-dependent metabolism of formic acid to carbon dioxide and water.
- Ethanol infusion is recommended: Ethanol is a competitive inhibitor of alcohol dehydrogenase and, thereby, impairs the metabolism of methanol and ethylene glycol. Ethanol has 10-20 times greater affinity for alcohol dehydrogenase than methanol does.
- Plasma formate concentration is of prognostic value

**37. Gastric lavage is contraindicated in which of the following:
September 2010**

- a) Arsenic poisoning
- b) Kerosene poisoning
- c) Organophosphorus Poisoning
- d) Dhatura poisoning

Correct Answer - B

Ans. B: Kerosene Poisoning

Lavage is contraindicated when patients have a compromised, unprotected airway and in patients at risk of gastrointestinal hemorrhage or perforation.

Relative contraindications include when the poisoning is due to a corrosive substance, hydrocarbons, or for poisons that have an effective antidote.

**38. Which of the following poisoning presents with abdominal pain, diarrhea, Mees line on nails and myelosuppression:
*September 2011***

a) Lead

b) Arsenic

c) Alcohol

d) Mercury

Correct Answer - B

Ans. B: Arsenic

In chronic arsenic poisoning, a classical state of ill health results are represented by 4 stages. First stage of nutritional and gastrointestinal disturbances (diarrhoea is common)

Third stage (of skin rashes) shows white bands known as Mees line crossing the nail of fingers and toes

In addition to this, there may be evidence of liver damage, kidney damage and bone marrow depression at some stage Arsenic poisoning

- Increased levels of the element arsenic in the body.
- Arsenic interferes with cellular longevity by allosteric inhibition of an essential metabolic enzyme.
- Symptoms of arsenic poisoning include headache, confusion, convulsion, diarrhea, vomiting, and in severe case coma and death
- Routes of exposure include contaminated water, air, and food.
- Occupational exposure to arsenic may occur with copper or lead smelting and wood treatment and among workers involved in the production or application of pesticides

- Symptoms of arsenic poisoning begin with headaches, confusion, severe diarrhea, and drowsiness.
- As the poisoning develops, convulsions and changes in fingernail pigmentation called leukonychia may occur.
- When the poisoning becomes acute, symptoms may include diarrhea, vomiting, blood in the urine, cramping muscles, hair loss, stomach pain, and more convulsions.
- The organs of the body that are usually affected by arsenic poisoning are the lungs, skin, kidneys, and liver.
- Chronic arsenic exposure can remain in the body systems for a longer period of time than a shorter term or more isolated exposure and can be detected in a longer time frame after the introduction of the arsenic, important in trying to determine the source of the exposure.
- Hair is a potential bioindicator for arsenic exposure due to its ability to store trace elements from blood.
- Incorporated elements maintain their position during growth of hair.
- Thus for a temporal estimation of exposure, an assay of hair composition needs to be carried out with a single hair which is not possible with older techniques requiring homogenization and dissolution of several strands of hair.
- This type of biomonitoring has been achieved with newer microanalytical techniques like Synchrotron radiation based X ray fluorescence (SXRF) spectroscopy and Microparticle induced X ray emission (PIXE).
- Dimercaprol and dimercaptosuccinic acid are chelating agents which sequester the arsenic away from blood proteins and are used in treating acute arsenic poisoning.
- The most important side effect is hypertension.
- Dimercaprol is considerably more toxic than succimer

39. Contributory negligence is negligence due to:

NEET 13

- a) Doctor only
- b) Patient only
- c) Both doctor and patient
- d) Hospital administrator and doctor

Correct Answer - C
Ans. Both doctor and patient

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40. Police inquest is done in all, except:
NEET 13, 14

a) Suicidal death

b) Homicidal death

c) Dowry death

d) Death by animals

Correct Answer - C
Ans. Dowry death

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41. In criminal cases, conduct money is paid by:
NEET 13

a) Court

b) Opposite party

c) Judge

d) No conduct money is given

Correct Answer - D
Ans. No conduct money is given

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42. IPC 197 is related to: **NEET 14**

- a) Causing disappearance of evidence
- b) Issuing false certificate by doctor
- c) Giving false evidence
- d) b and c both

Correct Answer - B

Ans. B.) Issuing false certificate by doctor

I.P.C 197, Issuing or signing false certificate.

IPCs related to Medical Practice:

IPC section	Definition
52	Nothing is said to be done in good faith which is done without due care and attention
74	Nonattendance in obedience to summons from court
175	Omission to produce document to public servant
176	Omission to give notice or information to public servant
177	Furnishing false information
179	Refusing to answer public servant authorized to question
191	Giving false evidence (Perjury)
197	Issuing or signing false certificate
201	Causing disappearance of evidence of offence or giving false information to screen offenders
204	Destruction of document to prevent its production as evidence
269	Negligent act likely to spread infection of disease dangerous to life
270	Malignant act likely to spread infection of disease dangerous to life
160	Police officer has the power to summon any witness (doctor) to police station for recording a statement
87 - 93	Legal protection to medical doctors

43. Dying declaration is a:
MAHE 10

a) Circumstantial evidence

b) Oral evidence

c) Documentary evidence

d) Hearsay evidence

Correct Answer - C
Ans. Documentary evidence

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44. Oral evidence is more important than written testimony as:
NEET 13

- a) Oral evidence cannot be cross-examined
- b) Oral evidence can be cross-examined
- c) Documentary evidence requires no proof
- d) None

Correct Answer - B

Ans. Oral evidence can be cross-examined

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45. Crural index is:

a) Length of tibia/femur x 100

b) Length of radius/humerus x 100

c) Length of fibula/tibia x 100

d) Length of radius/ulna x 100

Correct Answer - A

Ans. Length of tibia/femur x 100

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46. Four carpal bones are present at what age:
DNB 09

a) 3 years

b) 4 years

c) 5 years

d) 6 years

Correct Answer - B
Ans. 4 years

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47. Corneal tattooing may be done with:

a) Gold chloride

b) Calcium chloride

c) Copper sulfate

d) Potassium permanganate

Correct Answer - A
Ans. Gold chloride

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48. Method of identification using lips:

a) Dactylography

b) Poroscopy

c) Cheiloscopy

d) Tricology

Correct Answer - C
Ans. Cheiloscopy

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**49. Postmortem caloridity is seen in all,
except:
AP 06; Bihar 12; BHU 12**

a) Burns

b) Sunstroke

c) Tetanus

d) Septicemia

Correct Answer - A
Ans. Burns

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50. Elderly individual living alone in a temperate zone is found dead one morning. The electric heater is found to be damaged. The rigor mortis will set in:
NEET 14

a) Earlier than expected

b) Later than expected

c) Will not set in

d) Will set in as expected

Correct Answer - A
Ans. Earlier than expected

51. Foamy liver is seen in:

TN 08; UP 08; NIMS 11; NEET 13

a) Arsenic poisoning

b) Electrocution

c) Hanging

d) Putrefaction

Correct Answer - D
Ans. Putrefaction

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52. Last organ to putrefy in females is:

BHU 12

a) Kidney

b) Uterus

c) Brain

d) Spleen

Correct Answer - B

Ans. Uterus

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**53. Following is most suggestive of
antemortem hanging:
*DNB 09***

a) Salivary dribbling

b) Congestion of lungs

c) Ligature marks

d) Petechial hemorrhages

Correct Answer - A
Ans. Salivary dribbling

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54. Bansdola is a form of strangulation by: **NEET 14**

a) Ligature

b) Hands

c) Wooden sticks

d) Bend of elbow

Correct Answer - C

Ans. C. Wooden sticks

Depending upon the method used to constrict the neck, strangulation can be divided into :

Ligature strangulation :

* Neck is compressed by a ligature of which usually multiple rounds are given and no knot is tied.

Throttling (manual strangulation) :

* Neck is compressed by one or both hands.

* When neck is compressed by two palms, it is known as palmar strangulation.

Bansdola :

* Compression of neck with *one or two wooden sticks or bamboo*.

Garrotting :

* It is compression of neck by a *rope thrown from behind*. Spanish windlass is a type of garrotting, which used to be the official mode of execution in Spain. In this, an iron collar around the neck was tightened by a screw for strangulation.

Mugging (choke hold) :

* It is compression of neck by forearm or in the bend of elbow.

Strangulation by knee/foot :

* In this, neck is compressed by knee or foot.

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55. Hyoid bone fracture does not occur in: **NEET 14**

a) Hanging

b) Strangulation

c) Throttling

d) Choking

Correct Answer - D

Ans. Choking

[Ref Parikh 6th Ve p. 3.24]

- It is very simple question. Hyoid fracture will occur only when there is pressure on hyoid (neck) from outside.
- In choking, there is no pressure on hyoid.
- **Fracture of hyoid : Throttling (manual strangulation) > ligature strangulation > Hanging.**

56. Burking includes:
NEET 13

a) Choking

b) Ligature

c) Overlaying

d) Traumatic asphyxia

Correct Answer - D
Ans. Traumatic asphyxia

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57. Cause of death for drowning in cold water:
NEET 13

a) Vagal inhibition

b) Asphyxia

c) Loss of consciousness

d) Ventricular fibrillation

Correct Answer - A
Ans. Vagal inhibition

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58. Best indicator of antemortem drowning is:
Delhi 07; TN 11

a) Froth in nostrils

b) Cutis anserina

c) Washerwoman's hand

d) Water in stomach

Correct Answer - A
Ans. Froth in nostrils

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59. Ectopic bruise is most commonly seen in:
NEET 13

a) Leg

b) Eye

c) Pinna

d) Scalp

Correct Answer - B
Ans. Eye

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60. Blackening of eye most common because of:

NEET 13

a) Friction abrasion

b) Patterned abrasion

c) Imprint abrasion

d) Contusion

Correct Answer - D
Ans. Contusion

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**61. Incised looking laceration is seen in all,
except
AFMC 11; NEET 13**

a) Iliac crest

b) Zygomatic bone

c) Shin

d) Chest

Correct Answer - D
Ans. Chest

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62. Shotgun does not contain use:
NEET 13

a) Barrel

b) Choke bore

c) Bullets

d) Muzzle

Correct Answer - C
Ans. Bullets

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63. Dirt collar or grease collar is seen in: *NEET 13*

a) Punctured wound by sharp weapon

b) Lacerated wound

c) Firearm entry wound

d) Stab wound

e) None

Correct Answer - C

Ans. Firearm entry wound

Smudge ring/Lead ring/Grease collar/Dirt collar

- This is due to the wipe of the soft metal of the bullet, or dirt present on it, or grease carried from the barrel & is deposited round the entrance wound internal to the abraded collar
- The smudge ring may therefore be absent when the jacketed bullet has passed through clothing
- The smudging in case of lead shot orunjacketed bullets can be detected microchemically on the target (skin/cloth)
- The forensic value of bullet wipe is to establish a hole as a bullet hole, to determine the entry site, & on occasion the sequence of shots or bullet's passage through multiple objects.

64. Kennedy phenomenon is seen in:
NEET 13

a) Road traffic accident

b) Gunshot injury

c) Burns

d) Contusion

Correct Answer - B
Ans. Gunshot injury

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65. Gunshot residue on hands can be detected by:
DNB 10; NEET 13

a) Phenolphthalein test

b) Dermal nitrate test

c) Benzidine test

d) H₂ activation test

Correct Answer - B
Ans. Dermal nitrate test

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66. Hinge fracture is:

a) Depressed fracture

b) Sutural fracture

c) Orbital fracture

d) Basilar fracture

Correct Answer - D
Ans. Basilar fracture

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67. Most common location of hypertensive intracranial hemorrhage is:

AI 06; NIMHANS 08; DNB 10; WB 11

a) Subarachnoid space

b) Basal ganglia

c) Cerebellum

d) Brainstem

Correct Answer - B

Ans. Basal ganglia

The most common sites for hypertensive intracranial hemorrhage are:

- ? Basal ganglia (putamen, thalamus and adjacent deep white matter)
- ? Deep cerebellum
- ? Pons

So among the options provided basal ganglia is the single best answer of choice.

Ref: Harrison's Principles of Internal Medicine, 16th Edition, Pages 2390-92.

68. Most common organ injured in penetrating injury of the abdomen:

a) Liver

b) Spleen

c) Small bowel

d) none of these

Correct Answer - C

Ans- C- Small Bowel

- The most common cause is a stab or gunshot.
- The most common organs injured are the small bowel (50%), large bowel (40%), liver (30%), and intra-abdominal vascular (25%).
- When the injury is close range, there is more kinetic energy than those injuries sustained from a distance. Even though most gunshot wounds typically have a linear projection, the high-energy wounds are associated with unpredictable injuries.
- There may also be secondary missile injuries from bone or bullet fragments. Stab wounds that penetrate the abdominal wall are difficult to assess.

**69. Color of postmortem lividity in
hypothermic deaths:
*NEET 13***

a) Purple

b) Deep red

c) Cherry red

d) Bright pink

Correct Answer - D
Ans. Bright pink

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70. Miner's cramps are also called:
NEET 13

a) Heat collapse

b) Heat cramps

c) Sunstroke

d) Heat exhaustion

Correct Answer - B
Ans. Heat cramps

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71. True about heat hematoma: *PGI 12*

- a) Inside the brain
- b) Between skull and dura mater
- c) Between skull and pericranium
- d) Between scalp and pericranium

Correct Answer - B
Ans. Between skull and dura mater

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72. Filigree burn occur in:
FMGE 09; NJI 10; JIPMER 11

a) Lightning

b) Electrocution

c) Vitriolage

d) Infanticide

Correct Answer - A
Ans. Lightning

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73. Organs first to be injured in air blast:
NEET 13

a) Ear, lung

b) Kidney, spleen

c) Pancreas, duodenum

d) Liver, muscle

Correct Answer - A
Ans. Ear, lung

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**74. If a woman is assaulted by her husband
then he is charged under:
*FMGE 11***

a) Sec. 498-A IPC

b) Sec. 304-A IPC

c) Sec. 304-B IPC

d) Sec. 504 IPC

Correct Answer - A
Ans. Sec. 498-A IPC

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75. All sections of IPC are related to grievous hurt, *except*

a) Sec. 320

b) Sec. 331

c) Sec. 326

d) Sec. 319

Correct Answer - D

Ans. d. Sec. 319

- 319. Hurt.—Whoever causes bodily pain, disease or infirmity to any person is said to cause hurt.
- It is of two types: i. Simple and ii. Grievous
- Sec-319 --> Defines Hurt.—Whoever causes bodily pain, disease or infirmity to any person is said to cause hurt.
- Sec- 320--> Defines the grievous hurt and comprises of 8 clauses
- Sec-326 --> Voluntarily causing grievous hurt by dangerous weapons/means, fine/punishment up to 10 years.
- Sec 331 --> Voluntarily causing grievous hurt to extort confession, or to compel restoration of the property. shall be punished with imprisonment of either description for a term which may extend to ten years, and shall also be liable to fine.

76. True about reactionary hemorrhage following surgery: **UP 10**

- a) Hemorrhage occurring within 48 h
- b) Hemorrhage occurring within 36 h
- c) Hemorrhage occurring within 24 h
- d) Hemorrhage occurring during surgery

Correct Answer - C

Ans. Hemorrhage occurring within 24 h

Hemorrhage according to the Time of appearance can be classified as belows

Primary hemorrhage

- Is one which occur at the time of injury or operation.

Reactionary hemorrhage

- In majority of cases reactionary occur within 4 to 6 hours. Such bleeding may also occur due to:
 - Restlessness
 - Coughing
 - Vomiting with raises the venous pressure

Secondary hemorrhage

- This occurs usually after 7 to 14 days of injury or operation.
- This is usually due to infection and sloughing of a part of the arterial wall.

77. In a 3 month fetus, characteristic feature seen is:

NEET 13

a) Nails are visible

b) Limbs well formed

c) Anus is seen as dark spot

d) Meconium is found in duodenum

Correct Answer - A
Ans. Nails are visible

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78. Miscarriage is punishable under which IPC:

AIIMS 13; NEET 14

a) Sec 320 IPC

b) Sec 311 IPC

c) Sec 312 IPC

d) Sec 314 IPC

Correct Answer - C
Ans. Sec 312 IPC

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**79. Gestational sac can be seen using
ultrasonography at the earliest by:
*Gujarat 07***

a) 3rd week

b) 4th week

c) 5th week

d) 8th week

Correct Answer - C

Ans. 5th week

- The gestational sac can be visualized as early as 4 1/2 weeks by transvaginal USG and 5 weeks by transabdominal USG.

80. In sexual assault of a child, the hymen is usually not ruptured due to:
NEET 13

a) Deep seated

b) Underdeveloped

c) Too tough to rupture

d) Distensible

Correct Answer - A
Ans. Deep seated

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81. Irresistible sexual desire in a male is known as:
AIIMS 08

a) Nymphomania

b) Tribadism

c) Satyriasis

d) Sadism

Correct Answer - C

Ans. Satyriasis

- *Satyriasis is excessive sexual desire in male where he enjoys having multiple sexual partners or desires excessive sexual activity. The female-specific term for the same condition is Nymphomania.*
 - A fetish is an abnormal stimulus or object of sexual desire.
 - Fetishism means the use of such objects of sexual gratification leading to orgasm. For example underclothing, brassiere, petticoat, stocking, shoes, etc.
 - Frotteurism :
 - Sexual satisfaction is obtained by rubbing against persons in crowd.
 - If they attempt intercourse, they have a premature ejaculation or they are impotent.
- It is an uncommon perversion and rarely occurs alone

82. Masochism means:

TN 09

- a) Sexual intercourse with dead body
- b) Sexual pleasure by contact with articles of opposite sex
- c) Sexual pleasure by suffering of pain
- d) Sexual pleasure by self-stimulation

Correct Answer - C

Ans. Sexual pleasure by suffering of pain

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83. Erotomania is seen in:
NEET 13

a) Bipolar mania

b) Unipolar mania

c) Neurosis

d) Obsessive compulsive disorder

Correct Answer - A
Ans. Bipolar mania

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84. Type of schizophrenia with mental retardation:
NEET 13

a) Von-Gogh syndrome

b) Paranoid schizophrenia

c) Catatonic schizophrenia

d) Pdropf schizophrenia

Correct Answer - D
Ans. Pdropf schizophrenia

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85. Hydrogen peroxide is used in all of the following chemical tests for blood except:
NEET 13

a) Benzidine test

b) Kastle Mayer test

c) Ortho toluidine test

d) Teichmann test

Correct Answer - D
Ans. Teichmann test

86. Father of toxicology

is:

NEET 13

a) Paracelsus

b) Galen

c) Galton

d) Orfila

Correct Answer - A

Paracelsus is called father of toxicology. Mathieu orfila is thought of as father of modern toxicology

87. Tetany is caused by poisoning with:
NEET 13

a) Oxalic acid

b) Carbolic acid

c) Sulphuric acid

d) Nitric acid

Correct Answer - A
Ans. Oxalic acid

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88. Chronic arsenic poisoning does not cause:

NEET 13,15

a) Mixed sensory and motor neuropathy

b) Mesothelioma

c) Hyperkeratosis of skin

d) Anemia

Correct Answer - B
Ans. Mesothelioma

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**89. Barium carbonate poisoning
causes:
NEET 13**

a) Respiratory distress

b) Gastrointestinal irritation

c) Muscular weakness

d) Cyanosis

Correct Answer - C
Ans. Muscular weakness

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90. Opium is derived from:
NEET 13

a) Leaf

b) Root

c) Poppy seed

d) Unripe capsule

Correct Answer - D
Ans. Unripe capsule

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91. Ethylene glycol when ingested affects kidney by forming:
NEET 13

a) Formaldehyde

b) Oxalates

c) Phytates

d) Phosphates

Correct Answer - B
Ans. Oxalates

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92. Muttering delirium is seen with:
NEET 13

a) Ricinus

b) Dhatura

c) Cocaine

d) Aconite

Correct Answer - B
Ans. Dhatura

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**93. In strychnos nux vomica poisoning,
patient:
*NEET 13***

- a) Becomes unconscious immediately
- b) Becomes unconscious in 1 h or so
- c) Becomes unconscious at end stage
- d) Remains conscious throughout

Correct Answer - D
Ans. Remains conscious throughout

94. In nux vomica poisoning, posture commonly assumed by the spine is:
NEET 13

a) Opisthotonus

b) Emprosthotonus

c) Pleurosthotonus

d) B and C

Correct Answer - A
Ans. Opisthotonus

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**95. Antidote for strychnine poisoning
is:
*NEET 13***

a) Fomepizole

b) Physotigmine

c) Barbiturates

d) Naloxone

Correct Answer - C
Ans. Barbiturates

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96. Mechanism of cyanide poisoning is by inhibiting:
NEET 13

a) DNA synthesis

b) Cytochrome oxidase

c) Protein breakdown

d) Protein synthesis

Correct Answer - B
Ans. Cytochrome oxidase

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97. In CO poisoning, immediate emergency treatment:

Jharkhand 10

a) 5% CO₂ inhalation

b) 10% CO₂ inhalation

c) High flow O₂

d) Nitroglycerine

Correct Answer - C
Ans. High flow O₂

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98. Not a contact poison:
MAHE 14

a) Pyrethrum

b) Paris green

c) Rotenone

d) Eucalyptus oil

Correct Answer - A
Ans.is. A. Pyrethrum

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99. Oximes are contraindicated in which poisoning:
NEET 13

a) Malathion

b) Diazinon

c) Phorate

d) Carbamate

Correct Answer - D
Ans. Carbamate

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100. Treatment of acute alcohol withdrawal:
Punjab 09

a) Diazepam

b) Bupropion

c) Disulfiram

d) Acamprosate

Correct Answer - A
Ans. Diazepam

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101. All are true of opioid withdrawal, except:
NIMHANS 10; PGI 14

a) Yawning

b) Hallucinations

c) Lacrimation

d) Piloerection

Correct Answer - B
Ans. Hallucinations

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102. Amotivational syndrome is seen with:
Maharashtra 10; NEET 13

a) Heroin

b) Cannabis

c) Cocaine

d) Clonidine

Correct Answer - B
Ans. Cannabis

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103. Toxin responsible for epidemic dropsy:
AIIMS 07; UP 09; PGI 11

a) BOAA

b) Aflatoxin

c) Sanguinarine

d) Pyrrolozolidine

Correct Answer - C
Ans. Sanguinarine

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104. Nullity of marriage is considered when ?

a) Adultery in first 7 years

b) Infertility of husband

c) Assault in first 7yrs

d) Age > 55years

Correct Answer - B

Ans. is 'b' i.e., Infertility of husband

Under section 12 of Hindu Marriage Act 1955 or section 24 of Special Marriage Act 1954, a wife may seek divorce on the ground that her husband was impotent at the time of marriage and continues to be impotent therefore he is incapable of fulfilling the rights of consummation of marriage by an act of sexual intercourse.

Conditions for nullity of marriage

Any marriage can be declared null and void under following conditions:?

- 1) Bigamy, i.e. one spouse has made one more marriage
- 2) *Impotence*
- 3) If either party is underage
- 4) If one spouse is having unsound mind at the time of marriage, virulent form of leprosy or venereal disease in a communicable form.
- 5) If one spouse has not been heard of as being alive for a period of 7 years or undergoing a sentence of imprisonment for 7 years.
- 6) If the consent has been obtained by coercion or fraud.
- 7) If the woman already pregnant with some one else's child at the time of marriage.

105. WHO definition of abdominal obesity is ?

a) Waist - hip ratio > 0.80 in females

b) Waist - hip ratio > 0.85 in females

c) Waist - hip ratio > 0.90 in females

d) Waist - hip ratio > 0.95 in females

Correct Answer - B

Ans. is 'b' i.e., Waist - hip ratio > 0.85 in females

Assessment of obesity

Following parameters are used to assess obesity :?

1) Skin fold thickness (SFT)

- Since it is most accessible, *SFT is the most common method used to assess obesity.*
- Measurements are taken at 4 sites : *mid triceps (best site), biceps, subscapular and suprailiac regions.*
- *The sum of measurements _ 50 mm in girls and 240 mm in boys indicate obesity.*
- *At single mid triceps level (best site to measure SFT), thickness 18 mm in boys and 32 mm in girls indicate obesity.*
- *The instrument used to estimate SFT is Harpenden skin callipers.*

2) Waist circumference (WC) and Waist / Hip ratio (WHR)

- These are good predictors for metabolic complications and risk of cardiovascular disease.
- The cut-off for *waist circumference* is **102 cms in boys (for India 90 cms) and 88 cms in girls (for India . 80 cms).** *WHR > 1.0 in men and > 0.85 in women indicates obesity and abdominal fat accumulation.*

3) Waist-Height ratio (WHtR)

- It is the *best indicator of cardiovascular risk.* It is **independent of**

age and sex. *Cut-off value is 0.5.*

4) Indices based on weight and/or height

These are :?

i) Body mass index (Qetelet's index)

- *It is used internationally as reference standard for assessing the prevalence of obesity.*
- *It is dependent both on height and weight (has been explained earlier).*

ii) Ponderal index

- *It is dependent both on height and weight.*
- *It is defined as height (cm) divided by cube root of weight (kg).*

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106. Commonly used long bone for identification ?

a) Femur

b) Radius

c) Ulna

d) Humerus

Correct Answer - A

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

- Stature can be calculated from the length of long bones and used for identification.
- Femur and tibia give more accurate values compared to humerus and radius
- Stature is determined in the dismembered body (skeletal remains) by :
 1. Length from the tip of the middle finger to the tip of the opposite middle finger when arms are fully extended.
 2. Twice the length of one arm + 30 cm (of two clavicles) + 4 cm (for the sternum).
 3. Humerus length is 1/5th of height.
 4. The length from the vertex to the symphysis pubis is half of the total length.
 5. The length from the sternal notch to Symphysis pubis x 3.3.
 6. The length of the forearm measured from the tip of the middle finger is $\approx 5/19$ of total length.
 7. The height of head measured by the vertical distance from the top of the head (vertex) to the tip of chin = $1/8$ of the total length.
 8. The length of the vertebral column = $34/100$ of total length. To the length of the entire skeleton, add 2.5 to 4 cm for the thickness of the

soft parts.

9. As a general rule humerus is 20%, the tibia is 22%, the femur is 27% and the spine is 35% of the individual height.

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107. Soft friable extradural hematoma with honeycomb appearance seen in autopsy in cases of death due to?

- a) Coagulopathy
- b) Thermal injury
- c) Post mortem trauma
- d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Thermal injury

When the head is exposed to intense heat, sufficient to cause charring of the skull, heat hematomas occur.

They have the appearance like extradural hemorrhage, but signs of injury blunt force do not accompany it.

It consists of soft friable clot of light chocolate colour and may be pink, if blood contains CO.

The clot has honeycombed appearance due to bubbles of steam produced by heat.

Thickness - 11/2 to 15 mm and volume 120 ml.

Thus the findings described in the question have typical appearance secondary to excess heat as seen in thermal injuries due to burns.

108. Which of the gustafson's parameter is the most accurate ?

a) Attrition

b) Periodontosis

c) Root resorption

d) Transperency of the tooth

Correct Answer - D

Ans. is 'd' i.e., Trnasperency of the tooth

Age from teeth after 20 years

Teeth eruption is useful for age estimation upto about 18 years, beyond which it is just a guess work. The methods used are :?

A) Gustafson's method : Useful only in persons older than 21 years of age, depending on the physiological changes in each of the dental tissues.

1. Attrition - due to wear and tear from mastication, upper surface of teeth destroyed gradually, first involving the enamel - dentine - pulp (depending on the functional use of teeth and hardness of enamel).
2. *Paradentosis* - recession of gums and periodontal tissue surrounding the teeth, exposing the neck and adjacent part of root - teeth fall off (poor hygiene increases paradentosis).
3. *Secondary dentine formation* - develop within the pulp cavity and decrease size of the cavity, start from base - apex, obliterate the cavity, increase with age, caries and paradentosis.
4. *Cementum apposition* - near the end of root, increase cementum, increase thickness, deposited throughout life, and form incremental lines (devised by Boyde).
5. *Root resorption* - because of cementum and dentine, absorption of root start at apex and extend upward (may be pathological).

- i). *Transparency of the root* - seen after 30 years of age, canal in the dentine at first widens, increases with age because of deposition of minerals. They become invisible and dentine becomes transparent (Most reliable of all the criteria).
- B) *Mile's method* : Age can be known by changes of root transparency.
- Q *Boyde's method* : On enamel of the tooth, there is a line at birth (neonatal line). With increase in age, more lines are added, study of which helps in age determination.
- D) *Stack's method* : Age of infant can be known from height and weight of erupting teeth.

109. Maximum soft tissue bruising in neck is seen in -

a) Strangulation

b) Hanging

c) Burking

d) Smothering

Correct Answer - A

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

As manual strangulation (throttling) is among the most violent form of asphyxia, hyoid fracture and other injury to neck structures is more common.

110. Constitution by which we can force people on hunger strike to eat is ?

a) Article 21

b) Article 35

c) Article 48

d) Article 52

Correct Answer - A

Ans. is 'a' i.e., Article 21

Indian constitution (Article 21) ensures right to life; there is no equivalent right to die. Since Indian constitution is supreme, force feeding in hunger strikers is lawful in India.

111. Following is false regarding the bullet entry wound in skull ?

- a) Punched in hole in outer table
- b) Inner table shows bevelling surface
- c) No pieces of bone are present in the bullet track
- d) Wound is funnel shaped with the funnel opening in the direction in which the bullet is travelling

Correct Answer - C

Ans. is 'c' i.e., No pieces of bone are present in the bullet track
Firearm/bullet wounds in the skull

Wound of entrance shows a punched in (clean) hole in the outer table. Cone shaped bone is detached from the inner table forming a crater that is larger than the hole of the outer table and shows beveling (sloping surface).

Fissured fractures are seen radiating from the defect.

Irregular lacerations may be seen involving the leptomeninges.

Pieces of bone from the wound of entry are often driven into the cranial cavity and may establish the bullet track.

At the point of exit a punched out opening is produced in the inner table and beveled opening in the outer table.

The wound is funnel shaped with the funnel opening in the direction in which the bullet is travelling both in entrance and exit wound.

The exit wound is larger due to deformity and tumbling of the bullet after entering the skull.

112. Frigidity is ?

- a) Inability to initiate sexual arousal in males
- b) Inability to initiate sexual arousal in females
- c) Inability to initiate and maintain sexual arousal in males
- d) Inability to initiate and maintain sexual arousal in females.

Correct Answer - D

Ans. is 'd' i.e., Inability to initiate and maintain sexual arousal in females

Frigidity : Inability to initiate and maintain sexual arousal in females.

113. Which of the following teeth erupt earlier in the upper jaw ?

a) Central incisor

b) Lateral incisor

c) Canine

d) First molar

Correct Answer - B

Ans. is b' i.e., Lateral incisor

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114. Fencing attitude of the dead bodies is caused by ?

a) Ciagulation of proteins

b) Emulsification of fact

c) Exposure to excess cold

d) Electric shock

Correct Answer - A

Ans. is 'a' i.e., Coagulation of proteins

Pugilistic attitude(boxing/fencing/defence attitude)

- It is heat stiffening caused by denaturation and coagulation of proteins.
- It is indicative of exposure to intense heat.
- There is flexion at all joints and ?clawing of fingers.
- This phenomenon occurs both in antemortem and postmortem burns.

115. Lucid interval may be seen in ?

a) Intracerebral hemorrhage

b) Alcohol intake

c) Insanity

d) Subdural hemorrhage

Correct Answer - C

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

Lucid interval *is seen in insanity and epidural haemorrhage.*

Lucid interval *is a state of consciousness between two episodes of unconsciousness in subacute/chronic epidural haemorrhage.* It is significant that during this period (lucid interval), the person can :
(i) *Make a valid will,* (ii) *Can give valid evidence,* and (iii) *Is legally responsible for act done (civil/criminal).*

Lucid interval is also seen in insanity, i.e. the period of sanity between two phases of insanity.

116. Alkaline diuresis is treatment of choice in poisoning with ?

a) Benzodiazepine

b) Barbiturates

c) Dhatura

d) Morphine

Correct Answer - B

Ans. is 'b' i.e., Barbiturate poisoning

Elimination of poison from circulation can be by following methods :?

A) Forced diuresis with or without alteration of urinary pH

- Diuresis and ion trapping via alteration of urinary pH may prevent the renal reabsorption of poisons that under go excretion by glomerular filtration and active tubular secretion. Forced diuresis may be of following types :?

1) *Alkaline diuresis* : Poisons which are trapped and excreted in alkaline urine are barbiturates (phenobarbitone), chlorpropamide, diffunisol, sulfonamides and salicylates.

2) *Acid diuresis* : It is done for amphetamines, cocaine, strychnine, phencyclidine, quinidine, quinine, chloroquine, TCA and tocinide.

3) *Saline diuresis* : It is useful for alcohol, thallium, bromide, lithium, fluoride, chromium, potassium and isoniazide.

B) Extracorporeal removal therapies

- These are peritoneal *dialysis*, *hemodialysis*, *hemoperfusion (resin or charcoal)*, *hemofiltration*, *plasmapheresis* and *exchange transfusion*.

Commonly used procedures are :?

1) *Haemodialysis* : It is useful in poisoning with alcohol (ethanol and methanol), aspirin (salicylates), acetone, atenolol, acetaminophen, barbiturates (phenobarbitone), bromide, boric acid, chloral hydrate,

ethylene glycol, fluoride, lithium, trivalent arsenic, procainamide, theophylline, thiocyanate, sodium chlorate and sotalol. Hemodialysis is not useful in copper sulphate, benzodiazepines, organophosphates, kerosine and digitalis poisonings.

- In all poisonings, where hemodialysis is indicated *peritoneal dialysis* is also used with one more indication of mercury poisoning.
2) Hemoperfusion (chorcol or resin) : It is used in acetaminophen, barbiturates carbamazepine, chloral hydrate, caffeine, CCl_4 , chloramphenical, phenytoin, procainamide, salicylates, theophylline, valproate, dapsone and methotrexate.

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117. Phossy jaw is caused by ?

a) White phosphorus

b) Red Phosphorus

c) Arsenic

d) Antimony

Correct Answer - A

Ans. is 'a' i.e., White Phosphorus

Phossy jaw is caused by phosphorus poisoning. All phosphorus poisoning are caused by white (yellow) phosphorus (Red phosphorus is nontoxic).

Phosphorus poisoning

- Phosphorus is a protoplasmic poison affecting cellular oxidation and causing anoxic necrobiosis, classically affecting liver. It increases fat deposition and inhibits glycogen deposition in liver. It is used in fire works (*Diwali poisoning*) and as rat poison. Lethal dose is 60-120 mg.

Phosphorus occurs in two forms :?

1) White/yellow phosphorus : It is white, and becomes yellow on exposure to air. It is translucent, waxy, luminous and crystalline cylinders. It has garlic like odor. It is insoluble in water and luminous in dark. Its fumes show phosphorescence.

2) Red phosphorus : It is reddish brown, inert, odourless and tasteless. It is nontoxic (thus poisoning occurs only due to white phosphorus). It is put on the sides (striking surface) of match box (along with powdered glass).

Acute poisoning

It has following stages :

i) 1st Stage (GI irritation) : There is nausea, vomiting, diarrhea and garlic odor. This stage lasts for 8 hours to 2 days.

garlic odor. This stage lasts for 6 hours to 3 days.

ii) 2nd Stage (Asymptomatic) : This stage lasts for 3 days.

iii) 3rd Stage : There is *liver and kidney damage* due to absorbed phosphorus. Initially liver is enlarged due to acute fatty infiltration. Later liver shrinks due to necrosis, i.e. *acute yellow atrophy*.

Chronic poisoning

- Toothache is the first symptom which is associated with loosening of teeth, necrosis of gums and osteomyelitis of jaw. Therefore chronic phosphorus poisoning is also known as phossy jaw (or glass jaw).

Postmortem appearance

- There is garlic odor. Viscera and stool glow in dark (due to luminosity).
- To preserve luminosity, viscera are preserved in *saturated saline solution*. Rectified spirit is not used as it causes loss of luminosity.

118. Presence of spiral grooves in the barrel of weapon is referred to as ?

a) Rifling

b) Incendiary

c) Cocking

d) None of the above

Correct Answer - A

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

Type of firearm weapons

- Bore (caliber) is the inner diameter of barrel. Based on inside of barrel (i.e., bore), the firearm weapons are divided into:?
 1. Smooth bore weapons : Barrel or bore is smooth inside, e.g., shot gun, muskets, and muzzle loaders.
 2. Rifled weapons : Barrel or bore is rifled from inside, i.e., has longitudinally twisted grooves. Example are : Pistals, rifles and revolvers.
- Pistals and revolvers are small, so referred to as hand guns.

119. Evidence not used in rape?

- a) Semen in vagina
- b) Semen on clothes
- c) Presence of smega bacilli in vagina
- d) Presence of smegma under prepuce

Correct Answer - D

Ans. is 'd' i.e., Presence of smegma under prepuce

Examination in a case of rape

A. Examination of victim

- Victim cannot be examined without written informed consent. Informed written consent should be obtained if the *age of victim is above 12 years*. If she is less than 12 years of age or if she is mentally unsound, the written consent of parent/guardian should be taken (Sec. 90 IPC). Victim (female) should be examined by or under supervision of a female RMP (Sec. 53(2) CrPC).
- **Finding which are suggestive of rape are :-**
 1. *Signs of struggle on clothes (tear, blood, semen, mud etc), body and genitals (abrasion, contusion, bites or nail marks etc).*
 2. Presence of the semen in the vagina (proof of sexual intercourse).
 3. Presence of spermatozoa in the vagina.
 4. Locards principal of exchange states that whenever two bodies come in contact with each other, there is exchange of material between the two and so a criminal can be linked to crime. In case of rape, piece of cloth, button, hair, blood, saliva, semen or smegma from the accused may be found on the body of victim and conversly materials of victim may be found on the body of accused.
 5. Presence of smegma bacilli in vagina is suggestive of coitus.

B.Examination of accused

1. An accused can be examined even without his consent (Sec 53(A) CrPC). Findings may be Presence of *torn frenulum* is consistent with a recent intercourse.
2. The presence of smegma under prepuce is inconsistent with recent intercourse as it gets rubbed off during sexual intercourse and may be deposited in vagina. It takes about 24 hours to accumulate. Thus, absence of smegma may indicate sexual intercourse, provided no bath is taken.
3. Presence of vaginal epithelial cells on penis can be detected by lugol's iodine.

120. Which IPC includes vitriolage ?

a) 318

b) 319

c) 320

d) 321

Correct Answer - C

Ans. is 'c' i.e., 320

Vitriolage is a potential cause of permanent disfigurement of face and thus is covered under grievous hurt and so comes under IPC 320.

Vitriolage' is throwing of any corrosive on another person. Eyes are affected most commonly. It comes under *section 320 IPS*.

121. Which type of neuropathy is seen in arsenic poisoning ?

- a) Symmetric peripheral motor neuropathy
- b) Asymmetrical peripheral motor neuropathy
- c) Symmetrical peripheral sensory neuropathy
- d) Asymmetrical peripheral sensory neuropathy

Correct Answer - D

Ans. is 'd' i.e., Asymmetrical peripheral sensory neuropathy

Neurological manifestations of arsenic poisoning

Headache, vertigo, hyperthermia, tremors, convulsions, coma, general paralysis.

Peripheral neuropathy that is more sensory than motor occurs in asymmetric distal stocking glove distribution after one to two weeks of acute or chronic exposure.

122. Incised looking laceration is seen at ?

a) Forehead

b) Hand

c) Thorax

d) Abdomen

Correct Answer - A

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

LACERATIONS (Tear or Rupture)

Lacerations are tears or splits of skin, mucous membrane and underlying tissue (e.g., muscle or internal organs). Lacerations are produced by application of blunt force to broad area of the body, *which crush or stretch tissues* beyond the limits of their elasticity. Localized portions of tissue are displaced by the impact of the blunt force, which sets up traction forces and causes tearing of tissues.

Features of lacerations are :?

- i) Hair and hair bulb, nerves and blood vessels are crushed → There may be paralysis (nerve crushed) and *hemorrhage is not pronounced (blood vessels crushed)*.
- ii) Site of injury is the site of impact.
- iii) Shape of injury is irregular, margins are irregular and contused/abraded and show tags of tissue.
- iv) Size of injury does not corresponds to impacting surface.

There are following types of laceration : ?

1) Split laceration : Splitting occurs by crushing of skin between two hard objects. Blunt force on areas where the skin is close to rigid structures like bone with scanty subcutaneous tissue, may produce a wound that by linear splitting of tissue may look like incised wound, i.e., incised like or incised looking wound. Examples of such area

are scalp, eye brows, cheek bones (zygomatic), lower jaw, iliac crest, perineum and skin. A wound produced by a fall on *knee or elbow* with limb flexed and by a sharp stone also simulates incised wound.

2) Stretch lacerations : Overstretching of the skin, if it is fixed, will cause laceration, for example, by kicking, sudden deformity of bone occurs after fracture, making it compound.

3) Avulsion (shearing laceration) : An avulsion is a laceration produced by sufficient force (shearing force) delivered at an acute angle to detach (tear off) a portion of a traumatized surface or viscus from its attachment, the shearing and grinding force by a weight. Flaying is type of avulsion in which shearing and grinding force by weight (such as of lorry wheel passing over a limb) may produce avulsion (separation of skin from underlying tissue/degloving of a large area).

4) ears : Tears of the skin and tissues can occur from impact by a against irregular or semi-sharp objects, such as door handle of a car. This is another form of overstretching.

5) Cut laceration : Cut lacerations may be produced by a heavy sharp edged instrument.

123. How much is punishment for sex determination ?

a) 3 years

b) 5 years

c) 7 years

d) 9 years

Correct Answer - A

Ans. is 'A' i.e., 3 years

- Since the question is about punishment for sex determination not repeat offence of sex determination answer will be 3 years
- The families of a pregnant woman who ask for sex determination are also liable to be punished.
- Not adhering to the provisions of this act could warrant punishment in the form of up to 3 years imprisonment and up to Rs 10,000 fine, and on repeat offence up to 5 years imprisonment and up to Rs 50,000 fine.
- The name of the registered practitioner would be removed from the state council for 5 years if guilty and permanently if repeat offence is committed under section 23 of the act.

124.

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Pre auricular sulcus is a part of ?

a) Humerus

b) Femur

c) Pelvis

d) Skull

Correct Answer - C

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

- Preauricular sulcus is used for determination of sex.
- It is more frequent, broad and deep in female pelvis.
- There is attachment of anterior sacroiliac ligament.

125. What is the upper permissible limit of alcohol allowed while driving in India -

a) 20 mg%

b) 30 mg%

c) 40 mg%

d) 50 mg%

Correct Answer - B

Ans. is 'b' i.e., 30 mg%

The statutory limit of alcohol level in blood in India while driving beyond which driving is considered as crime is 30 mg%.

It is covered under S. 185 Motor Vehicle Act 1988.

The punishment for first offence is fine upto Rs. 2000/- or 6 months of imprisonment or both and for second or subsequent offence fine upto Rs. 3000/- or imprisonment upto 2 years or both.

126. What is the level of alcohol in blood beyond which person is considered intoxicated ?

a) 40 mg%

b) 80 mg%

c) 120 mg%

d) 140 mg%

Correct Answer - D

Ans. is 'd' i.e., 140 mg%

All individuals with a blood alcohol level of 140 mg% are considered intoxicated to the point where they cannot deal with unusual, emergency or non - customary problems.

127. The pathways followed by corrosive acids in stomach is called ?

a) Curling ulcer

b) Cushing ulcer

c) Magenstrasse

d) None

Correct Answer - C

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

Magenstrasse is the term applied to the pathway acidic agents follow in stomach.

The pathway of acids and alkalis in food filled stomach starts along the lesser curvature of the stomach and leads to the pylorus, which explains the location of greatest damage in food filled stomach.

Stomach without food have significant injury in the lower half of two thirds and may have sparing of fundus.

128. Chocolate Brown postmortem staining is seen in ?

a) KCl poisoning

b) Opium poisoning

c) H₂S poisoning

d) Cyanide poisoning

Correct Answer - A

Ans. is 'a' i.e., KCl Poisoning

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129. Immersion syndrome occurs due to ?

- a) Vagal inhibition
- b) Vagal Stimulation
- c) Sympathetic stimulation
- d) Sympathetic inhibition

Correct Answer - A

Ans. is 'a' i.e., Vagal inhibition

Types of drowning

Drowning is classified as (1) typical and (2) atypical.

1. Typical drowning (wet drowning)

- *Typical drowning* refers to obstruction of air passages and lungs by inhalation of water or other fluid. Therefore it is also called *wet drowning* and findings *offluid and froth* are present in PM examination. Typical drowning may be :-
 - i. Fresh water drowning : In fresh water drowning large quantities of water cross the alveolar membrane into circulation causing hypervolaemia and hemodilution. RBCs imbibe water and burst (hemolysis) with liberation of potassium. Therefore, heart is exposed to volume overload, potassium excess, *sodium deficit* (*hyponatremia*), and *anoxia*. Anoxia and hyperkalemia cause ventricular fibrillation and death in 4-5 minutes.
 - i. Salt water drowning : Hypertonicity of inhaled water causes loss of fluid from circulation into the lungs giving rise *fulminating pulmonary edema* with progressive *hypovolaemia*, *circulatory shock*, and eventually cardiac standstill (asystole) with death in 8-12 minutes.

2. Atypical drowning

- It refers to drowning in which even after submersion of body in water, little or no water enters respiratory passages and lungs.

Hence *typical findings of wet drowning in the form of froth and oedema aquosum of lungs are not found*. Atypical drowning may be :-

- i. Dry drowning : On contact with water, especially cold water, there results intense laryngospasm, so that water does not enter the lungs. Death is due to asphyxia because of laryngospasm.
- i. Immersion syndrome (hydrocution/submersion inhibition/vagal inhibition) : Sudden death occurs due to vagal inhibition as a result of (a) *sudden impact with cold water*, (b) *duck diving (falling in water with feet first)*, and (c) *horizontal entry in water with impact on epigastrium*.
- i. Submersion of unconscious : If person is unconscious since before submersion in water, little or no water enters respiratory passages. It may occur in MI, cerebrovascular accident, hypertension, epilepsy, cerebral aneurysm and in drunk state.
- i. Near drowning (secondary drowning syndrome/post immersion syndrome) : In this drowning is survived and death occurs at a later stage after removal from water. Either the person himself comes out of water or he is recovered alive, but due to complications of submersion, he dies at a later stage. It is due to *hypoxic encephalopathy* and *fibrosing alveolitis*. The death occurs due to combined effect of cerebral hypoxia, pulmonary edema, aspiration pneumonitis, electrolyte disturbances and metabolic acidosis.

130. What of the following is seen in fresh water drowning ?

a) Hypovolemia

b) Hemoconcentration

c) Hyperkalemia

d) Hypernatremia

Correct Answer - C

Ans. is 'c' i.e. Hyperkalemia

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131. What is the proof of eyes being open for few hours after death ?

- a) Kevokian sign
- b) Tache noir
- c) Both of the above
- d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Tache noir

If the eye lids are open for a few hours after death, a film of cell debris and mucous forms two yellow triangles on the sclera on either side of the iris, which become brown and then black called tache noir within 3 - 4 hours.

132. Majority is obtained by a person under court guardianship by age of ?

a) 19 years

b) 20 years

c) 21 years

d) 22 years

Correct Answer - C

Ans. is 'c' i.e., 21 years

A person attains majority on completion of 18 years. However if a person is under the guardianship of court, he attains majority after 21 years (Indian Majority Act 1875).

133. Which method is not used for autopsy ?

a) Virchow

b) Rokitansky

c) Lettulle

d) Thomas

Correct Answer - D

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

Methods of removal of organs

- *Virchow's technique* - organs are removed one by one. Cranial cavity is exposed first, followed by thoracic, cervical & abdominal organs.
- *Rokitansky's technique* - It involves in situ dissection in part, combined with en block removal.
- *Lettulle's technique* - Cervical, thoracic, abdominal & pelvic organs are removed en masse & dissected as organ block.

134. Spalding sign is seen in ?

a) Drowning

b) Mummification

c) Maceration

d) Starvation

Correct Answer - C

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

Dead born : A deadborn child is one which has died in utero and shows one of the following signs after it is completely born :?

1) *Rigor mortis* : Rigor mortis may occur in dead fetus before birth or at birth.

2) *Maceration* : Maceration is a process of aseptic autolysis. It occurs when a dead fetus remains in the uterus for 3-4 days surrounded by liquor amnii but with exclusion of air. *Skin slippage is the earliest sign* (occurs within 12 hours). There is gas in the great vessels and chambers of heart (Robert's sign). *Except for lung and uterus*, which remain unchanged for a long time, all other organs become soft, oedematous and loose their morphology. The one important radiological sign suggestive of maceration is 'Spaulding's sign' i.e. skull bones override each other. The smell is somewhat rancid.

3) *Putrefaction (decomposition)* : If the membranes are ruptured after death of fetus and air gains entry into liquor amnii, fetus undergoes putrefaction instead of maceration. Body is greenish, foul smelling and bloated.

4) *Mummification* : It results when there is deficient blood supply, scanty liquor and no air enters uterus. Body is thin, shrivelled dark brown and emitting smell like rotten cheese.

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135. According to juvenile justice act, age of juvenile is ?

a) < 14 years

c) < 18 years

d) < 20 years

Correct Answer - C

Ans. is 'c' i.e., < 18 years

Juvenile Justice Act 2000

- Juvenile justice (care and protection of children Act, 2000 (now Amendment Act 2006) covers :-
 - i. *Juveniles in conflict* → child who is alleged to have committed an offence.
 - i. *Children in need of care and protection* → children who are neglected, abused, or abandoned.
- This act defines a juvenile / child as a person who has not completed the age of 18 years.

136. Following is not true about adipocere formation ?

- a) It is a modification of putrefaction
- b) It is developed in presence of air
- c) It occurs in dead bodies lying in water
- d) Body has an offensive sweet smell

Correct Answer - B

**Ans. is 'b' i.e., It is developed in presence of air
Adipocere formation (saponification).**

Adipocere is a *modification of putrefaction*, which occurs in the *absence of air*. That is when there is *excessive moisture (humidity) and warmth (warm temperature)*, but *absence of air i.e. warm humid climate*, normal putrefaction does not occur, rather saponification occurs.

Thus adipocere formation occurs in dead bodies which are *lying in water (immersed in water) or buried in damp lay soil*.

- Saponification (adipocere formation) is the conversion of dead body into soft, fatty waxy substance due to conversion of unsaturated liquid fats to saturated solid fats under the influence of intrinsic lipase and lecithinase produced by *C. perfringens*. The process involves gradual hydrolysis and hydrogenation of body fats into higher fatty acids which combine with calcium and ammonium ions to form insoluble soaps. Ultimately, palmitic, oleic, stearic and hydroxystearic acids are formed, mixture of these is known as adipocere.
- Adipocere formation starts in subcutaneous fat and is marked in areas having excessive fat, eg. *cheeks, female breast, buttocks and abdomen*. Slowly the whole body including muscles and internal

viscera change into adipocere. Adipocere has offensive or sweetish smell, however in early stages, smell is *ammonical*.

- Body is converted into soft, waxy and brittle substance, it floats on water, it can be cut easily, it dissolves in alcohol and ethers, and it melts on heating. *Facial features and injuries on body are well preserved*, thus identification of body and determination cause of death (in case of injury) are possible.
- Normally adipocere formation *requires 3 weeks to upto 3 to 6 months*. However shortest recorded period in india is 3 days 22 hours. *In india, it has been observed to begin within 4-5 days*. Adipocere may persist for years or decades. *Adipocere does not occur in foetus less than 7 month's*.
- Medicolegal importance : (i) Identification of body (facial features are preserved), (ii) cause of death (injury marks are preserved), (iii) time since death can be estimated.

137. Legal age by which fetus is capable of independent existence is ?

a) 240 days

b) 230 days

c) 220 days

d) 210 days

Correct Answer - D

Ans. is 'd' i.e., 210 days

Viability means the physical ability of a foetus to lead a separate existence after birth apart from its mother, by virtue of a certain degree of development. A child is viable after 210 days (7 months) of intrauterine life, and in some cases after 180 days (6 months) but in most of these cases fetus is immature.

Full term mature infant show :-

- Length (crown-heel length) 48-52 cm, head circumference 30-35 cm.
- Ossification center at lower end of femur (appears at the end of 9 months or just before birth) and *Ossification center of cuboid and upper tibia may also present* (Note : some ossification centers are also present, but they appear before the attainment of viability so their presence does not have importance. These are (i) Clavicle, mandible, ribs vertebra → at the end of 2nd month, (ii) Calcaneum (os calcis) and manubrium sterni → at the end of 5th month and (iii) Sternum → at the end of 6 month). *Other center which appears at attainment of viability is primary ossification center of talus which appears at the end of 7th month.*

138. Trousseau sign positive in which poisoning ?

a) Citric acid

b) Oxalic acid

c) Acetic acid

d) Carbolic acid

Correct Answer - B

Ans. is 'b' i.e., Oxalic acid

Trousseau's sign and Chvostek's sign are seen in hypocalcemia.

Oxalic acid poisoning can cause hypocalcemia.

Oxalic acid

- It is also known as *salt of sorrel* or *acid of sugar*. It is used to erase writing, as bleaching agent and in calico printing. It occurs in leaves of *rhubarb*.
- Local effects : Oxalic acid rarely damages the skin but readily corrodes the mucous membrane of digestive tract.
- Systemic : (i) *Shock* : Large doses can cause death from shock; (ii) *Hypocalcemia* : Oxalic acid readily combines with calcium to cause hypocalcemia, which may present as tingling, numbness, twitching, tetany, and convulsions, (iii) *Renal damage* : It is due to *oxaluria* which may cause *tubular necrosis*.
- Antidote : Any calcium preparation (e.g. calcium gluconate/chloride, lime water, suspension of chalk) which converts poison into insoluble calcium oxalate is an antidote for oxalate poisoning.

139. Tactile hallucination seen in abuse with ?

a) Heroin

b) Cocaine

c) Cannabis

d) Alcohol

Correct Answer - B

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

Magnan's symptoms is tactile hallucination (formication) i.e. feeling of bugs crawling under the skin is seen with cocaine abuse/poisoning.

Cocaine

Cocaine is an alkaloid derived from the Coca bush, *Erythroxylum* CoCa. It was the first *local anaesthetic* which was used clinically.

Toxicity of cocaine may be : ?

A) Acute toxicity : - Acute cocaine intoxication is characterized by : ?

1) *Sympathetic hyperactivity* : - Tachycardia, hypertension, mydriasis, sweating, nausea & vomiting.

2) *Hypomanic state* : - Increased psychomotor activity, grandiosity, elation, hypervigilance, Increased speech output.

B) Chronic overuse : - Chronic overuse can cause : ?

1) Psychotic episodes (Cocaine psychosis) : - Persecutory delusions with tactile hallucinations (formication). Tactile hallucinations are manifested as bugs crawling under the skin → *Cocaine bugs or magnan's symptoms*.

2) Other : - Anxiety reaction, compulsive behavior, delirium and delusional disorders.

3) Black pigmentation of tongue and teeth

A combination of cocaine and heroin taken by injection is called *speed ball*

speed ball.

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140. Counter coup injury seen in when ?

- a) Moving head is suddenly decelerated
- b) Stationery head is suddenly accelerated
- c) Fall of heavy object on head
- d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Moving head is suddenly decelerated

Countrecoup injury is caused when moving head is suddenly decelerated by hitting a firm surface.

It can either be a subdural or subarachnoid hemorrhage.

Brain injuries

- Coup injury is defined as the injury of skull and/or brain *at the site of impact*, e.g. a blow on forehead, resulting in fracture of frontal bone and injury or haemorrhage in frontal lobe.
- Contre coup injury is defined as an *injury* to the skull or brain, on opposite (contralateral) side of the area of impact.
- Cerebral concussion (stunning) occurs due to head trauma and is characterized by gross *physiological disturbance of brain without any anatomical damage*. There is sudden loss of consciousness with a tendency to spontaneous recovery. The condition is more severe when damage is caused to the moving head (decceleration injury) than when it results from blows to skull. Recovery from concussion is often followed by retrograde amnesia.

141. Most common finger print type is ?

a) Loops

b) Whorls

c) Composite

d) Arches

Correct Answer - A

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

Dactylography / Dermatoglyphics / Galton system / Finger prints

- Finger prints are present from *birth both on epidermis and dermis, remain constant through out life and can't be altered* without destroying true skin.
- *Finger print pattern is absolutely individual i.e. no two hands are entirely alike, not even identical twins. That's why, it is best (most sensitive and most specific) and most reliable method of identification* (Quetelet's rule of biological variation). DNA finger printing may be same in monozygotic twins.
- The pattern is neither inherited nor identical in any two persons. So the *paternity cannot be proved through finger print patterns. However, paternity can be proved by DNA finger printing.*
- *Loops (67% most common) > whorls (25%) > arches (7%) > composite (2% least common)* are four main types of pattern.
- It is accepted that chances of 2 finger prints *matching 16 ridge characteristic are infinitely small* (Parikh's). In practice 8 - 16 (Reddy) / 16 - 20 (Seth, Simpson) points of fine comparison are accepted as proof of identity.
- Locard's poroscopy method is study of microscopic pores, formed by mouths of ducts of subepidermal sweat gland present on ridges of

fingers. These pores are permanent, remain unchanged during life and are *very useful when only fragments of fingerprints are available*. Each millimeter contains 9 - 18 pores.

- Criminals may attempt to mutilate finger prints by applying CO₂ snow, corrosive agents, burns or eroding against hard surface. But these manners do not destroy finger prints permanently unless true skin is completely destroyed.

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142. Back of 10 - 14 years old contributes how much percentage to total body surface area ?

a) 13%

b) 15%

c) 16%

d) 19%

Correct Answer - C
Ans. is 'c' i.e., 16%

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143. Exception to the rule of professional secrecy is allowed under following circumstances except ?

- a) Court of law
- b) Cases of suspected crime
- c) In negligent suits
- d) In interest of relatives

Correct Answer - D

Ans. is 'd' i.e., In interest of relatives

Professional secrecy is an implied ethical and legal obligation (or contract), that the doctor will not divulge any thing he comes to know concerning patient during the course of his professional work. Doctor is liable to damages for its breach.

However, it is justified in certain circumstances, to *disclose information to proper authority*, and this is known as privileged communication. It is defined as a *communication made by doctor to a proper authority* that has corresponding legal, social, and moral duties to protect the public. Privileged communication is made in certain circumstances where the doctor is justified in disclosing information about his patient. Such communication is regarded as privileged and is an exception to the general rule of professional secrecy between doctor and patient. Example are :?

- 1) In court of law : When asked by judge.
- 2) *As compulsor duty* : Every doctor has to give details of birth, death and communicable disease.
- 3) *As a social duty* : If health of a patient can cause danger to society, e.g. :-

- i) *Railway engine driver being colour blind.*
- ii) Bus driver being epileptic, drug addict or hypertensive.
- iii) Pilot having refractive errors.
- iv) Hotel waiter suffering from TB or being typhoid carrier.
- v) Swimming pool user suffering from STD (e.g. syphilis) or infectious disease.
- vi) Person suffering from STD or HIV infection likely to marry.
- vii) Cases of food poisoning.
- viii) Water pollution.
- 4) In cases of *suspected crime*.
- 5) In *self interest*, both in civil and criminal suits by patient.
- 6) When a servant is sent by master.
- 7) In *negligent suits* when doctor is employed by opposite party to cross-examine patient who filed the suit.
- 8) In *insurance reports*, he can report any disease found. But he should not answer queries of insurance company or solicitor without the patient consent.
- 9) In the *interest of patient* : If patient is not taking proper care, details can be communicated to the relatives.

144. Pupil dilatation is seen in poisoning with

-

a) Dhatura

b) Ethyl alcohol

c) Brium carbonate

d) All the above

Correct Answer - D

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

Poisoning of the following is associated with dilated pupils

- Atropine
- Tricyclic antidepressants
- Phenothiazines
- Dhatura
- Ethyl alcohol
- Barium carbonate

145. Tattooing in old decomposed body can be visualized by use of all except ?

a) H_2O_2 3%

b) Gamma rays

c) Infrared photography

d) Examination with magnifying glass

Correct Answer - B

Ans. is 'b' i.e., Gamma rays

Latent tattoo marks are faded marks and they can be visualized by

- Use of ultraviolet light
- Infrared photography
- Rubbing the part and examining under magnifying glass
- If tattoo marks are obscured by decomposition they can be visualized by treating with 3 % H_2O_2 .
- Tatto marks can be developed by treating the skin by 0.5% caustic potash.
- Histopathology of local lymph nodes for pigment.

146. Black gun powder composition ?

- a) Charcoal 60% + Potassium nitrate 20% + sulphur 20%
- b) Charcoal 25% + Potassium nitrate 70% + sulphur 05%
- c) Charcoal 15%+ Potassium nitrate 75% + sulphur 10%
- d) Charcoal 65% + Potassium nitrate 20% + sulphur 15%

Correct Answer - C

Ans. is 'c' i.e., Charcoal 15% + Potassium nitrate 75% + sulphur 10%

The classical gun powder is known as black powder, consists of charcol (15%), Sulphur (10%), and potassium nitrate (75%).

Depending on fineness, the black gun powder is designated as FG, FFG, FFFG. etc. (F = fineness). Pyrodex is another gun powder with same components, but with different ratios.

Black gun powder produces smoke, i.e. It is smoke producing powder. Smokeless powder, in addition to black powder, has nitrocellulose (single base), or *nitrocellulose plus nitroglycerine* (double base), or nitrocellulose plus nitroglycerine plus nitroguanidine (triple base). Semi smokeless powder has 80% black powder and 20% smokeless powder (nitrocellulose).

147. Bone pearl appearance is seen in ?

a) Electrical burns

b) Hydrocution

c) Strangulation

d) Throttling

Correct Answer - A

Ans. is 'a' i.e., Electrical burns

Electric burns

Electric burns are at times, also referred to as joule burns.

Technically, joule burn is an endogenous burn, i.e. burns produced due to release of heat from the body, on application of electric current. Electric burns may be of following types :?

1) Contact burns : Due to contact with live wire.

2) Spark burns : Due to sparking of current, e.g. in loose electrical fitting.

3) Flash burns : Caused on being near the main power line, without actual contact. Burns result due to arcing of current from these lines.

• Characteristic features of electric burns are :?

1) There may be holes in clothes or shoes.

2) There is a *wound of entry and wound of exit* of electric current :-

i. *Entry wound* : It is non-bleeding, thick, leathery, greyish white, depressed, hard and cauliflower like, known as crater formation. High voltage current may cause burns over large areas of skin, i.e. crocodile skin lesions. The skin may get coloured due to metallic pigment : *green (in brass electrode), black (in iron electrode), blue (in copper electrode) and grey (in aluminium electrode)*.

i. *Exit wound* : It is like a laceration and is bleeding.

3) Metals from electrode may melt and as small balls (current pearls) may be carried to tissue. Calcium phosphate of bone may also melt

may be carried to tissue. Calcium phosphate of bones may also melt and is radiologically seen as bone pearls (wax dripping).

4) Muscles show Zenker's degeneration.

Causes of death

Commonest cause of death is ventricular fibrillation. Other causes include shock, cardiopulmonary arrest, cerebral anoxia, paralysis of respiratory muscles, and mechanical injuries due to fall.

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148. Mummification is enhanced by ?

a) Moist and hot air

b) Moist and cool air

c) Dry and hot air

d) Dry and cool air

Correct Answer - C

Ans. is 'c' i.e., Dry and hot air

Mummification

It is a *modification of putrefaction*, which occurs in the *absence of moisture*. That is when there is *excess air and warmth but no moisture (humidity)*, i.e. hot dry and windy climate, mummification takes place in place of normal putrefaction. Thus mummification occurs in *deserts*, especially in summer and also in bodies buried in *shallow grave in sandy soil*.

Mummification is characterized by *dessication or drying of the dead body*. There is *drying, dehydration and shriveling of dead body*. It proceeds from exterior to interior. Therefore *first to be involved is skin*, especially of exposed body parts like *lips, nose tip, hands (fingers) and feet (toes)*. The skin is shrunk, contracted, dry, brittle, leathery, stretched across bony prominences and rusty brown to black in color. Internal viscera also dry up, darken in color and blend with each other to form a single mass. Body emits smell like rotten cheese. Facial features and injuries are well preserved, thus identification of body and cause of death can be determined (like adipocere formation).

Time required for mummification varies between 3 months - 2 years. If properly preserved, a mummified body can remain for years. Chronic arsenic or antimony poisoning favor mummification.

Medicolegal importance : **(i)** Identification of body (facial features are preserved), **(ii)** cause of death (injury marks are preserved), **(iii)** time since death can be estimated.

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149. Hyoid bone fracture most common occurs in ?

a) Manual strangulation

b) Hanging

c) Smothering

d) Traumatic asphyxia

Correct Answer - A

Ans. is 'a' i.e., Manual strangulation

As manual strangulation (throttling) is among the most violent form of asphyxia, hyoid fracture and other injury to neck structures is more common.

150. Taking off ones clothes and running naked in a public race is called ?

a) Mooning

b) Exhibitionism

c) Voyeurism

d) Undinism

Correct Answer - B

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

Exhibitionism (Sec 294 IPC): It is a willful and intentional exposure of the genitalia in a public place while in the presence of others to obtain sexual pleasure. May or may not be associated with masturbation (punishment = 3 months + fine).

Voyeurism = Scoptophilia = Peeping tom: Sexual gratification is obtained by looking at the sexual organs of other persons, watching the act of sexual intercourse, or witnessing undressing by a woman.

Frotteurism: Sexual satisfaction is obtained by rubbing against persons in a crowd. If they attempt intercourse, they have premature ejaculation or they are impotent. It is an uncommon perversion and rarely occurs alone.

Undinism: In this, sexual pleasure is often obtained by witnessing the act of urination by someone of the same or opposite sex.

151. According to federation dental lower left canine is designated as ?

a) 32

b) 33

c) 42

d) 43

Correct Answer - B

Ans. is 'b' i.e., 33

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152. Judge can ask clarifying questions when ?

- a) After cross exam
- b) Before cross exam
- c) Before re cross exam
- d) At any time he wishes

Correct Answer - D

Ans. is 'd' i.e., At any time he wishes

The judge may ask any question, in any form, about any fact, relevant or irrelevant, at any stage of the examination to clear up doubts.

Recording of evidence

After oath administration, the evidence is recorded under following steps :-

- i. Examination in chief (direct examination) : It is the examination of the witness by lawyer of the party calling the witness. In government prosecutions, it is done by *public prosecutor (PP)/district government pleader(DGP)*. The objective is to elicit all relevant, and convincing facts. No leading questions are permitted. Leading question means the question, which leads the witness to desired answer. However, if *the witness is declared hostile, leading questions can be asked.*
- i. Cross-examination : Examination of the witness is conducted by the lawyer of the opposite party. In government prosecutions it is done by defence lawyer. The objective is to elicit, remove or modify facts and to test the accuracy of statement or witness. Leading questions are allowed.
- i. Re-examination (Redirect examination) : It is conducted like

examination in chief and so by the lawyer of same party. The objective is to clear out any discrepancies/doubt, that have arisen during cross-examination. Leading questions are not allowed. The witness should not tell any new thing at this stage, otherwise opposing lawyer is permitted for re-cross examination.

7. Court questions : At any stage, during the recording of evidence, the judge may ask questions to clear his doubts.

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153. Fatal dose of KCN is ?

a) 50 - 60 mg

b) 120 -130 mg

c) 180 -190 mg

d) 280 - 300 mg

Correct Answer - D

Ans. is 'd' i.e., 280 - 300 mg

Fatal dose of hydrocyanic acid in the pure form is 50 - 60 mg while as sodium or potassium cyanide is 200 - 300 mg.

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154. Rule of Haase is used to calculate ?

- a) Age of fetus
- b) Length of femur
- c) Diameter of skull
- d) Percentage of burns

Correct Answer - A

Ans. is 'a' i.e., Age of fetus

Rule of Haase

- Hess's rule (Haase's rule) : It is a rough method for calculating the age of fetus by measuring the length from crown to heel.
- Upto 5th month of gestation, length of foetus in cm is square of the month of gestation and beyond 5 months, length in cm is 5 times the month of gestation.

155. Which of the following is not a sexual offence in India -

a) Incest

b) Sodomy

c) Indecent assault

d) Bestiality

Correct Answer - A

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

Incest

- It means sexual intercourse by a man with a woman who is closely related to him by blood (prohibited degrees of relationship), e.g. a daughter, grand daughter, sister, step sister, aunt, or mother.
- These cases usually have psychological features.
- In India, incest as such is not an offence.

156. IPC 319 deals with ?

- a) Definition of hurt
- b) Voluntarily causing hurt
- c) Definition of grievous hurt
- d) Voluntarily causing grievous hurt

Correct Answer - A
Ans. is 'a' i.e., Definition of hurt

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157.

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Doctor who did surgery on wrong side of the patient is punishable under section ?

a) S. 304 A IPC

b) S. WC

c) S. 305 AIPC

d) S. 305 IPC

Correct Answer - A

Ans. is 'a' i.e., S. 304 A IPC

Section 304 A IPC

- Causing death by negligence: Whosoever causes the death of any person, by doing any rash or negligent act not amounting to culpable homicide shall be punished with imprisonment for a term which may extend to 2 years or with fine, or with both.
- Doctor doing surgery on the wrong side of the patient is an example of gross inattention and recklessness shown by the doctor and is thus an example of criminal negligence.
- Criminal negligence is punishable under S. 304 A IPC.

158. Postmortem blood is collected from which vessel ?

a) Femoral artery

b) Femoral vein

c) Cephalic vein

d) Brachial artery

Correct Answer - B

Ans. is 'b' i.e., Femoral vein

Before autopsy 10 - 20 ml of blood is collected from the femoral vein in groin. Jugular/ subclavian vein can also be used.

159. When group of muscles of dead body were in state of strong contraction immediately prior to death and remain so even after death, this is termed as ?

a) Gas stiffening

b) Rigor mortis

c) Cadaveric spasm

d) Cold stiffening

Correct Answer - C

Ans. is 'c' i.e., Cadaveric spasm

- Cadaveric spasm (instantaneous rigor) is defined as the condition wherein a group of muscles, which were in contraction or spasm at the time of death, continue to be in spasm even after death, without the stage of primary relaxation.
- It is a condition in which the muscles of the body which were in a state of contraction immediately before death, continue to be so after death without passing through the stage of primary relaxation.
- Cadaveric spasm, being an antemortem phenomenon, reflects the last act of the subject performed before and at the time of his death. The cause and manner of death may be judged.
- It may be due to exhausted ATP in the affected muscles with the persistence of contraction even after death and the resulting failure of the chemical processes required for active muscular relaxation to occur during molecular death. Adrenocortical exhaustion, which impairs resynthesis of ATP may be the possible cause

160. Most common organ affected in underwater blast ?

a) Intestine

b) Liver

c) Spleen

d) Heart

Correct Answer - A

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

The most common organ affected in underwater blast injury is intestine.

Explosion injury

- An explosion is a phenomenon resulting from sudden release of energy which is then dissipated by a blast wave, by translocation of objects, or by the generation of heat. Injuries in explosion occur due to four factors :?
 - 1) Blast or shock wave
- When an explosion occurs, the explosive material produces a large volume of gas and releases a large amount of energy. It produces a '*shock wave*' which spread concentrically from the site of explosion. The injuries depend on the environment in which blast occurs :-
 - i. *Air blast (most common)* : Explosion occurs in air. There is barotrauma to *air filled hollow organs*. Tympanic membrane (ear drum) is most sensitive and most commonly injured. Lung is the second organ to be injured and *is the most commonly injured hollow organ and most common cause of life threatening injury*. Other parts injured are middle ear, cochlea, eyes, bowels, mesentery, omentum and brain. *Homogenous solid organs like liver and muscles are usually not affected.*

- i. *Under water blast (explosion under water): Gastrointestinal tract is injured most commonly. Lungs are also injured.*
- i. *Solid blast* : Explosive is detonated near a rigid/solid structure and wave of energy spreads through it. If people are in contact with that rigid structure, injuries take place. *The injuries are mostly skeletal; fracture of legs and vertebral column are more common. GIT damage is more common than lung.*
 - 2) *Flame or hot gases*
 - Burns or burning of body may occur.
 - 3) *Flying missiles (debris)*
 - Flying pieces of *explosive debris* may be driven through air against the skin causing bruises, abrasions, lacerations, and ragged perforations.
 - 4) *Anoxia*
 - Various gases liberated during explosion may cause anoxia, e.g. carbon monoxide, nitrous oxide, nitric oxide, HCN and SO₂.

161. Torture in which legs or thighs are tied with bamboo and the torturer presses on the two sides of the clamp to cause pain is called ?

a) Falanga

b) Telefono

c) Mercelago

d) Chepuwa

Correct Answer - D

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

Physical torture

- Torture is defined as deliberate, systemic or wanton infliction of physical or mental suffering by one or more persons acting alone or on the orders of any authority, to force a person to yield information, to make a confession or for any other reason.
- Torture may be physical or psychological. Important methods of physical torture are :?

1. Beating : Beating may be of following types ?

- i. *Falanga (Falolka/Baatinada)* : Beating of soles of feet with blunt object.
- i. *Telefono* : Simultaneous beating of both ears with palms.
- i. *Quirofana* : Beating on abdomen while upper half of body lying unsupported on table.

2. Electric : Electric torture may be -

- i. *Piacana* : Placing electric wires in vagina, mouth, anus or over nipples and testis.
- i. *Black slave* : Heated metal skewer inserted into anus.

3. Near suffocation : These are -

- i. *Dry submarine* : Plastic bag covering head and face.
- i. *Wet submarine (Labaneva/Latina/Pileta)*: Forced immersion of victim's head in water, often contaminated with urine or vomit or blood.

4. Suspension : Suspension may be -

- i. *La-Bandera* : By wrist.
- i. *Mercelago* : By ankles.

5. Forced posture : It may be ?

- i. *Planton* : Prolonged standing.
- i. *Cabellete (Saw horse)* : Forced struddling of a bar.
- i. *Parrot's perch (Jack/paude Grava)* : Head down by a horizontal pole placed under knees, with the wrists bound to the ankles.
- i. *Chepuwa* : Tight clamping of thighs or legs with bamboo, and the torturer may press two sides of clamps with his legs or may stand on two sides of clamps (practiced on Bhutanese refugees in Nepal).

162. Age under which child is considered incapable of committing an offence is ?

a) 3 years

b) 7 years

c) 14 years

d) 18 years

Correct Answer - B
Ans. is 'b' i.e., 7 years

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163. Impotence is not a feature of -

a) Double penis

b) Bilateral castration

c) Hypospadias

d) Penile amputation

Correct Answer - C

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

"Congenital problems such as hypospadias are not usually associated with erectile dysfunction" — Michael C Foster

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164. How many cusps are present in chewing surface of premolars ?

a) 2

b) 3

c) 4

d) 5

Correct Answer - A

Ans. is 'a' i.e., 2

Premolars or bicuspid

- They have two cusps on the chewing surface of teeth. The root is usually single but may be double.

165. Hunger pangs are seen how long after starvation ?

a) 6 hours

b) 12 hours

c) 24 hours

d) 48 hours

Correct Answer - C

Ans. is 'c' i.e., 24 hours

When hunger contractions start to occur in the stomach, they are informally referred to as hunger pangs. Hunger pangs usually do not begin until 12 to 24 hours after the last ingestion of food.

166. A person is declared dead if not seen by relatives for how many years ?

a) 3 years

b) 7 years

c) 10 years

d) 12 years

Correct Answer - B

Ans. is 'b' i.e., 7 years

- A person is legally declared dead if not seen for 7 years from the date of declared missing.
- The Indian Evidence Act, under section 108 provides 7 years from the date whence a person is declared to be missing and his whereabouts are not known for presuming a person to be dead (Death in absentia).

167. What is the situation of the knot of ligature in cases of typical hanging?

a) In front of chin

b) Angle of mandible

c) Occiput

d) Mastoid

Correct Answer - C

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

Typical hanging : The ligature runs from the midline *above the thyroid cartilage*, symmetrically upward on both side of neck to the occipital region, the point of suspension (knot of ligature) being on occiput (at nape of neck).

Atypical hanging : Any variation from typical knot site (i.e. other than occiput/nape of neck) is called atypical hanging. Most common site of knot is near one side of *mastoid process or angle of mandible*.

168. Age of eruption of Permanent 1st molor ?

a) 6 years

b) 8 years

c) 10 years

d) 12 years

Correct Answer - A
Ans. is 'a' i.e., 6 years

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169. In India exhumation is ordered by ?

- a) Magistrate
- b) Health Secretary
- c) Health Minister
- d) Any local MLA

Correct Answer - A

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

Exhumation

- Exhumation is lawful digging out of a buried body from the grave for the purpose of identification or determination of cause of death.
- Only a magistrate (executive magistrate) can order for exhumation.
- In India, there is no time limit for exhumation, i.e. can be done at any time after death.
- It is done *under supervision of medical officer and Magistrate* in presence of a *police officer who provides witnesses to identify grave, coffin and dead body*, whenever possible, Magistrate should inform the relatives and allow them not to remain present at the time of enquiry.
- The *whole procedure should be conducted and completed in natural day light*.
- Therefore, it is usually started early in morning.

170. Bullet which is left inside the body for long is referred to as ?

a) Souvenir bullet

b) Tracer bullet

c) Tumbling bullet

d) Tandem bullet

Correct Answer - A

Ans. is 'a' i.e., Souvenir bullet

Projectile is an object propelled by force of rapidly burning gases. In shotgun these are *lead shots and pellets* (recently steel is also used instead of lead) and in rifled weapons (pistol, rifle, revolver), these are bullets.

Tip of the bullet is known as nose. Varieties of bullets are :-

- i. *Incendiary (igniting) bullet* : The tip of bullet contains self igniting material e.g. *barium nitrate and powdered aluminium and magnesium* (in the past, phosphorus was used), so that it catches fire on hitting the target. It is used to cause fire in usually inflammable targets like fuel tanks (of air crafts etc).
- i. *Explosive bullet* : The tip contains a detonator or lead azide, so that the bullet explodes on hitting the target.
- i. *Dum-dum bullet (expanding bullet)*: It is a jacketed bullet with its *nose tip chiseled or cut off*. It is designed to *increase in diameter and expand upon striking* the target, thus producing larger diameter wounds of limited penetration.
- i. *Tandem bullet (Piggy tail bullet)* : It is called *one-behind-other bullet* because two bullets are ejected one after the other, when first bullet failed to leave the barrel and is ejected by subsequently fired bullet. Therefore, both enter body through same entrance wound (some

times, they may enter through different entries), but the wounds of exit are always two.

- i. Tandem (Duplex) cartridge is one in which *two bullets are present in same cartridge*. It is used in military rifles.
- i. *Tracer bullet*: It leaves a trace in atmosphere along the path so that a person (gunner) can observe the strike. Burning of *barium nitrate* produces flame and *powdered magnesium along with strontium nitrate* are added to give red color to the flame.
- i. *Tumbling bullet* : One that *rotates in end on end* during its motion.
- i. *Yawning bullet* : One which *travels in an irregular fashion* and causes a *key hole entry wound*. Yaw means deviation between long axis of bullet and the axis of path of bullet.
- i. *Souvenir bullet* : A bullet *left in body for long time* and is *surrounded by fibrous tissue*.
- i. *Frangible bullet* : Designed to fragment upon impact.
- i. *Mushrooming of bullet* : A soft nose bullet, on hitting the target may get deformed to assume the shape of a mushroom.

171. Nysten's rule pertains to ?

a) Rigor mortis

b) Identification

c) Bullet injuries

d) Putrefaction

Correct Answer - A

Ans. is 'a' i.e., Rigor mortis

Rigor mortis

- It is defined as contraction, stiffening, shortening and opacity of muscles after death.
- It occurs after molecular (cellular) death. In tropical countries (e.g. India), it *begins 1-2 hours after death*, takes further 2 hours to develop, and lasts for 18-36 hours in summer and 24-48 hours in winter.
- In temperate countries, it begins in 3-6 hours, takes further 2-3 hours to develop and lasts for 2-3 days.
- All muscles of body are involved, i.e. voluntary or involuntary.
- However, it does not start in all muscles simultaneously (Nysten's rule).
- Involuntary muscles (heart) are involved first than voluntary muscles.
- Sequence of muscle involvement is as follows : *Heart > upper eyelid > neck > jaw > face > chest > upper limb > abdomen > lower limb > finger and toes.*
- It passes off in the same order in which it has appeared.

172. Pin point pupils are seen in all except ?

- a) Pontine hemorrhage
- b) Organophosphorus poisoning
- c) Opium poisoning
- d) Barbiturate poisoning

Correct Answer - D

Ans. is 'd' i.e., Barbiturate poisoning

- Pin point pupil *can* be caused by : Opioids (morphine), organophosphates, phenothiazines, clonidine, mushroom poisoning, chloral hydrate, carbolic acid and pontine hemorrhage.

173. Anal coitus with opposite sex is -

a) Bestiality

b) Sodomy

c) Sin of Gomorrah

d) Fellatio

Correct Answer - B

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

Anal intercourse between two males or between a male and female is called sodomy. It is called sodomy as it used to be practiced in a town called sodomy.

174.

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Punishment for perjury is covered under section -

a) 191 IPC

b) 193 IPC

c) 195 IPC

d) 1971PC

Correct Answer - B
Ans. is 'b' i.e., 193 IPC

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175. Extreme hunger in starvation lasts upto -

a) 6 - 12 hours

b) 12 - 24 hours

c) 24 - 36 hours

d) 36 - 48 hours

Correct Answer - D

Ans. is 'd' i.e., 36 - 48 hours

- Starvation is the result of actual deprivation of food or administration of unsuitable food. Starvation may be :?
 1. *Acute (complete)* : Sudden and complete stoppage of food.
 2. *Chronic (partial)* : Gradual deficient supply of food.
 3. An acute starvation, the reserve carbohydrates, then fat and last the proteins are used up.
 4. *Feeling of hunger with hunger pain lasts for 30-48 hours.*
 5. After 4-5 days, there is emaciation, absorption fat and loss of weight (7-8 kg in 10 days).

176. Rigor mortis in fetus at birth can be seen in ?

a) Dead born

b) Still born

c) Superfoetation

d) Superfecundation

Correct Answer - A

Ans. is 'a' i.e., Dead born

Signs of dead born (intrauterine death : **IUD**) are (i) *Rigor mortis at birth*, (ii) Maceration, (iii) Putrefaction, and (iv) *Mummification*.

177. Feature which differentiates true from artificial bruise is ?

a) Round shape with irregular margins

b) Irregular shape with regular margins

c) Swelling of surrounding area

d) Erythema of surrounding area

Correct Answer - A

Ans. is 'a' i.e., Round shape with irregular margins

- Such "injury" is an **artificial/false bruise** that may be produced by applying the juices of various irritant vegetable poisons.
- Other agents that can produce artificial bruise may include madar juice or Plumbago root. The juice, like vitriol, has been thrown on the face with evil intention. Homicidal poisoning by internal administration of the juice is very rare.

Features	True bruise	Artificial bruise
1. Cause	Blunt trauma	Usually chemical
2. Site	Any part of the body	Approachable area
3. Colour	Colour changes with time	Usually fresh, dark brown
4. Shape	May be according to the causative weapon	Irregular
5. Margins	Not regular	Vesicles may be seen, margins regular
6. Local inflammation	May not be seen	Local changes seen
7. Itching	No	Usually present
8. Migration	May migrate to other areas e.g. black eye	No migration seen
9. Contents	Blood	Acid serum
10. Chemical Test	Negative	Chemical may be demonstrated

178. Bullet entry wound, for bullet entering at acute angle is identified by what shape of abrasion collar ?

a) Circular

b) Rectangular

c) Oval

d) None of the above

Correct Answer - C

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

If bullet enters at acute angle to the skin then the abrasion collar is oval and if the bullet enters at right angle to the skin the abrasion collar is circular.

179. Atria mortis other name for?

a) Gateways of death

b) Gateways of life

c) Gateways of air

d) Gateways of water

Correct Answer - A

Ans. is 'a' i.e., Gateways of death

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180. Bitter almond odour is perceived in poisoning with?

a) Cobalt

b) Arsenic

c) Cyanide

d) Lead

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

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181. Incised wound which is not a feature ?

- a) Length is the greatest dimension
- b) Width is more than the thickness of the blade
- c) Margins are inverted
- d) Hesitation cuts are seen in suicidal attempt

Correct Answer - C

Ans. is 'c' i.e., Margins are inverted

Margins are everted, clear, and clean cut.

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182. Suspended animation is seen in following except?

- a) Sun stroke
- b) Cerebral concussion
- c) Cholera
- d) Delirium tremens

Correct Answer - D

Ans. is 'd' i.e., Delirium tremens

Suspended animation may be seen in electrocution, drowning, cholera, after anesthesia, shock, sunstroke, cerebral concussion, narcotic poisoning, new born infants and yogis/voluntary.

183. Puppe's rule deals with?

a) Chemical injuries

b) Multiple impact injuries

c) Sexual assault

d) Percentage of burns

Correct Answer - B

Ans. is 'b' i.e., Multiple impact injuries

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184. Barberio's test uses which of the following?

a) Picric acid

b) Acetic acid

c) Hydrochloric acid

d) Sulfuric acid

Correct Answer - A

Ans. is 'a' i.e., Picric acid

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185. Pugilistic attitude is characteristically seen in ?

a) Burns

b) Drowning

c) Electrocutation

d) Hanging

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

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186. Which of the following should not be done while dealing with a patient of snake bite ?

a) Tight band applied

b) Reassuarance

c) Local incision

d) Clean with soap and water

Correct Answer - C

Ans. is 'c' i.e., Local incision

Treatment of snake bite

- Reassurance should be given to patient.
- Application of pressure over bitten area which delays absorption of venom.
- Tie a broad firm bandage (tourniquet) proximal to the bitten area and around the limb which would occlude venous and lymphatic drainage but not arterial or deep venous flow.
- Limb immobilization.
- Local incision and suction should not be done as it can cause local injury and nerve damage.
- Clean the wound with soap and water or iodine and cover with sterile dressing.
- Polyvalent snake antivenom is given. However it is given only in following situations :
 - i. Rapidly progressive and severe local findings.
 - i. There are manifestations of systemic toxicity.

187.

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Punishment for criminal abortion for the women who gives consent and the performer are covered under IPC section ?

a) 312

b) 313

c) 314

d) 315

Correct Answer - A

Ans. is 'a' i.e., 312

Punishment for performing criminal abortion with the consent of women; both for the women and performer is included in IPC Section 312.

188. Professional death in medical profession is ?

a) Death of doctor

b) Death sentence ordered by judge

c) Death during police firing

d) Removal of name of doctor from panel of RMP

Correct Answer - D

Ans. is 'd' i.e., Removal of name of doctor from panel of RMP

- MCI maintains medical register (Indian medical register) of medical practitioners. The registrar should keep the register up to date by :?
A.Deleting names of (Erasure of name) : (i) Those dead, (ii) *Those awarded penal erasure (professional death sentence) for professional misconduct*, (iii) Entries made in error or fraud.
B.Adding names of : (1) Fresh graduates, (ii) Whose term of temporary erasure expires.

189. Intercourse in closely related individual in relation?

a) Incest

b) Adultery

c) Bestiality

d) Tribadism

Correct Answer - A

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

Incest

- It means sexual intercourse by a man with a woman who is closely related to him by blood (prohibited degrees of relationship). Example daughter, granddaughter, sister, stepsister, aunt, or mother.
- These cases usually have psychological features.
- In India, incest is not an offence.

Adultery

- Adultery refers to voluntary sexual intercourse between a married person and a person (married or not), other than his/her spouse.

Bestiality

- It is the sexual intercourse by a human being with a lower animal.

Tribadism (Lesbianism or female homosexuality)

- Sexual gratification of a woman obtained by another woman by kissing, body contact, manipulation of breast and genitalia. Active partner is called dyke or butch and the passive agent is called femme. This is not an offence in India.

190. Cause of death in cafe coronary ?

a) Chocking

b) Laryngeal edema

c) Cardiac arrest

d) Pulmonary edema

Correct Answer - C

Ans. is 'c' i.e., Cardiac arrest

- Both asphyxia and cardiac arrest are causes of death in café coronary.
- Most of the guides have given asphyxia as the answer. But according to me cardiac arrest is the better one. Read following statements :

"Death appears to be due to sudden heart attack." — Reddy

"The bolus of food obstructs the larynx, stimulating laryngeal nerve, so stimulating vagus nerve and thus resulting in sudden cardiopulmonary arrest and thereby sudden death." — S.K. Singhal

"Death is due to asphyxia or reflex cardiac arrest." — Parikh

"Death occurs due to cardiac arrest following parasympathetic stimulation through laryngeal nerve ending." — R.N. Karmaker

191. Penalty awarded according to dowry prohibition act?

a) 15000 Rs and 5 years

b) 30000 Rs and 7 years

c) Life imprisonment

d) Imprisonment for 10 years

Correct Answer - A

Ans. is 'a' i.e., 15000 Rs and 5 years

- According to Dowry Prohibition act (1961), if any person gives or takes or abets the giving or taking dowry is punishable with imprisonment for a term which shall not be less than 5 years and with a fine which shall not be less than 15000 rupees or the amount of the value of such dowry, whichever is more.
- Note - According to section 304 B IPC punishment for dowry death is imprisonment for atleast 10 years, which may be extended to life imprisonment.

192.

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Hurt is defined under section ?

a) 320 IPC

b) 321 IPC

c) 319 IPC

d) 323 IPC

Correct Answer - C

Ans. is 'c' i.e., 319 IPC

- 319 IPC : Defines hurt.
- 320 IPC : Defines grievous hurt.
- 321 IPC : Voluntarily causing hurt.
- 322 IPC : Voluntarily causing grievous hurt.
- 323 IPC : Punishment for voluntarily causing hurt (no provocation, no dangerous weapon) (1 years imprisonment).
- 324 IPC : Punishment for voluntarily causing hurt by dangerous weapon (3 years imprisonment \pm fine).
- 325 IPC : Punishment for voluntarily causing grievous hurt (no provocation, no dangerous weapon) (7 years imprisonment \pm fine).

193. Class I judicial magistrate has power to give punishment of-

a) 5yr, Rs. 3000

b) 3yr, Rs.5000

c) 5yr Rs.5000

d) 3yr, Rs 3000

Correct Answer - B

Ans. is 'b' i.e., 3 yr, Rs. 5000

o Powers of Magistrate (sec 29 CrPC)

Class	Imprisonment	Fine
Chief judicial magistrate	Upto 7 years	Any amount
Class 1 judicial magistrate	Upto 3 years	Rs 5000
Class 2 judicial magistrate	Upto 1 year	Rs 1000

194. Shape of stab wound depends on-

a) Edge of weapon

b) Shape of weapon

c) Width

d) All of the above

Correct Answer - D

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

- A stab wound is an injury caused by a more or less *sharp pointed weapon* when it is driven in through the skin and its depth is the greatest dimension.
- The size and shape of the stab wound in the skin is dependent on the type of weapon, cutting surface, edge sharpness, width and shape of weapon, body region stabbed, the angle of withdrawal, the direction of thrust, the movement of blade in body, cleavage direction, movement of person stabbed and the condition of tension or relaxation of skin.
- With a double-edged weapon the shape of the wound will be elliptical or slit like and both angles will be sharp or pointed.
- With a single-edged weapon, the shape will be triangular or wedge shaped and one angle of the wound will be sharp, the other rounded, blunt, or squared-off. Blunt end on the skin may have small splits, so-called "fish-tailing" if the back edge of the blade is heavy.
- A spear or another round object causes a circular wound.

195. Finger print was first established in ?

a) England

b) China

c) India

d) Singapore

Correct Answer - C

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

- Finger prints were discovered by an ICS officer Sir William Herschelle (1958). But study was systemized by Sir Francis Gulton (1892) and was further improvized by Sir Edward Henery.
- Finger prints is the best system of identification till date and teeth (dental status) is considered the second best.
- The first ever finger print Bureau of the world was established at Calcutta (in Writer's building) in India

196. Cafe cornoray commonly occurs when a person is-

- a) Intoxicated
- b) Eating fatty food
- c) Eating meat
- d) Eating fish

Correct Answer - A

Ans. is 'a' i.e., **Intoxicated**

- Cafe coronary : It refers to accidental choking by bolus of food obstructing larynx. Death is mostly due to asphyxia, or due to reflex cardiac arrest caused by stimulation of laryngeal nerve endings. It is common when gag reflex is suppressed, e.g. intoxicated individuals and following large doses of tranquilizers.

197. Incest is defined as sexual intercourse between ?

a) Man and animals

b) Man and closely related women

c) Man and women other than wife

d) Man and man

Correct Answer - B

Ans. is 'b' i.e., Man and closely related women

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198. The ideal place to record body temperature in dead body is ?

a) Rectum

b) Axilla

c) Mouth

d) Groin

Correct Answer - A

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

- Most common site for recording temperature is the rectum.
- Thermameter is inserted in rectum around 8-10 cm for 2 minutes.
- Other sites for recording temperature are nose, ear (external auditory meatus), vagina, and under liver.

199. Under which section, police can arrest a person and ask medical officer to examine him without victims consent ?

a) Sec 330 IPC

b) Sec 53 IPC

c) Sec 190 IPC

d) Sec 304-A IPC

Correct Answer - B

Ans. is 'b' i.e., Sec 53 IPC

- 53 1PC : An accused can be examined by a medical practitioner at request of police, even without his consent or by force.
- 304-A IPC: Causing death by negligence(criminal negligence) which also includes medical negligence (Punishable up 2 years or fine or both).
- 330, 331, 339, 341 IPCs : Torture.
- 190 IPC : Threat of refraining a person from applying protection to a public servant.

200. First secondary ossification center appears in

- a) Lower end of femur
- b) Upper end of humerus
- c) Lower end of fibula
- d) Upper end of tibia

Correct Answer - A

Ans. is 'a' i.e., Lower end of femur

Site given in question	Secondary ossification center appears at
------------------------	--

Lower end of femur	9th month intrauterine life
--------------------	-----------------------------

Upper end of tibia	At birth
--------------------	----------

Upper end of humerus	1/2 -1 year of age
----------------------	--------------------

Lower end of fibula	1 year of age
---------------------	---------------

201. Rule of 9 in burns is used to denote ?

a) Depth of burns

b) % of total body surface area

c) Severity of burns

d) Type of burns

Correct Answer - B

Ans. is 'b' i.e., % of total body surface area

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202. Cheilography is the study of ?

a) Finger prints

b) Lip prints

c) Breath analysis

d) Foot prints

Correct Answer - B

Ans. is 'b' i.e., Lip prints

- Cheiloscopy or queiloscopy is the study of lip prints.
- Podogram is the study of foot prints which are due to ridge on the sole and toes of the foot.
- Palato prints (rugoscopy) is the study of anterior part of palate.
- Dactylography/Dermatoglyphics/Galton system- is the study of Finger prints. Finger print pattern is absolutely *individual i.e. no two hands are entirely alike, not even identical twins. That's why, it is best (most sensitive and most specific) and most reliable method of identification (Queetelet's rule of biological variation).*

203. In a patient of unilateral loss of vision, the patient had injury to opposite eye leading to corneal opacification. The patient was operated by corneal grafting, he could see clearly again with one eye. The injury is said to be

a) Simple

b) Grievous

c) Dangerous

d) Hazardous

Correct Answer - A

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

- This patient had permanent vision loss as it was corrected by surgery (corneal transplant).
- Permanent loss of sight of either eye is grievous hurt.

Injuries can be classified as

1. A simple injury is one which is neither extensive nor serious, and which would heal rapidly without leaving any permanent deformity or disfiguration.

2. A grievous injury is one (i) Which is extensive or serious (ii) Which does not heal rapidly, and (iii) Which leaves a permanent deformity or disfiguration. Section 320 IPC defines following injuries as grievous.

- .. Emasculation (cutting of the penis, castration; or causing loss of power of erection due to spinal injury).
- 2.. Permanent privation of the sight of either eye.

- 3. Permanent privation of the hearing of either ear.
 - 4. Privation of any member (part, organ, limb) or joint.
 - 5. Destruction or permanent impairing of powers of any member or joint.
 - 6. Permanent disfiguration of head or face.
 - 7. Fracture or dislocation of a bone or a tooth.
 - 8. Any hurt which endangers life or which causes the sufferer to be, during the space of twenty days in severe bodily pain, or unable to follow his daily routine. Section 319 IPC defines hurt as bodily pain, disease, or infirmity, caused to any person.
 - Grievous hurt is a cognisable offence for which a police officer can arrest a person without a warrant from magistrate.
- 3. Dangerous injury** is a variety of grievous injury. It is an injury which poses an immediate danger to life and is fatal in absence of surgical aid, e.g. gun shot wounds, compound skull fracture, trauma to large blood vessel or rupture of internal organ like spleen.

204. Telefono means ?

a) Beating on soles

b) Beating on palms

c) Beating on ears

d) Pulling of hair

Correct Answer - C

Ans. is 'c' i.e., Beating on ears

- Telefono : Simultaneous beating of both ears with the palm of hands. This may lead to rupture of tympanic membrane, causing pain, bleeding and hearing loss. It is difficult to detect this. The external ear may also get torn during pulling of the ears.
- Falanga : beating of soles with blunt object. It is the most common type of torture. It can cause immediate & long term consequences, even disability

205. Virchow method of organ removal is ?

- a) Organs removed en masse
- b) Organs removed one by one
- c) In situ dissection
- d) None

Correct Answer - B

Ans. is 'b' i.e., Organs removed one by one

Methods of removal of organs

- Virchow's technique - organs are removed one by one. Cranial cavity is exposed first, followed by thoracic, cervical & abdominal organs.
- Rokitansky's technique - It involves in situ dissection in part, combined with en block removal.
- Lettulle's technique - Cervical, thoracic, abdominal & pelvic organs are removed en masse & dissected as organ block.

206. Primary injury is ?

a) Due to flying debris b

b) Due to blast wind

c) Due to shock wave

d) Due to complication

Correct Answer - C

Ans. is 'c' i.e., Due to shock wave

Types of blast injuries

- These are of following types :?
 1. Primary : It is *due to shock wave* which causes injury to hollow organs. e.g. ears, lungs, eyes, GIT etc.
 2. Secondary : These are *due to flying debris (missiles)*. Classical Marshalls triad i.e. bruises, abrasions and puncture laceration is diagnostic of explosive injury.
 3. Tertiary : It is *due to blast wind*, i.e. victim is thrown into air and strikes other objects leading to fracture, blunt trauma etc.
 4. Quaternary : Any complicating factor (not in first three categories) causes quaternary injury, e.g. anoxia, respiratory problems etc

207. According to which section, a person can be punished for murder with imprisonment for 10 years

a) Sec 301 IPC

b) Sec 300 IPC

c) Sec 302 IPC

d) Sec 304 IPC

Correct Answer - C

Ans. is 'c' i.e., Sec 302

- 302 IPC: Punishment for murder (death or life imprisonment).
- 301 IPC : Culpable homicide by causing death of person other than person whose death was intended.
- 300 IPC : Murder (defining murder).
- 303 IPC : Punishment of murder of life convict (death).
- 304 IPC : Punishment of culpable homicide, not amounting to murder (10 years imprisonment f fine).
- 305 IPC : Abetment of suicide of child or insane person.
- 306 IPC : Abetment of suicide.
- 307 IPC : Attempt to murder (10 years imprisonment f fine).
- 308 IPC : Attempt to commit culpable homicide (3-7 years imprisonment \pm fine).
- 309 IPC : Attempt to commit suicide (1 years imprisonment \pm fine).

208. Doctrine of res ipsa loquitur means ?

- a) Common knowledge
- b) Medical maloccurance
- c) Fact speaks for itself
- d) Oral evidence

Correct Answer - C

Ans. is 'c' i.e., Fact speaks for itself

Doctrine of res ipsa loquitur

- It means "the thing or fact speaks for itself".
- In a case of professional *negligence of a physician, the patient need not prove negligence.*
- It is applied when following conditions are fulfilled :
 1. That in the absence of negligence the injury would not have occurred ordinarily.
 2. That the doctor had exclusive control over the injury producing instrument or treatment.
 3. That the patient was not guilty of contributory negligence.

209. Number of teeth can be counted by all the following methods except -

a) Gustafson method

b) Mile method

c) Boyde method

d) Frame method

Correct Answer - D

Ans. is 'd' i.e., Frame method

Age from teeth after 20 years

- Teeth eruption is useful for age estimation upto about 18 years, beyond which it is just a guess work. The methods used are :?
A. Gustafson's method : Useful only in persons older than 21 years of age, depending on the physiological changes in each of the dental tissues.
 - Attrition - due to wear and tear from mastication, upper surface of teeth destroyed gradually, first involving the enamel - dentine - pulp (depending on the functional use of teeth and hardness of enamel).
 - Paradentosis - recession of gums and periodontal tissue surrounding the teeth, exposing the neck and adjacent part of root - teeth fall off (poor hygiene increases paradentosis).
 - Secondary dentine formation - develop within the pulp cavity and decrease size of the cavity, start from base - apex, obliterate the cavity, increase with age, caries and paradentosis.
 - Cementum apposition - near the end of root, increase cementum, increase thickness, deposited throughout life, and form incremental lines (devised by Boyde).
 - Root resorption - because of cementum and dentine, absorption of root start at apex and extend upward (may be pathological).

6. Transparency of the root - seen after 30 years of age, canal in the dentine at first widens, increases with age because of deposition of minerals. They become invisible and dentine becomes transparent (Most reliable of all the criteria).

B. Mile's method : Age can be known by changes of root transparency.

C. Boyde's method : On enamel of the tooth, there is a line at birth (neonatal line). With increase in age, more lines are added, study of which helps in age determination.

D. Stack's method : Age of infant can be known from height and weight of erupting teeth.

210. Term cafe coronary was coined by ?

a) Roger Haugen

b) J. Morton

c) Neil Markson

d) M. Hoppefield

Correct Answer - A

Ans. is 'a' i.e., Roger Haugen

A popular term 'cafe coronary' was coined by Dr. Roger Haugen, Medical Examiner of Broward County, Florida for such impaction of food in the respiratory passage". — Krishan Vij

211. Most common organ involved in air blast injury is ?

a) Ear drum

b) Stomach

c) Eye

d) Lung

Correct Answer - A

Ans. is 'a' i.e., Ear drum

Blast or shock wave

- When an explosion occurs, the explosive material produces a large volume of gas and releases a large amount of energy. It produces a '*shock wave*' which spread concentrically from the site of explosion. The injuries depend on the environment in which blast occurs :-
 1. Air blast (most common) : Explosion occurs in air. There is barotrauma to air filled hollow organs. Tympanic membrane (ear drum) is most sensitive and most commonly injured. Lung is the second organ to be injured and is the most commonly injured hollow organ and most common cause of life threatening injury. Other parts injured are middle ear, cochlea, eyes, bowels, mesentery, omentum and brain. Homogenous solid organs like liver and muscles are usually not affected.
 2. Under water blast (explosion under water) : Gastrointestinal tract is injured most commonly. Lungs are also injured.
 3. Solid blast : Explosive is detonated near a rigid/solid structure and wave of energy spreads through it. If people are in contact with that rigid structure, injuries take place. The injuries are mostly skeletal; fracture of legs and vertebral column are more common. GIT damage is more common than lung

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212. The outer covering of diatom is made of ?

a) Magnesium

b) Silica

c) Hydrocarbons

d) None

Correct Answer - B

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

- The extracellular coat of diatoms has silica.
- Diatoms are unicellular algae, suspended in water.
- They have siliceous cell wall (i.e. cell wall contains silica) which resist acid digestion and putrefaction.
- Only live body with a circulation can transport diatoms from lung to brain, bone marrow, muscles etc.
- So, presence of diatoms in brain and bone marrow indicates death due to drowning.
- For detection of diatoms, bone marrow of long bones, e.g. femur, tibia, humerus or sternum is highly suitable and reliable.
- As diatoms resist acid digestion, to extract them acid digestion technique is used.
- Diatoms test is negative in dead bodies thrown in water and in dry drowning.
- However, diatoms test is invalid, if deceased had drunk this water before submersion or species of diatoms do not match with specimen from the site of drowning

213. Reliable method of identification of person is ?

a) Gustafson's method

b) Galton method

c) Scar

d) Anthropometry

Correct Answer - B

Ans. is 'b' i.e., Galton method

- Galton method or *Finger prints* or *dactylography* is the best system of identification till date.
- The fingerprints are capable of endless variation so that there is one chance in sixty four billions of two persons having identical prints.

Dactylography / Dermatoglyphics / Galton system / Finger prints

- Finger prints are present from birth both on epidermis and dermis, remain constant through out life and can't be altered without destroying true skin.
- Finger print pattern is absolutely individual i.e. no two hands are entirely alike, not even identical twins. That's why, it is best (most sensitive and most specific) and most reliable method of identification (Quetelet's rule of biological variation). DNA finger printing may be same in monozygotic twins.
- The pattern is neither inherited nor identical in any two persons. So the paternity cannot be proved through finger print patterns. However, paternity can be proved by DNA finger printing.
- Loops (67% most common) > whorls (25%) > arches (7%) > composite (2% least common) are four main types of pattern.
- It is accepted that chances of 2 finger prints matching 16 ridge characteristic are infinitely small (Parikh's). **Inpractice 8 - 16 (Reddy)**

/ 16 - 20 (Seth, Simpson) points of fine comparison are accepted as proof of identity.

- **Locard's poroscopy method** is study of microscopic pores, formed by mouths of ducts of subepidermal sweatgland present on ridges of fingers. These pores are permanent, remain unchanged during life and are very useful when only fragments of fingerprints are available. Each millimeter contains 9 - 18 pores.
- Criminals may attempt to mutilate finger prints by applying CO₂ snow, corrosive agents, burns or eroding against hard surface. But these manners do not destroy finger prints permanently unless true skin is completely destroyed.

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214. Quantum of punishment in dowry death is ?

a) 7years

b) 5 years

c) Death

d) 10 years

Correct Answer - D

Ans. is 'd' i.e., 10 years

- 304-B IPC: Dowry death : 10 years of imprisonment which can extend to life.
- 498-A IPC : Punishment for cruelty by husband or his relatives.
Dowry death
- In some cases newly married girls are abused, harassed, cruelly treated and tortured by the husband, in-laws and their relatives for or in connection with any demand for dowry. In extreme cases, the woman is killed by burning or some other method. Law in relation to dowry death are :
Low prescribing punishment and definition (section 304 B IPC)
- Husband or (his any) relative will be tried under section 304B, IPC and shall be deemed to have caused her death, if a woman dies due to bodily injury or burns or otherwise in suspicious circumstances within 7 years of marriage and it is shown that soon before her death she was subjected to harassment or cruelty by them, in connection with, any demand for dowry. Such death shall be called dowry death. Punishment includes imprisonment of not less than 10 years, but which may extend to life imprisonment'.
Low prescribing punishment for causing cruelty to a married women (Sec. 498A, IPC)

Husband or (his any) relative will be tried under section 498A, IPC for causing cruelty to a married woman. Cruelty is defined as any willful conduct which drives the woman to commit suicide or grave physical or mental injury to her or harassment of the women with a view to coerce (intimidate) her for dowry. Punishment includes imprisonment which may extend upto 3 years and fine.

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215. Cephalic index is used for

a) Race

b) Age

c) Sex

d) Stature

Correct Answer - A

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

- Cephalic index, height index & nasal index are used for determination of race.
- Cephalic index = maximum breadth of skull/ maximum length of skull x 100

Type of skull	Cephalic index	Race
Dolichocephalic (long headed)	70 - 75	Pure Aryan, Aborigines, Negroes
Mesaticephalic (medium headed)	75 - 80	Europeans and Chinese
Brachycephalic (short headed)	80- 85	Mongolian

216. Active ingredient of marking nut is ?

a) Semecarpol

b) Crotin

c) Abrin

d) None

Correct Answer - A

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

Semicarpus anacardium or marking nut or bhilawan

- Its seed are heart shaped, conical and black with acrid oily juice which is brownish but turns black on exposure to air.
- Active principles are semecarpol and bhilawanol.
- Juice applied to skin produces irritation, painful blisters followed by itching and eczema. Therefore it is used to produce artificial bruises.
- It is also used by washerman to mark clothes.

217. Mugging is compression of neck by ?

a) Wooden sticks

b) Rope

c) Forearm

d) Hand

Correct Answer - C

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

- Mugging (choke hold) : It is compression of neck by forearm *or in the bend of elbow.*
- Bansdola : Compression of neck with *one or two wooden sticks or bamboo.*
- Garrotting : It is compression of neck by a *rope thrown from behind.* Spanish windlass is a type of garrotting, which used to be the official mode of execution in Spain. In this, an iron collar around the neck was tightened by a screw for strangulation.
- Throttling (manual strangulation) : Neck is compressed by one or both hands.

218. Time limit of exhumation in India is -

a) One month

b) One year

c) Ten years

d) No limit

Correct Answer - D

Ans. is 'd' i.e., No limit

Exumation

- It is lawful digging out of a buried body from the grave for the purpose of identification or determination of cause of death.
- Only a magistrate (executive magistrate) can order for exhumation.
- In india, there is no time limit for exhumation, i.e. can be done at any time after death.
- It is done under supervision of medical officer and Magistrate in presence of a police officer who provides witnesses to identify grave, coffin and dead body, whenever possible, Magistrate should inform the relatives and allow them not to remain present at the time of enquiry.
- The whole procedure should be conducted and completed in natural day light. Therefore, it is usually started early in morning.

219. Black foot disease is caused by

a) Arsenic

b) Cadmium

c) Lead

d) Mercury

Correct Answer - A

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

- Chronic arsenic exposure can cause 'black foot disease' a severe form of peripheral vascular disease, causing gangrene of lower limbs.
- Arsenic poisoning may be acute or chronic.

Acute arsenic poisoning

- It can present in any of the two ways :
 1. Gastrointestinal type : It is *the common form* and resembles bacterial gastroenteritis (e.g. cholera). There is garlic odour with hemorrhagic gastroenteritis and necrosis of intestinal mucosa. There is tenesmus and anal irritation. Dehydration may cause acute circulatory collapse, with hypotension, oliguria and acute tubular necrosis (ATN).
 2. Fulminant narcotic form : Large dose of arsenic is rapidly absorbed without producing GI symptoms. These are giddiness, headache, myalgia, formication, vertigo and death in 2-3 hours.
- Postmortem appearance include :
 1. Red velvety mucosa of stomach and submucous petechial haemorrhage.
 2. Subendocardial petechial haemorrhage.
 3. Fatty degeneration of liver, kidney and heart.

Chronic arsenic poisoning

- Chronic arsenic poisoning has four stages :
 1. First stage (nutritional and gastrointestinal disturbances) : The earliest sign is gradual emaciation. There is loss of appetite, nausea and intermittent vomiting and diarrhea.
 2. Second stage (catarrhal changes) : It resembles common cold, i.e. conjunctivitis, running nose and eyes, coughing etc.
 3. Third stage (skin rash) : There is classical 'rain drop pigmentation', i.e. patchy brown pigmentation of skin. At initial stages, there is a *vesicular eruption* which may resemble nettle rash. Hyperkeratosis of palms and soles occur. There are white transverse bands crossing the nails, known as Mee's line, and indicate periods of arrested growth due to interference with normal metabolism. There is alopecia and exfoliative dermatitis.
 4. Fourth stage (nervous disturbances) : There is sensory and motor (i.e. mixed) polyneuropathy, with painful paresthesia of hands and feet and muscle tenderness.
- There may be evidence of liver (fatty liver) and kidney damage and bone marrow suppression (causing anemia and other cytopenias). Heart may also be involved.
- Chronic arsenic exposure can also cause 'black foot disease' a severe form of peripheral vascular disease, causing gangrene of lower limbs.
- Arsenic is carcinogenic, can cause cancers of skin (squamous cell carcinoma and *basal cell carcinoma*), lung, liver, bladder, kidney, larynx and lymphoid system (leukemia).

220. All are signs of somatic death except ?

- a) Cessation of respiration
- b) Cessation of heart
- c) Non-responding muscles
- d) No response to external stimuli

Correct Answer - C

Ans. is 'c' i.e., Non-responding muscles

- Death denotes death of human being (46 IPC). It is defined as cessation of life or cessation to exist. Death is of two types (1) somatic death (systemic death or clinical death) and (2) molecular death (cellular death).

Somatic death (systemic death or clinical death)

- It is the complete and irreversible stoppage of the circulation, respiration and brain functions (bishop's tripod of life). Somatic death is associated with immediate signs of death :?
 1. Permanent and complete cessation of function of brain and flat electric EEG with no response to external stimuli; i.e. brain death.
 2. Permanent and complete cessation of function of heart and flat ECG.
 3. Permanent and complete cessation of function of lungs.
- Somatic death is due to stopped aerobic processes. However, anaerobic enzymatic processes are still continuing, hence (i) muscles still respond to mechanical, electrical and thermal stimuli, (ii) pupils still respond to miotics and mydriatics.

Molecular death (cellular death)

- It occurs after somatic death. *It refers to death of all individual cells.* It occurs when even anaerobic processes stop, due to non availability of ATP. At this stage :

1. Muscles do not respond to stimuli.
2. Pupils do not respond to stimuli or drugs.
3. There are early signs and late signs of death :
 - Early signs : Changes in skin and eye, cooling of the body, post-mortem lividity, changes in muscles (e.g. primary relaxation, rigor mortis).
 - Late signs : Decomposition (putrefaction), adipocere formation and mummification.
4. Molecular death of various organs occur at different intervals after somatic death :
 1. Nervous tissue —> After 5 minutes.
 2. Liver ---> After 15 minutes.
 3. Heart —> After 45 minutes.
 4. Kidney —> After 1 hours.
 5. Muscles —> After 3 hours.
 6. Cornea —> After 6 hours.
 7. Blood After 6 hours.

221. What does Gettlers test detects ?

- a) Diatoms in drowning
- b) Chloride content of blood in drowning
- c) Weight in drowning
- d) None

Correct Answer - B

Ans. is 'b' i.e., Chloride content of blood in drowning

- Gettler test estimates chloride content of blood from both sides of heart.
- It is done for drowning.
- Normally the chloride content is equal in the right and left chambers of the heart (600 mg/100 ml). In fresh water drowning due to hemodilution the chloride content is decreased and in salt water drowning due to hemoconcentration the chloride content is increased in left side of heart.
- A 25% difference in chloride is significant but the test is of doubtful value.

222. Method of autopsy in which various systems organs are removed en masse ?

a) Rokitansky

b) Virchow

c) Gasses

d) Lettulle

Correct Answer - D

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

Methods of removal of organs

- Virchow's technique - organs are removed one by one. Cranial cavity is exposed first, followed by thoracic, cervical & abdominal organs.
- Rokitansky's technique - It involves in situ dissection in part, combined with enblock removal.
- Lettulle's technique - Cervical, thoracic, abdominal & pelvic organs are removed en masse & dissected as organ block.

223. In blast injury, what is the organ to be damaged first-

a) Tympanic membrane

b) Git

c) Liver

d) Lung

Correct Answer - A

Ans. is 'a' i.e. Tympanic membrane

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224. Immersion syndrome is also called as ?

a) Hydrocution

b) Wet drowning

c) Dry drowning

d) Secondary drowning

Correct Answer - A

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

- Immersion syndrome - is also called as hydrocution or submersion inhibition or vagal inhibition.

Atypical drowning

- It refers to drowning in which even after submersion of body in water, little or no water enters respiratory passages and lungs. Hence typical findings of wet drowning in the form of froth and oedema aquosum of lungs are not found. Atypical drowning may be :
 1. Dry drowning : On contact with water, especially cold water, there results intense laryngospasm, so that water does not enter the lungs. Death is due to asphyxia because of laryngospasm.
 2. Immersion syndrome (hydrocution/submersion inhibition/vagal inhibition) : Sudden death occurs due to vagal inhibition as a result of (a) sudden impact with cold water, (b) duck diving (falling in water with feet first), and (c) horizontal entry in water with impact on epigastrium.
 3. Submersion of unconscious : If person is unconscious since before submersion in water, little or no water enters respiratory passages. It may occur in MI, cerebrovascular accident, hypertension, epilepsy, cerebral aneurysm and in drunk state.
 4. Near drowning (secondary drowning syndrome/post immersion

syndrome) : In this drowning is survived and death occurs at a later stage after removal from water. Either the person himself comes out of water or he is recovered alive, but due to complications of submersion, he dies at a later stage. It is due to hypoxic encephalopathy and fibrosing alveolitis. The death occurs due to combined effect of cerebral hypoxia, pulmonary edema, aspiration pneumonitis, electrolyte disturbances and metabolic acidosis.

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225. Blanket consent is consent taken-

- a) When the patient comes to doctor for treatment
- b) Oral consent
- c) Written consent
- d) Taken at the time of admission to do any surgery

Correct Answer - D

Ans. is' i.e., Taken at the time of admission to do any surgery

- Blanket consent: It refers to consent which is taken usually on a printed form, at the time of admission of the patient, authorizing the doctor to do any surgery under any anaesthesia. Legally, it is no consent, i.e. it is of no value in court. *To be legally valid, the consent is to be obtained for each specific procedure and operation.*
- Implied consent: In this, consent presumed to be there. The very fact that the patient has come to the doctor for treatment, it is presumed that his consent is there for routine physical examination. e.g. inspection, palpation, auscultation and percussion. Implied consent is a *non-written but legally effective form of consent*, which is not expressly asserted.
- Expressed consent: It is stated (oral or written) in clear and explicit language. Oral consent, given in presence of two or more witnesses is as valid as written consent, but there is no record. Written consent is better as there is a record of consent available, in cases of dispute.
- Written informed consent: It is a type of *expressed consent* in written form which is given by the patient after being informed of nature of illness or nature of procedure or operation to be done, its alternatives, its consequences and complications.

226. Testamentary capacity is ?

a) Ability to give willful statement

b) Ability to make will

c) Ability to judge

d) None

Correct Answer - A

Ans. is 'b' i.e., Ability to make will

Testamentary capacity (testament = will) is the mental ability to make a valid will.

Will denotes any testamentary document. The requirement for a valid will are as follows.

A written and properly signed and witnessed document must exist.

The testator must be a major and of sound disposing mind at the time of making the will. Force undue influence or dishonest representation of facts, should not have been applied by others.

227. Ideal time to start exhumation ?

a) Mid night

b) Late evening

c) Afternoon in proper light

d) Early morning

Correct Answer - D

Ans. is 'd' i.e., Early morning

Exumation

- Exumation is lawful digging out of a burried body from the grave for the purpose of identification or determination of cause of death.
- Only a magistrate (executive magistrate) can order for exhumation.
- In india, there is no time limit for exhumation, i.e. can be done at any time after death.
- It is done under supervision of medical officer and Magistrate in presence of a police officer who provides witnesses to identify grave, coffin and dead body, whenever possible, Magistrate should inform the relatives and allow them not to remain present at the time of enquiry.
- The whole procedure should be conducted and completed in natural day light.
- Therefore, it is usually started early in morning.

228. All are true about antemortem contusion except?

- a) Sequential color change
 - b) No inflammation
 - c) Raised enzyme levels
 - d) Blood cells in surrounding tissue
- Accidental

Correct Answer - B
Ans. is 'b' i.e., No inflammation

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229. chocking of respiratory passage by bolus of food ?

a) Gaging

b) Overlying

c) Cafe coronary

d) Burking

Correct Answer - C

Ans. is 'c' i.e., Cafe coronary

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230. Latte's crust of blood stain is used to detect ?

- a) Nature of stain
- b) Detection species
- c) Blood group
- d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Blood group

Blood and blood stains

- The examination of blood and blood stains is an important part of crime detection. The points that are usually required to be determined regarding stains are : (1) nature of stain (whether the stains is blood or not); (2) the species (human or animal) from which the blood has come from; and (3) blood group.

Nature of stain (whether the stain is blood or not)

- To determine the nature of stain, following tests are used :
 - 1. Chemical tests**
 - 1. These tests are based on the peroxidase activity of haematin, which is, derived from oxidation of haem of haemoglobin or methemoglobin, present. This enzyme, in the presence of hydrogen peroxide converts colourless salts into coloured bases. Thus these tests are based on H_2O_2 and peroxidase enzyme. Tests are :
 - 2. Benzidine test: Greenish blue colour.
 - 3. Phenolphthalein test (kastle myere test) : Deep permanganate colour.
 - 4. Leucomalachite green test : Bluish green or peacock blue colour.
 - 5. Guaiacum test : Blue colour.

- 5. Orthotoluidine test (Kohn test) : Blue or green colour.
- 7. Amidopyrine test : Purple colour.

2. Microchemical tests

- These tests are based on property of haem part of hemoglobin to form characteristic coloured crystals. The tests are :
 - 1. Teichmann's haemin crystal test.
 - 2. Takayama hemochromogen crystal test.
 - 3. Luminal spray test : It is especially useful in old obscure blood stains.
- 4. Spectroscopy
 - It is most delicate and reliable test. It is based on the principle that hemoglobin and its derivatives give characteristic absorption bands when viewed through a spectroscope.

4. Microscopy

- Microscopic examination of RBCs is possible only in fresh stains.
- Detection of species (whether the blood has come from human or animal)**
 - For detection of species, serological (immunological) tests are used. These tests are :
 - 1. Precipitin test
 - 2. Haemagglutination inhibition test (antiglobulin consumption test or absorption inhibition test).
 - 3. Gel diffusion test.
 - 4. Double diffusion test.
 - 5. Precipitation electrophoresis.
 - 6. Latex agglutination test.
 - 7. Isoenzyme method (enzymological test).

Detection of blood group of blood stain

- These tests are :
 - 1. Immunological (serological) : (i) absorption-elution test, (ii) absorption-inhibition test, (iii) mixed agglutination test, (iv) latex test.
 - 2. Enzymological methods.
 - 3. Latte's crust method.

231. Tattooing around the entry wound is seen in ?

- a) Close shot
- b) Contact shot
- c) Distant shot
- d) All of the above

Correct Answer - A
Ans. is 'a' i.e., Close shot

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232. All tests are used for infanticide except ?

a) Ploucquet test

b) Fodere's test

c) Gettler's test

d) Raygat's test

Correct Answer - C

Ans. is 'c' i.e., Gettler's test

Tests used in infanticide (for respiration)

- Ploucquet's test : Weight of lung is measured in relation to body weight. Before birth weight of lung is $\frac{1}{70}$ of body weight and after respiration it becomes $\frac{1}{35}$ of body weight due to increased blood flow in lung beds.
- Static test or Fodere's test : The average weight of both lungs before respiration is 30-40 gm and after respiration is 60-70 gm.
- Hydrostatic test (Raygat's test, 1" life test) : The specific gravity of a non-respired lung is 1040-1050 and of a respired lung is 940-950, so, after respiration lung floats on water (specific gravity of water is 1000). False positive hydrostatic test may occur (i.e. non-respired lung may float) in decomposition and in attempted artificial respiration. False negative hydrostatic test (i.e. respired lung may sink down) may occur in atelectasis, pulmonary oedema, bronchopneumonia, and congenital syphilis.
- Breslau's second life test : It assumes that a live born child would respire and therefore, would also swallow some air into the stomach and bowel. Hence they float on water. This test is falsely positive in putrefaction (due to putrefied gases) or in cases of attempted artificial respiration.
- Werdnig's test : Before birth middle ear contains gelatinous embryonic

tissue which is replaced by air after respiration

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233. For diagnosis of insanity, maximum limit of observation?

a) 5 days

b) 10 days

c) 30 days

d) 50 days

Correct Answer - C

Ans. C. i.e., 30 days

- Insanity is characterized by certain abnormal mental and behavioral patterns. Simply insane means unsound mind, i.e. insane is the person which has unsound mind. Conversely sanity means sound mind (compos mentis).
- Lucid interval is the period of sanity (sound mind) in an insane person, i.e. period in course of mental illness when there is complete cessation of manifestations of insanity. During this period he is quite normal and can make valid will, sell/purchase property, give valid evidence and is legally responsible for his deeds.
- Before making a diagnosis of insanity, the patient may be kept under observation in mental hospital or general hospital/nursing home. Patient is kept under observation for 10 days, which can be extended upto maximum 30 days.
- Two doctors (at least one being a government doctor) should examine the patient separately without consulting each other for at least three examinations

234. Suicidal mark is horizontal in ?

a) Hanging

b) Strangulation

c) Both of the above

d) None of the above

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

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235. Graze is a type of ?

a) Bruise

b) Contusion

c) Laceration

d) Abrasion

Correct Answer - D

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

Abrasion

- It is a destruction of the skin, which involves the superficial layers of the epidermis only. They are of 4 types:
 1. Scratches- its a abrasion with length but no significant width or a a very superficial incision.
 2. Grazes-most common. They occur when there is movement between the skin and some rough surface in contact with it.
 3. Pressure or friction abrasion- they are caused by crushing of the superficial layers of the epidermis and are associated with a bruise of the surrounding area.
 4. Impact or contact abrasion- they are caused by impact with a rough object, when the force is applied at or near a right angle to the skin surface.
 5. Patterned abrasion- impact abrasion and pressure abrasion reproduce the pattern of the object causing it and are called Patterned abrasion.

236. Platauf's hemorrhages, incorrect is ?

- a) Sign of drowning
- b) Subpleural hemorrhage
- c) Mostly seen in middle lobe
- d) All are true

Correct Answer - C

Ans. is 'c' i.e., Mostly seen in middle lobe

Platauf's hemorrhages

- They are subpleural haemorrhages present in cases of drowning when alveolar walls rupture due to increased pressure during forced expiration and produce haemorrhages.
- They are shining pale pink or bluish red, and may be minute or 3-5cm in diameter seen in lungs.
- They are usually present in about 50 % cases in lower lobes of lungs but may be seen on the anterior surfaces of lungs and the interlobar surfaces.

237. Most common hymen rupture in a virgin is ?

a) Anterior

b) Anterolateral

c) Posterolateral

d) Posterior

Correct Answer - C

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

Hymen rupture:

- Congenital : anterior
- Due to intercourse or foreign body: posterolateral (4/8 or 5/7 O' clock) > posterior (6 O' clock).
- In virgin rupture (tears) of hymen due to sudden stretching occurs in posterior half of membrane usually at the sides (i.e. posterolaterally) in 4 or 8'O clock or 5 or 7'O clock position, or in the midline of hymen (6'O clock position).
- With first intercourse tears usually occur in posterior midline because the hymen lies suspended across a potential space here, whereas anteriorly periurethral tissues buttress the hymen.
- More than 2 tears are unusual, Semilunar hymen often ruptures on both sides. Annular hymen which nearly closes up the vaginal orifice may suffer several hymenal lacerations indicate first sexual intercourse.
- One deep 'V' shaped cleft/tear at 6' O clock or a number of clefts usually in posterior half hymen membrane indicate passage of any object through hymen orifice which is larger its original opening.'
- In prepubertal children posterior tear may involve fourchette producing a deep U shaped defect. Fourchette is torn, fossa

navicularis disappear and posterior commissure may be ruptured. The latter injury usually does not occur in consenting sexual intercourse unless there is much disproportion between the male and female parts.

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238. Most common drowning in India-

a) Suicidal

b) Homicidal

c) Accidental

d) Infanticide

Correct Answer - C

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

- Most of the cases of drowning (2/3) in India are accidental. Rest 1/3 being suicidal. Homicidal drowning is less common in India.
- Suicidal drowning is indicated by absence of signs of struggle or assault (e.g. torn clothes, injury marks). A determined suicide may tie his hands and legs together or attach weights to his body or take poison or cut throat before immersion.
- In homicidal drowning, there are signs of struggle and violence (assault) (e.g. head injury, signs of strangulation, or throttling). Head and feet may be tied, heavy weight may be attached to body or body may be tied up inside a gunny bag. Homicidal drowning is very rare except in infants and children.
- Accidental drowning is quite common and usually seen in children, non-swimmers, during floods or due to fall in well etc.

239. Magistrate inquest is done in case of ?

- a) Death by suicide
- b) Death by accident
- c) Death in psychiatry hospital
- d) Death in suspicious circumstances

Correct Answer - C

Ans. is 'c' i.e., Death in psychiatry hospital

- Magistrate's inquest is done under sec 176 CrPC in case of :-
 1. Death in prison, reformatories, Borstal school.
 2. Death in police custody while under police interrogation.
 3. Death due to police firing.
 4. Dowry death; i.e. death of a married female less than 30 years of age or death within 7 years of marriage.
 5. Exhumation.
 6. Death in psychiatry hospital.
 7. Custodial rape.

240. Schedule-3 of MCI includes-

a) MBBS degree of indian universities

b) DNB degree

c) Diploma of CPS

d) MBBS degree of foreign universities

Correct Answer - C

Ans. is 'c' i.e., Diploma of CPS

Schedules of MCI Act

- MCI was established in 1934 and MCI act was revised in 1956, 1964, 1993, 1999, and 2002. The schedules of MCI includes list of medical degrees recognized by MCI :-
 1. Schedule 1 :- Includes list of recognised degrees awarded by Indian universities(' ') and also DNB awarded by National Board of Examination, New Delhi.
 2. Schedule 2 :- Includes list of recognized medical degrees awarded by foreign universities or ob'.
 3. Schedule 3 :- Includes list of medical qualifications awarded by Indian or foreign boards or societies, but are not included in schedule 1 or 2. It has two parts :?
 - Part I : Includes list of recognized degrees other than MBBS awarded by Indian Societies and Boards, e.g LMP and diploma of CPS.
 - Part II: Includes list of recognized degrees other than MBBS awarded by Foreign Societies and Boards

241. Length of tibia is ?

a) 10% of height

b) 20% of height

c) 30% of height

d) 40% of height

Correct Answer - B

Ans. is 'b' i.e., 20% of height

- Stature is determined in dismembered body (skeletal remains) by :
 1. Length from the tip of middle finger to the tip of opposite middle finger when arms are fully extended.
 2. Twice the length of one arm + 30 cm (of two clavicles) + 4 cm (for the sternum).
 3. Humerus length is $\frac{1}{5}$ th of height.
 4. The length from the vertex to the symphysis pubis is half of the total length.
 5. The length from the sternal notch to Symphysis pubis x 3-3.
 6. The length of forearm measured from tip of middle finger is $\frac{5}{19}$ of total length.
 7. The height of head measured by the vertical distance from the top of the head (vertex) to the tip of chin = $\frac{1}{8}$ of the total length.
 8. The length of vertebral column = $\frac{34}{100}$ of total length. To the length of entire skeleton, add 2.5 to 4 cm for thickness of the soft parts.
 9. As a general rule humerus is 20%, tibia is 22%, femur is 27% and spine is 35% of individual height.

242. Locord's system is ?

a) Podography

b) Dactylography

c) Poroscopy

d) Cheiloscopy

Correct Answer - C

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

- Dactylography (Galton's system) —> Study of finger prints.
- Poroscopy (Locard's system) -4 Study of number, sizes and distribution of pores of sweat glands on ridges (used when only a part of finger print is available).
- Podogram --> Study of foot print.
- Cheiloscopy (queiloscopy) —> Study of lip prints.
- Rugoscopy (Palatoprints) Study of anterior part of palate.

243. Putrefaction is delayed in all except ?

a) Warm moist atmosphere

b) Carbolic acid poisoning

c) Anemia

d) Heavy metals poisoning

Correct Answer - A

Ans. is 'a' i.e., Warm moist atmosphere

Factors causing delay of putrefaction

- Temperature $<0^{\circ}\text{C}$ or $>48^{\circ}\text{C}$ (very high temperature).
- Dry weather and/or decreased air velocity.
- More than 2 meter deep grave.
- Tight clothing.
- Body in dry soil, and body packed in coffin.
- Infant not fed.
- Wasting diseases like anemia.
- Poisoning : Carbolic acid, ZnCl_2 , strychnine (nux vomica), and heavy metals (arsenic, antimony).
- In water slower than in air (casper's dictum).

Factors facilitating putrefaction

- Putrefaction is facilitated by (i) free access of air (ii) moisture and (iii) optimum warmth (10°C - 45°C). Thus decomposition is fast in shallow damp, marshy shallow graves, in bodies without clothes and coffin.

244. Brown color of contusion is due to -

a) Haematodin

b) Reduced hemoglobin

c) Haemosiderin

d) Bilirubin

Correct Answer - C

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

Color change and age of bruise (Contusion)

- After a bruise has appeared, it tends to get smaller from periphery to center and passes through a series of colour changes. These are due to disintegration of RBCs by hemolysis and breakdown of hemoglobin into the pigments haemosiderin, haematodin and bilirubin changes are : -
 1. At first : Red (oxyhemoglobin)
 2. Few hours to 3 days : blue (reduced hemoglobin)
 3. 4th day : Bluish-black to brown (haemosiderin)
 4. 5-6 days : Greenish (haematodin)
 5. 7-12 days : Yellow (Bilirubin)
 6. 2 weeks : Normal (absorption of pigment)

245. Which is incorrect about exit wound of a bullet ?

a) Bevelled

b) Everted

c) Abrasion collar

d) No COHb

Correct Answer - C

Ans. is 'c' i.e., Abrasion collar

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246. Diagnostic of antemortum drowning ?

- a) Paltauf's hemorrhage
- b) Weeds and grass in clenched hands
- c) Emphysema aquosum
- d) Water in esophagus

Correct Answer - B

Ans. is 'b' i.e., Weeds and grass in clenched hands

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247. Difference between contusion and post-mortem lividity is that post-mortem lividity ?

a) Shows sequential color change

b) Easily washable

c) Shows diffuse irregular margins

d) Has raised enzyme levels

Correct Answer - B

Ans. is 'b' i.e., Easily washable

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248. All are immediate causes of death in a case of burn, except ?

a) Suffocation

b) Embolism

c) Injury

d) Sepsis

Correct Answer - D

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

Causes of death in burns

- Causes of death in burns may be divided into :
 1. Causes of immediate death : These are (1) neurogenic shock (primary shock), (2) hypovolaemic shock (secondary shock), (3) suffocation, due to inhaled CO, CO₂, (4) cyanide intoxication, (5) fat embolism, (6) cerebral or pulmonary edema, and (7) accidental injuries during burn.
 2. Causes of delayed death : These are : (1) renal failure (acute tubular necrosis), (2) infections (sepsis, gangrene, tetanus) and (3) centrilobular necrosis of liver.

249. Raygat's test is used for ?

- a) Weight of lung
- b) Specific gravity of lung
- c) Consistency of lung
- d) None

Correct Answer - B

Ans. is 'b' i.e., Specific gravity of lung

- Hydrostatic test (Raygat's test, 1" life test) : The specific gravity of a non-respired lung is 1040-1050 and of a respired lung is 940-950, so, after respiration lung floats on water (specific gravity of water is 1000). False positive hydrostatic test may occur (i.e. non-respired lung may float) in decomposition and in attempted artificial respiration. False negative hydrostatic test (i.e. respired lung may sink down) may occur in atelectasis, pulmonary oedema, bronchopneumonia, and congenital syphilis.

250. Tache noire de salenortica is a postmortem finding is related to

a) Eye

b) Muscle

c) Hair

d) Semen

Correct Answer - A

- Brownish discolouration of the sclera due to cellular debris and dust-Tache noire

251. 1st affected in rigor mortis

a) Eyelids

b) Myocardium

c) Jaw

d) Neck

Correct Answer - B

Answer-B. Myocardium

state of the muscles in a dead body when they become stiff or rigid with some degree of shortening.

All muscles of body are involved i.e. voluntary or involuntary. However, it does not start in all muscles simultaneously (Nysten's rule).

Involuntary muscles (heart) are involved first than voluntary muscles.

Sequence of muscles involvement is as follows: Heart > upper eyelid > neck > jaw > face > chest > upper limb > abdomen > lower limb > finger and toes.

252.

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Punishment for perjury is under which section IPC ?

a) Sec 193

b) Sec 191

c) Sec 197

d) Sec 190

Correct Answer - A

Answer A. Sec 193

Defines punishment for fabricating false evidence

The witness is liable to be prosecuted for perjury, and the imprisonment may extend upto seven years.

193 IPC : punishment for false evidence, (punishment for perjury) : imprisonment upto 7 years + fine

191 IPC : (i) Giving false evidence (perjury) under oath.

192 IPC: Fabricating false evidence (perjury)

253. Gastric lavage is not contraindicated after ingestion of which acid.

a) HCL

b) H₂SO₄

c) Carbolic acid

d) Nitric acid

Correct Answer - C

Answer-C. Carbolic Acid

The only absolute contraindication is corrosive poisoning i.e alkalis, mineral acid, vegetable acid and organic acids (except carbolic acid).

Carbolic acid is the only corrosive in which gastric lavage can be used.

Gastric lavage must be done (except when contraindicated) irrespective of whether vomiting has occurred or not, to prevent aspiration of content.

Carbolic acid is the only corrosive in which gastric lavage is not contraindicated.

254. Viscera in toxicology stored in

- a) Glycerine
- b) Rectified spirit
- c) Formalism
- d) Saturated salt solution

Correct Answer - D

Answer-D. Saturated salt solution

Toxicological viscera is preserved in a saturated solution of common salt (sodium chloride).

For toxicological analysis, viscera is never preserved in alcohol, formalin, or bile salt.

In fact, formalin denatures proteins and chemical toxins and would interfere with the detection of poisons during chemical analysis'

255. Two identical twins will not have same

a) Fingerprints

b) DNA copies

c) Iris color

d) Blood group

Correct Answer - A

Answer: A. Fingerprints

Identical twins have the same DNA, but their fingerprints (dactylography) are still different and they do not change.

These can be easily used to differentiate between an identical set of twins.

Identical twins have the same set of DNA, therefore DNA fingerprinting cannot differentiate them.

256. In Alleged history of gun shot injury, there is burning, blackening, tattooing around the wound Dirt collar, the injury is

a) Close shot entry wound

b) Close shot exit wound

c) Distant shot entry wound

d) distant shot exit wound

Correct Answer - A

Answer: A. Close shot entry wound

- Burning, blackening, tattooing around the wound are features of close shot entry.
- And may occur in contact shot when muzzle end is not pressed firmly.



- The muzzle end is not pressed firmly or is loosened by recoil, flame, gas and soot may escape sideways and soil the adjoining skin..... Parikh.
- Grease collar or dirt collar is seen at firearm entry wound. It is a black colored ring lining the entrance wound on the skin.
- It is produced by removal of substances from the bullet as it passes through the skin,

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257. A child is having Battered baby syndrome how will you identify

- a) Stab wound
- b) Gunshot wound
- c) Bruise of different ages
- d) None of these

Correct Answer - C

Ans-C. Bruise of different ages

A battered child is one who has received repetitive physical injuries as a result of non-accidental violence produced by a parent or a guardian.

multiple bruise present over body, Laceration of the oral mucosa, Parents give vague history of accident to be the cause of the injuries.

It is also called Caffey syndrome, Caffey-Kempe syndrome, maltreatment syndrome or Parent-infant traumatic stress syndrome. The injuries may be caused by hand, foot, teeth, stick, belt, shoe, hot water, lighted cigarette, hot frying pan or any household article. Accidental injuries typically involve bony prominences [head (forehead, occipital or parietal region), nose, chin, palm, elbows, knees and shin], match the history given by the parents and are keeping with the development of the child.

258. Degloving skin involves removal of?

a) skin , subcutaneous fat, fascia, muscle

b) skin, subcutaneous fat, fascia

c) skin only

d) skin subcutaneous fat

Correct Answer - D

Answer: D. skin subcutaneous fat

The clinical entity of degloving injury means that the skin has been lost, but the musculoskeletal unit is intact, and hence, the movements of the part have been preserved.

Degloving, also called avulsion, is a type of severe injury that happens when the top layers of your skin and tissue are ripped from the underlying muscle, connective tissue, or bone. It can affect any body part, but it's more common in the legs

Depending on the angle that the tire pullas across the extremity, the skin and subcutaneous tissue may be pulled or sheared off on leading edge of extremity.

259. Sexual perversions(Exhibitionism) is under section

a) Section 290

b) Section 294

c) Section 230

d) Section 291

Correct Answer - B

Answer: B. Section 294

EXHIBITIONISM: sexual gratification by exposing one's genitalia.
Punishable under sec 294 I.P.C.with imprisonment upto 3 months or fine

260. Xiphoid fuses with sternum by what age ?

a) 30 years

b) 35 years

c) 40 years

d) 45 years

Correct Answer - C

Ans. is 'c' i.e., 40 years [Ref Parikh 6th le p. 2.30, 2.31]

Sternum

- Pieces of body unite between 14-25 years.
- Xiphoid unites with body at 40 years.
- Manubrium unites with body at 60 years.

Other bones

- *Hyoid* : greater cornu unites with body at 40-60 years.
- Laryngeal and costal cartilages ossify after 40 years.
- *Vertebra* : Osteophytes outgrowth, lipping of vertebra and disc atrophy occur.
-

261. Sections 312 to 315 deal with ?

- a) Kidnapping & abduction
- b) Attention & abetment to suicide
- c) Causing grievous hurt
- d) Criminal abortion

Correct Answer - D

Ans. is D. i.e., Criminal abortion

- 312, 313, 314 and 315 IPC: For causing voluntary miscarriage (criminal abortion).
- 312 IPC: Causing miscarriage with consent (3 years of imprisonment ± fine).
- 313 IPC: Causing miscarriage without consent of lady (10 years of imprisonment which can extend up to life ± fine).
- 314 IPC: Death of patient caused by miscarriage (10 years of imprisonment ± fine).
- 315 IPC: Death of child during miscarriage (10 years imprisonment ± fine).

262. Post mortem lividity is not seen in ?

- a) Drowning in well
- b) Drowning in a fast flowing river
- c) Postmortem submersion
- d) Drowning in chlorinated swimming pool

Correct Answer - B

Ans. is 'b' i.e., Drowning in a fast flowing river [Ref Parikh 6th/e p.3.10]

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263. Sexual gratification of a women is obtained by another woman is called ?

a) Tribadism

b) Bestiality

c) Fellatio

d) Cunnilingus

Correct Answer - A

Ans. is 'a' i.e., Tribadism [Ref Parikh 6th/e p. 5.50, 5.52; Reddy 31st/e p. 401; Rao 2nd/e p. 373-74; Rajes Bardale 1st/e p. 325-26]

- **Tribadism (Lesbianism or female homosexuality) :**
Sexual gratification of a women is obtained by another woman by kissing, body contact, manipulation of breast and genitalia.
- Active partner is called **dyke or butch** and the passive agent is called femme. This is not an offence in India.

264. Voyeurism is ?

- a) Sexual gratification by watching the act of sexual intercourse
- b) Use of such objects for sexual gratification
- c) Sexual gratification is by self pain
- d) Sexual gratification by rubbing private part

Correct Answer - A

Ans. is 'a' i.e., Sexual gratification by watching the act of sexual intercourse [Ref Reddy 30th/e p. 395]

Voyeurism (Scoptophilia, Peeping tom) : Sexual gratification is obtained by looking at the sexual organs of other persons, watching the act of sexual intercourse, or witnessing undressing by a woman.

265. Wrong about dhatura seeds is ?

- a) Kidney shaped
- b) Odourless
- c) Yellow brown
- d) Convex smooth surface

Correct Answer - D

Ans. is 'd' i.e., Convex smooth surface [Ref Pilley 4th/e p. 207; Gautam Biswas 2nd /e p. 496]

Features of Dhatura seeds are :-

- 1. Large & thick
- 2. Odourless
- 3. Kidney - shaped
- 4. Laterally compressed and double edged at convex border (not smooth)
- 5. Yellowish brown
- 6. Bitter

266.

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Adultery is described under which section of IPC?

a) 314

b) 375

c) 497

d) 504

Correct Answer - C

Ans. is c' i.e., 497 [Ref Women and the Law p. 167]

Section 497 of IPC says, "Whoever has sexual intercourse with a person who is and whom he knows or has reason to believe to be the wife of another man, without the consent or connivance of that man, such sexual intercourse not amounting the offence of rape, is guilty of the offence of adultery and shall be punished.

267.

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Use of dangerous weapon is related to which section of IPC?

a) 304

b) 319

c) 322

d) 324

Correct Answer - D

Ans. is 'D' i.e., 324

319 IPC : **Defines hurt.**

320 IPC : **Defines grievous hurt.**

321 IPC : **Voluntarily causing hurt.**

322 IPC : **Voluntarily causing grievous hurt.**

323 IPC : **Punishment for voluntarily causing hurt (no provocation, no dangerous weapon) (1 years imprisonment).**

324 IPC : **Punishment for voluntarily causing hurt by dangerous weapon (3 years imprisonment ± fine).**

325 IPC : **Punishment for voluntarily causing grievous hurt (no provocation, no dangerous weapon) (7 years imprisonment ± fine).**

268.

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Outraging modesty of women is which section of IPC?

a) 375

b) 354

c) 195

d) 304

Correct Answer - B

Ans. is 'b' i.e., 354 [Ref Reddy 26th/e p. 365]

Rape and other sexual offences and assault

- 228 IPC : Prohibits disclosure of identity of rape victim.
- 375 IPC : Defining rape.
- 376 IPC : Punishment for rape (7 years to life imprisonment \pm fine).
- **376-A** IPC : Punishment for marital rape (2 years imprisonment \pm fine).
- 377 IPC: Unnatural sexual offences (10 years to life imprisonment \pm fine).
- **354 IPC : Assault or criminal force to woman with intent to outrage her modesty.**
- **366-A** IPC : Procurement of minor girl for illicit intercourse.
- 351 IPC : Defines assault.
- 352-358 IPC : Punishment for causing assault.
- 509 IPC : Word, gesture or act intended **to** insult the modesty of a women

269.

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Section 89 IPC is for?

- a) Criminal responsibility of insane
- b) Criminal responsibility of a child
- c) Criminal responsibility of drunken person
- d) Age for consent

Correct Answer - B

Ans. is' i.e., Criminal responsibility of a child

89 IPC: A child under 12 years of age can not be given valid consent to suffer any harm which can occur from an act done in good faith for the benefit of the child, e.g., consent for surgery. The only guardian can give such consent.

An act is done in good faith for the benefit of a child or insane person, by or by consent of the guardian.

Nothing which is done in good faith for the benefit of a person under twelve years of age, or of unsound mind, by or by consent, either express or implied, of the guardian or other person having lawful charge of that person, is an offence because of any harm which it may cause, or be intended by the doer to cause or be known by the doer to be likely to cause to that person

270. A person is declared dead if he/she is not found for

a) 7 years

b) 10 years

c) 14 years

d) 21 years

Correct Answer - A

Ans. is 'a' i.e., 7 years [Ref Civil Law, Section 108 MA]

The Indian Evidence Act, under section 108 provides 7 years from the date whence a person is declared to be missing and his

271.

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Adulteration of drug is under which section of IPC

a) 271

b) 272

c) 273

d) 274

Correct Answer - D

Ans. is 'd' i.e., 274 [Ref Safety Management of Hospitals p. 315; Principles of FMT, Bardale p. 18]

Law related to Adulteration :- Indian Penal Code :?

Section 272 → Adulteration of Food or Drink Intended for Sale
Imprisonment for 6 months, Fine - Rs. 1000 Section 273 → Sale of
Noxious Food or Drink

Imprisonment for 6 months, fine - Rs. 1000 Section

274 → Adulteration of Drugs

Section 275 → Sale of adulterated drugs

Section 276 → Sale of drugs as a different drug or preparation

Section 277 → Fouling water of public spring or reservoir

272. First carpal bone to appear is?

a) Trapezium

b) Capitate

c) Pisiform

d) Lunate

Correct Answer - B

Ans. is 'B' i.e., Capitate [Ref Reddy's Essentials 26th/e p. 63]

The ossification centres in carpal bones appear as follows :

n Capitate	1 year	n Hamate	2 years
n Triquetrum	3 years	n Lunate	4 years
n Scaphoid and trapezoid	5 years	n Trapezium	6 years
n Pisiform	11 years		

273. Holograph will is defined as

- a) Doctor dictates and written by relatives
- b) Testator is written in his own handwriting
- c) Testator is dictated and written by relatives
- d) Testator is dictated and written by doctor

Correct Answer - B

Ans. is 'b' i.e., Testator is written in his own handwriting [Ref SK Singhal 4th/e p. 314]

- Holograph will is one which is written by the testator in his own handwriting.
- Testamentary capacity is defined as the capacity of a person to make a valid will.

274. Obtuse angle of mandible is seen in

a) Infancy

b) Adulthood

c) Adult Male

d) Adult Female

Correct Answer - A

Ans. is 'a' i.e., Infancy [Ref Parikh 6th le p. 2.30]

Feature	Infancy	Adult	Old age
Angle of mandible	Obtuse angle	Right angle	Obtuse angle
Mental foramen opening	Near lower border	Midway b/w upper	Looks apparently nearer the of body & lower border upper border d/t loss of teeth

275. Size of the fetus is 20 mm, then by the rule of Hasse's, what is the gestational age of the fetus?

a) 2 weeks

b) 4 weeks

c) 6 weeks

d) 8 weeks

Correct Answer - C

Ans. is 'c' i.e., 6 weeks

- Hess's rule (Haase's rule): It is a rough method for calculating the age of fetus by measuring the length from crown to heel. Up to 5th month of gestation, length of the foetus in cm is square of the month of gestation and beyond 5 months, length in cm is 5 times the month of gestation.
- Length in cm = (month of pregnancy) → upto 5 months
- Length in cm = month of pregnancy → after 5 months
- In this question :
- Length in cm = (month of pregnancy)²
- 2 = (month of pregnancy) → (Note : 20mm = 2cm)
- Month of pregnancy = 14 months or 6 weeks.

276. First incisor to erupt is

a) Lower central

b) Upper central

c) Lower lateral

d) Upper lateral

Correct Answer - A

Ans. is 'a' i.e., Lower central [Ref Reddy 30thie p. 60]

- First temporary tooth to erupt (in primary dentition) is lower central incisors and last temporary tooth to erupt is 2nd molar. The sequence of eruption is lower central incisor > upper central incisor > upper lateral incisor > lower lateral incisor > 1st molar > Canine > 2nd molar. Therefore eruption of temporary teeth is completed by eruption of 2nd molar at 25 months (2 years).
- First permanent tooth to erupt (in secondary dentition) is 1st molar and last to erupt is 3rd molar. The sequence of eruption is 1st molar > central incisor > lateral incisor > 1st premolar > 2nd premolar > canine > 2nd molar > 3rd molar. Eruption of permanent teeth is completed by eruption of 3rd molar between 17-25 years.

277. X-ray of choice for age detection at around 16-17 years of age

a) Elbow

b) Wrist

c) Shoulder

d) Pelvis

Correct Answer - B

Ans. is 'b' i.e., Wrist [Ref Parikh 6th/e p. 2.10]

Site	Age (in years)	
	Female	Male
Elbow	13-14	15-16
Wrist	16-17	18-19
Shoulder	17-18	19-20
Crest of ilium	18-19	20-21

278. Suggilation is due to which of the following?

- a) Gravity leading to pooling of blood
- b) Escape of blood from microvasculature
- c) Molecular death leading to stiffening of muscles
- d) Autolysis of enzymes

Correct Answer - A

Ans. is 'a' i.e., Gravity leading to pooling of blood [Ref Reddy 30th/e p. 141]

Gravity leading to pooling of blood → Suggilation

Molecular death leading to stiffening of muscles → Rigor Mortis

Autolysis of enzymes → Putrefaction

279. Earliest sign of fetal death -

- a) Spalding sign
- b) Robert's sign
- c) Ball sign
- d) Adipocere formation

Correct Answer - B

Ans. is 'b' i.e., Robert's sign [Ref Parikh 6th le p. 5.75, 5.76 & 4th/e p. 268]

Robert sign (gas in great vessels) → 12h

Spalding sign (overlapping of skull bones) → 1 week

Blair-Hartley/Ball sign (hyperflexion/hyperextension → 3-4 weeks of spine with overcrowding of ribs

280. First sign of maceration is

a) Robert's sign

b) Skin slippage

c) Spalding sign

d) Greenish discoloration of body

Correct Answer - B

Ans. is 'b' i.e., Skin slippage [Ref Parikh 6thVe p. 5.75; SK Parikh 4th/e p. 268]

- Maceration is a process of aseptic autolysis.
- It occurs when a dead fetus remains in the uterus for 3-4 days surrounded by liquor amnii but with exclusion of air.
- Skin slippage is the earliest sign (occurs within 12 hours).

281. Which is the best temperature for putrefaction?

a) - 10 degrees C

b) 0 degrees C

c) 30 degrees C

d) 50 degrees C

Correct Answer - C

Ans. is 'c' i.e., 30 degrees C [Ref Reddy 30th/e p. 150]

- Putrefaction is the last stage in resolution of body from the inorganic to organic state and is a certain sign of death.

The putrefaction is due to :

Autolysis :

- The enzymes of the body, break down the dead body causing proteolysis, lipolysis and glycolysis.

Bacterial enzymes :

- Aerobic and anaerobic bacteria present in small intestine (e.g. C. welchii, staphylococcus, E.coli etc.) release enzymes (especially lipase and lecithinase), which act on body to cause breakdown.
- Three conditions are necessary for putrefaction : (i) warmth (10-45°), (ii) moisture (humidity) and (iii) air. If air is absent, adipocere formation (saponification) occurs, and in the absence of moisture, mummification occurs.

282. According to Casper's dictum, decomposition is the fastest when the body is in which of the following?

a) Air

b) Water

c) Earth

d) Soil

Correct Answer - A

Ans. is 'a' i.e., Air [Ref Reddy 30thie p. 155]

- It is the effect of medium (in which body lies) on rate of putrefaction. Casper's dictum states that a body decomposes in air twice as rapidly as in water and eight times as rapidly in earth.

283. Enzyme responsible for postmortem hemolysis is

- a) Hemolysin
- b) Lecithinase
- c) Lipoproteinase
- d) Protease

Correct Answer - B

Ans. is 'b' i.e., Lecithinase [Ref Textbook of FMT by Vij 5th/e p. 89]

- Bacteria produce a large variety of enzymes that act on carbohydrates, proteins and fats and break down the various tissues.
- One of the most important enzymes is the lecithinase' produced by the *Clostridium welchii*, which hydrolyses the lecithin
- present in all the cell membranes including blood cells and thus is responsible for producing hemolysis of blood postmortem.
- This enzyme also helps in postmortem hydrolysis and hydrogenation of body fat.

284. Gun powder on body and clothing can be visualized by?

- a) Harrison and Gilroy test
- b) Neutron activation analysis
- c) Dermal nitrate test
- d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Parikh ele p. 4.39]

Tests used in firearm discharge :

- Based on detection of nitrate : Dermal nitrite (Paraffin) test.
- Based on detection of heavy metal : Harrison and Gilroy test, neutron activation analysis, Atomic absorption spectroscopy, and flameless atomic absorption spectroscopy.

285. Bullet fixed from a gun is not released. It is ejected out with subsequent shot. Such a bullet is called as

a) Tandem bullet

b) Dum - dum bullet

c) Incendiary bullet

d) Tumbling bullet

Correct Answer - A

Ans. is 'a' i.e., Tandem bullet [Ref SK Singhal 4thle p. 188]

Varieties of bullets are :-

i) Incendiary (igniting) bullet :

- The tip of bullet contains self igniting material e.g. barium nitrate and powdered aluminium and magnesium (in the past, phosphorus was used), so that it catches fire on hitting the target. It is used to cause fire in usually inflammable targets like fuel tanks (of air crafts etc).

ii) Explosive bullet :

- The tip contains a detonator or lead azide, so that the bullet explodes on hitting the target.

iii) Dum-dum bullet (expanding bullet):

- It is a jacketed bullet with its nose tip chiseled or cut off. It is designed to increase in diameter and expand upon striking the target, thus producing larger diameter wounds of limited penetration.

iv) Tandem bullet (Piggy tail bullet) :

- It is called one-behind-other bullet because two bullets are ejected one after the other, when first bullet failed to leave the barrel and is ejected by subsequently fired bullet.
- Therefore, both enter body through same entrance wound (some

times, they may enter through different entries), but the wounds of exit are always two.

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286. Which of the following causes maximum damage?

a) Tandem

b) Dumdum

c) Souvenir

d) Piggy

Correct Answer - B

Ans. is 'b' i.e., Dumdum [Ref SK Singhal e/e p. 188]

- Expanding bullets, also known as hollow-point bullets or "dumdums", are designed to "mushroom" upon entering a target in order to stop it from leaving the body. Compared to regular bullets, or full metal jacket ammunition, expanding bullets are intended to cause maximum tissue damage.

287. A bullet packed with jacket and opens at a base is called

a) Dum dum bullet

b) Tandem bullet

c) Duplex bullet

d) Souvenir bullet

Correct Answer - A

Ans. is 'a' i.e., Dum dum bullet [Ref Parikhp. 4.33]

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288. Ricochet bullet is

- a) Bullet producing a key hole entry wound
- b) Bullet with nose tip chiseled off
- c) Deviation in the direction or path of bullet
- d) Bullet containing igniting material

Correct Answer - C

Ans. is 'c' i.e., Deviation in the direction or path of bullet [Ref Reddy 30th/e p. 211]

Ricochetting of bullet is defined as deviation in the direction or path of bullet because of striking of bullet to an intermediary object.

289. Compound used as primer in weapon is

a) Potassium chlorate

b) Sulphur

c) Potassium nitrate

d) Nitrocellulose

Correct Answer - A

Ans. is 'a' i.e., Potassium chlorate [Ref Parikh 6th/e p. 4.29] Cartridge (round)

Cartridge is the ammunition used in firearms. Cartridge consists of (i) Cartridge case, (ii) Propellant (gun powder), (iii) Projectile (missile) and (iv) Wads (only in shot guns.).

1) Cartridge case

- It is the outer shell or covering of the cartridge. In shotgun it is cylindrical. Base is of brass and rest of it is of cardboard or plastic. In rifled weapons, it is tapering and whole of it is made of brass or steel.
- Center of base has percussion cap (detonator cap) which has sensitive composition, i.e. primer, consisting of potassium chlorate, antimony sulphide, mercury fulminate, barium nitrite, lead peroxide or tetrazene.
- In all weapons, after firing, the cartridge case remains in the barrel and it is to be taken out manually (shotgun, revolvers, rifle) or it is ejected out automatically, e.g. in pistols.

2) Propellant (gun powder)

- It propels the projectile (missile) forward. It is composed of black powder or smokeless powder in the form of grains, pellets, thin cylindrical cords or flakes. Its ignition results in formation of expanding hot gases under pressure which (gas pressure) propels

the projectile (missile) by providing it necessary muzzle velocity and striking energy.

- The classical gun powder is known as black powder, consists of charcol (15%), Sulphur (10%), and potassium nitrate (75%). Depending on fineness, the black gun powder is designated as FG, FFG, FFFG. etc. (F = fineness). Pyrodex is another gun powder with same components, but with different ratios.
- Black gun powder produces smoke, i.e. It is smoke producing powder. Smokeless powder, in addition to black powder, has nitrocellulose (single base), or nitrocellulose plus nitroglycerine (double base), or nitrocellulose plus nitroglycerine plus nitroguanidine (triple base). Semi smokeless powder has 80% black powder and 20% smokeless

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290. Destructive power of bullet is determined by all except

a) Velocity of bullet

b) Weight of bullet

c) Shape of bullet

d) Kinetic energy

Correct Answer - C

Ans. is 'c' i.e., Shape of bullet [Ref Reddy 29th le p. 194]

- Tissue damage (or destructive power of bullet) is dependent on striking (kinetic) energy of bullet, which is proportional to its mass and square of velocity ($KE = \frac{1}{2}mv^2$). So modern bullets are designed to have smaller mass allowing transportation of large amount of ammunition and high velocity, as velocity is more important determinant in destructive power of bullet.

291. Which of the following is the test done to confirm live born fetus after fetal death?

- a) Mirror test
- b) Breslau's test
- c) Magnus test
- d) Paraffin test

Correct Answer - B

Ans. is 'b' i.e., Breslau's test [Ref SK Singhal 4th le p. 271]

Tests used in infanticide

Ploucquet's test :

- Weight of lung is measured in relation to body weight. Before birth weight of lung is 1/70 of body weight and after respiration it becomes 1/35 of body weight due to increased blood flow in lung beds.

Static test or Fodere's test :

- The average weight of both lungs before respiration is 30-40 gm and after respiration is 60-70 gm.

Hydrostatic test (Raygat's test, 1" life test) :

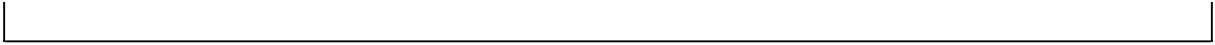
- The gravity of a non-respired lung is 1040-1050 and of a respired lung is 940-950, so, after respiration lung floats on water (specific gravity of water is 1000).

Breslau's second life test :

- It assumes that a live born child would respire and therefore, would also swallow some air into the stomach and bowel.
- Hence they float on water. This test is falsely positive in putrefaction (due to putrefied gases) or in cases of attempted artificial respiration.

Werdin's test :

- Before birth middle ear contains gelatinous embryonic tissue which is replaced by air after respiration.



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292. A couple was locked up in a room with fire around. All of the following are the probable immediate causes of death in such circumstance except:-

a) Cyanide intoxication

b) Suffocation

c) Sepsis

d) Fat embolism

Correct Answer - C

Ans. is 'c' i.e., Sepsis [Ref Reddy 29th ed p. 287; Parikh 6th ed p. 4.153]

Causes of death in burns

Causes of death in burns may be divided into :

A) Causes of immediate death :

- These are (1) neurogenic shock (primary shock), (2) hypovolaemic shock (secondary shock), (3) suffocation, due to inhaled CO, CO₂, (4) cyanide intoxication, (5) fat embolism, (6) cerebral or pulmonary edema, and (7) accidental injuries during burn.

B) Causes of delayed death :

- These are : (1) renal failure (acute tubular necrosis), (2) infections (sepsis, gangrene, tetanus) and (3) centrilobular necrosis of liver.

293. True about acid poisoning is

- a) Greatest damage is along the lesser curvature
- b) Corrosives cause vaporization of tissues
- c) Vitriolage means ingestion of acid in empty stomach
- d) Highest chance of perforation is with nitric acid

Correct Answer - A

Ans. is 'a' i.e., Greatest damage is along the lesser curvature

- Magenstrasse is the term applied to the pathway acidic agents follow in stomach. The pathway of acids and alkalis in food filled stomach starts along the lesser curvature of the stomach and leads to the pylorus, which explains the location of greatest damage in food filled stomach. Stomach without food have significant injury in the lower half of two thirds and may have sparing of fundus.
- Mechanism of action :- Corrosives fix, destroy and erode the surface with which they come in contact. They mainly act locally by :
 - Hygroscopic extraction of water from tissues
 - Coagulation of proteins and
 - Conversion of haemoglobin into hematin.
- 'Titriolage' is throwing of any corrosive on another person. Eyes are affected most commonly. It comes under *sector 320 IPS*.
- There are highest chances of perforation of stomach with H_2SO_4 , among all mineral acids.

294.

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Highest content of cannabis is found in which part of the plant?

a) Root

b) Resin

c) Seed

d) Stem

Correct Answer - B

Ans. is 'b' i.e., Resin [Ref Reddy 26th /e p. 528]

- Cannabis, also known as marijuana, is obtained from the Indian Hemp plant or cannabis indica (*Cannabis sativa*).
- The active principles of Cannabis are contained in its resin.
- All parts of the plant, male or female, contain the active material, except stem, root and seeds.
- The principal constituent of the resin are cannabinol, which has no action.
- Cannabidiol is also inert, but on exposure to heat, it is partly converted to the very active isomeric tetrahydrocannabinols (THC).

295. 'Cold Turkey' term is used to denote which of the following?

- a) Consumption of heroin
- b) Abrupt cessation of heroin
- c) Gradual withdrawal of heroin
- d) Place to withdraw a drug in a group

Correct Answer - B

Ans. is 'b' i.e., Abrupt cessation of heroin [Ref Quitting Smoking for Life p. 18]

- 'Cold Turkey' means abrupt and complete cessation of taking a drug to which one is addicted.
- Alcohol is not the only drug whereby quitting cold turkey poses a danger to the patient. People who are addicted to opiates (heroin, methadone, morphine, Suboxone, and even prescription benzodiazepines) are at immense risk if they try to stop their drug intake without a plan.

296. Smoky stool is seen in which poisoning?

a) Phosphorus

b) Arsenic

c) Lead

d) Zinc

Correct Answer - A

Ans. is 'a' i.e., Phosphorus [Ref Modern Medical Toxicology by Pillay p. 68]

Acute poisoning of phosphorus :?

- Breath smells of garlic.
- Vomitus and stools may be luminous in the dark.
- Smoky stool syndrome :- Faint fumes may emanate from the stools.
- Manifestations of liver damage - tender hepatomegaly, jaundice which may progress to an olive green hue, flapping tremor of hands (asterixis), mousy odour to the breath (foetor hepaticus).

297. Gigantin is active principle of

a) Plumbago Rosea

b) Calotropis

c) Ricinus Communis

d) P. Zeylanica

Correct Answer - B

Ans. is 'b' i.e., Calotropis [Ref Concise Textbook of FMT - Sharma p. 250]

- Calotropis gigantea -4 contains active principle named gigantín.
- When cut, stem and leaves of the plant exude an acrid milky juice. When this juice is allowed to stand or heated, serum is exuded leaving behind white clot.
- The serum contains the active principle named gigantín which is very toxic.

298. Which of the following is true about cocaine metabolite test

- a) Measure benzoylecgonine levels
- b) Used to diagnose cocaine use
- c) Treatment of cocaine overdose
- d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Code of Federal Regulations p. 174]

Cocaine and cocaine metabolite test system :

- A cocaine and cocaine metabolite test system is a device intended to measure cocaine and a cocaine metabolite (benzoylecgonine) in serum, plasma, and urine.
- Measurements obtained by this device are used in the diagnosis and treatment of cocaine use or overdose.

299. Sodium flouride may be use for preservation of

a) Cyanide

b) Arsenic

c) Alcohol

d) Urine

Correct Answer - C

Ans. is 'c' i.e., Alcohol [Ref Parikh 6th/e p. 2.62; Essentials of forensic medicine & toxicology 23rd/e p. 101]

Sodium flouride should be added to urine or vitreous humor, if alcohol estimation is required; and also to samples for analysis for cocaine, cyanides and CO.

300. IPC 304B is related to -

a) Punishment for cruelty by husband or his relatives

b) Dowry death

c) Death caused by negligence

d) Punishment of culpable homicide, not amounting to murder

Correct Answer - B

Ans. is 'b' i.e. Dowry death

- IPC 304 - Punishment of culpable homicide, not amounting to murder
- IPC 304 A - Death caused by negligence
- IPC 304 B - Dowry death : 10 years of imprisonment which can extend to life.
- IPC 498 - Punishment for cruelty by husband or his relatives.

301. IPC 201 is for -

a) Punishment for embalming before autopsy

b) Perjury

c) Voluntary causing grievous hurt

d) Kidnapping

Correct Answer - A

Ans. is 'a' i.e. Punishment for embalming before autopsy [Ref: Reddy 30th/e p. 11]

- IPC 201 is for punishment for embalming before autopsy (and also for the disappearance of evidence).

302. Sec 191 IPC is for -

a) Medical negligence

b) Hostile witness

c) Criminal negligence

d) Assault punishment

Correct Answer - B

Ans. is 'b' i.e. Hostile witness [Ref Reddy 30th /e p. 11]

Perjury, Hostile witness and false certificate

191 IPC : (i) Giving false evidence (perjury) under oath and (ii) hostile witness.

192 IPC: Fabricating false evidence (perjury).

193 IPC : Punishment for false evidence (punishment for perjury) : imprisonment upto 7 years + fine.

194 IPC : Giving or fabricating false evidence to procure conviction of capital offence.

195 IPC : Giving or fabricating false evidence to procure conviction of offence punishable with imprisonment for life.

197 IPC : Issuing or signing (attesting) false certificate by a doctor is a criminal offence.

201 IPC : Causing disappearance of evidence.

303. Corona mortis is ?

- a) Is a vascular anastomosis
- b) Post mortem heart & coronary arteries examination
- c) Another term used for rigor mortis
- d) None of the above

Correct Answer - A

Ans. is 'a' i.e. Is a vascular anastomosis [Ref BRS Gross Anatomy p. 112]

Corona mortis:

- This is also called as circle of death and refers to vascular ring form by the anastomosis of an aberrant artery with the normal obturator artery arising from a branch of the internal iliac artery. At the time of laparoscopic hernia this vessel is torn both end of vessel can bleed profusely, because both arise from a major artery.
- The surgeon should remember these anatomic landmarks and the point of mesh fixation should be selected superiorly, laterally and medially.

304. After death, blood is taken from ?

a) Femoral vein

b) Antecubital vein

c) Jugular vein

d) Carotid artery

Correct Answer - A

Ans. is 'a' i.e. Femoral vein [Ref Forensic Neuropathology p.174]

"Ideally, the blood should be collected from femoral vein distal to clamp or ligature and without milking the calf or thigh" - Forensic Neuropathology p.174

"Femoral vein blood sample is preferred over a heart blood sample" - Water-Related Death Investigation p. 269

Blood for the sample is taken from femoral vein. The jugular or subclavian veins can also be used. 10-20 ml of blood is taken and it is taken before autopsy. 30 ml of blood should be preserved (minimum is 10 ml).

305. True about finger printing is -

- a) Most common type is whorls
- b) Most specific method of identification
- c) Not present at birth
- d) All of the above

Correct Answer - B

Ans. is 'b' i.e. Most specific method of identification [Ref Reddy 30thie p. 76]

- Finger prints are present from birth both on epidermis and dermis, remain constant throughout life and can't be altered without destroying true skin. Fingers prints are due to papillary or epidermal 'ridges' on the tips of fingers and thumb.
- Finger print pattern is absolutely individual i.e. no two hands are entirely alike, not even identical twins. That's why, it is
- best (most sensitive and most specific) and most reliable method of identification (Quetelet's rule of biological variation).
- Loops (67% most common) > Whorls (25%) > archer (7%) > composite (2% least common) are four main types of pattern.
- It is accepted that chances of 2 finger prints matching 16 ridge characteristic are infinitely small (Parikh's). In practice 8-6 points of fine comparison are accepted as proof of identity.

306. Ophitoxemia is ?

a) Snake venom poisoning

b) Scorpion bite

c) Spider bite

d) Tick bite

Correct Answer - A

Ans. is 'a' i.e., Snake venom poisoning [Ref Ramesh Gupta Zoology book]

Ophitoxemia is poisoning by snake venom.

307. Blisters are absent in ?

a) Burns

b) Putrefaction

c) Arsenic Poisoning

d) Postmortem calorificity

Correct Answer - D

Ans is 'd' i.e., Postmortem calorificity [Ref Reddy03 tive p. 139,140; S.K. Singhal p. 92]

There is no blistering in postmortem calorificity.

All other conditions are associated with blister formation

308. Novus actus interveniens is -

- a) Facts speaking for itself
- b) Breaking of chain
- c) Contributory negligence
- d) Therapeutic misadventure

Correct Answer - B

Ans. is 'b' i.e. Breaking of chain

A person is responsible for his actions and their consequences. This principle applies to cases of assault or accidental injuries. However, sometimes such continuity of events is broken by an entirely new and unexpected happening, due to negligence of some other person, i.e. "Novus actus interveniens" (an unrelated action intervening).

- For example, If a person has been assaulted due to which he has sustained a large liver laceration, for which he is operated by a surgeon. If the patient dies intraoperatively or postoperatively due to complications related to surgery or injury, the person who has assaulted the patient will be held responsible.
- But, if the doctor has done some negligent act during surgery, e.g. left the swab or instrument in abdomen during surgery; and patient dies because of that act (sepsis due to swab), then the responsibility may pass from original incident to later negligent act of doctor by principle of 'Novus actus intervention' (an unrelated action intervening). Thus the doctor is responsible for negligent acts, i.e. criminal negligence, and the assailant will not be fully responsible for the ultimate harm.

309. Inquest, not followed in India is -

- a) Police inquest
- b) Magistrate inquest
- c) Coroner's inquest
- d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Coroner's inquest

Coroner's court used to be held in India in Bombay (Mumbai). Now, it is held nowhere in the country. It was abolished even from Mumbai in 1999.

310. Length of the fetus is 40cms. What would be the age of gestation ?

a) 4 months

b) 6 months

c) 7 months

d) 8 months

Correct Answer - D

Ans. is 'd' i.e., 8 months [Ref Modi 23rd ed p. 1016, 1037; Dutta Obstetrics 6th ed p. 41]

According to Rule of Hasse : Length = 5 x months of pregnancy.
Thus, 40 = 5 x months of pregnancy or months of pregnancy = 8

311. Extra permanent tooth to erupt is -

a) Upper incisor

b) Canine

c) Molar

d) Lower incisor

Correct Answer - A

Ans. is 'a' i.e., Upper incisor [Ref Textbook of Pediatric Dentistry p. 354]

- Most common supernumerary teeth are permanent, anterior incisor in the maxilla (maxillary incisors), called mesiodens.
- After maxillary incisors, maxillary and mandibular fourth molars called distodens or distomolars

312. Alcohol is taken with aerated soft drinks because -

a) Absorption is faster

b) Effect is increased

c) To avoid hangover

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Absorption is faster [Ref Handbook of Alcoholic Beverages]

The rate of alcohol absorption is dependent on its concentration, being the highest from beverages containing about 20% to 30% alcohol, and on the speed of its consumption.

Alcohol consumed in aerated beverages is more readily absorbed, as is alcohol taken on an empty stomach.

313. UV rays examination is done for -

- a) Faded tattoo
- b) Blood satins
- c) Hair examination
- d) None of the above

Correct Answer - A

Ans. is 'a' i.e. Faded tattoo [Ref Principles of Forensic Medicine and Toxicology by Rajesh Bardale]

Tattoo mark is permanent when dye penetrates the dermis. Ultraviolet lamp makes old tattoos readily visible. A faded tattoo mark becomes visible by use of Infrared photography or rubbing the part and examining with magnifying lens.

314. Just before the birth which epiphysis appears?

- a) Lower end of femur
- b) Upper end of humerus
- c) Lower end of fibula
- d) Upper end of tibia

Correct Answer - A

Ans. is 'a' i.e., Lower end of femur [Ref Reddy 30/e p. 64, 65]

- 1. At birth center appears upper end of tibia and head of humerus.
- 2. At 2 months intrauterine life (IUL) → Center appears for mandible, clavicle, ribs, vertebrae, frontal and parietal bones.
- 3. At 3 months IUL → Center appears for sacrum.
- 4. At 4 months IUL → Center appears for temporal and occipital bones.
- 5. At 5 months IUL → Center appears for calcaneum.
- 6. At 6 months IUL → Center appears for sternum.
- 7. At 7 months IUL → Center appears for talus.
- 8. At 9 months IUL/birth → Center appears for lower end of femur.
- 9. At birth → Center appears upper end of tibia and head of humerus.

315. Base of sphenoid fuses with occipit at the age of -

a) 20 years

b) 30 years

c) 40 years

d) 50 years

Correct Answer - A

Ans. is 'a' i.e., 20 years [Ref Dr. Anil Aggarwal p.68]

- Spheno-occipit is the earliest to fuse (20 years).
- Saggital suture obliterates at 30-35 years.
- Coronoid (coronal suture) obliterates at 35-40 years.
- Lambdoid suture obliterates at 45-50 years.
- Squamous suture obliterates at 60 years.
- Spheno-parietal suture obliterates at 70 years.

316. False about declaration of brain stem death in hospital -

- a) Presence of neurologist is not required
- b) Drug overdose should be ruled out
- c) Patient must be in coma
- d) All of the above

Correct Answer - A

Ans. is 'a' i.e. Presence of neurologist is not required [Ref Principles of Forensic Medicine & Toxicology By Rajesh Bardale p. 134]

Guidelines for declaration of brain stem death

- Brain death needs to be certified by a board of doctor's consisting of:
 - Registered Medical Practitioner (RMP) in charge of hospital where brain death has occurred.
 - An independent RMP -a specialist.
 - A Neurologist / Neurosurgeon nominated by panel.
 - RMP treating the patient.
 - The patient must be examined by team of doctors at least twice with a reasonable gap of time in between (at least 6 hours).
 - None of the doctor's who participate in diagnosis of brain death should have any interest in transplantation or organ removal from cadaver.
 - Brain death certificate has to be signed by all the members of board.
- Diagnosis of brain stem death depends upon following findings**
- The patient must be in deep coma and cause of the coma must be irreversible structural brain stem damage (i.e. prolonged hypoxia, trauma, illness or toxic insult) must be established.
 - Exclusion of other causes of coma :

- Hypothermia,
- Drug overdose eg: CNS depressants (benzodiazepines, barbiturates etc)
- Metabolic or endocrine disturbances
- Intoxication (alcohol)
- Demonstrating of absence of brain stem reflexes (Pupillary reflex, oculovestibular reflex(, corneal reflex, pharyngeal and tracheal reflexes.)
- No spontaneous respiration.

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317. Time interval between somatic and molecular death is -

a) 5-10 min

b) 10-30 min

c) 30 -1hr

d) 1 - 2 hrs

Correct Answer - D

Ans. is 'd' i.e. 1-2 hrs [Ref e-book of Postmortem changes by DR D Rao]

- Death of the tissues and cells individually (molecular death) takes place usually 1-2 hours after stoppage of vital functions (somatic death).
- Molecular death of various organs occur at different intervals after somatic death :
 1. Nervous tissue After 5 minutes.
 2. Liver - After 15 minutes.
 3. Heart - After 45 minutes.
 4. Kidney After 1 hours.
 5. Muscles After 3 hours

318. Bishop's tripod of life includes all except

-

a) Respiration

b) Circulation

c) Spinal cord reflexes

d) Brain functions

Correct Answer - C

Ans. is 'c' i.e., Spinal cord reflexes

Somatic death

- It is the complete and irreversible stoppage of the circulation, respiration and brain functions (bishop's tripod of life).
- Somatic death is associated with immediate signs of death :?
 1. Permanent and complete cessation of function of brain and flat electric EEG with no response to external stimuli; i.e. brain death.
 2. Permanent and complete cessation of function of heart and flat ECG.
 3. Permanent and complete cessation of function of lungs

319. MTP can be done by a single doctor till ?

- a) 8 weeks
- b) 12 weeks
- c) 20 weeks
- d) 24 weeks

Correct Answer - B

Ans. is 'b' i.e., 12 weeks [Ref Dutta 6th/e p. 174; Park 22nd/e p. 467]

The Act provides safeguards to the mother by authorizing only a Registered Medical Practitioner having experience in gynecology and obstetrics to perform abortion where the length of pregnancy does not exceed 12 weeks.

320. For autopsy, stomach is open through -

- a) Lesser sac
- b) Greater sac
- c) Greater curvature
- d) Lesser curvature

Correct Answer - C

Ans is 'c' i.e. Greater curvature [Ref Atlas of Adult Autopsy p.66]

- Stomach is opened through greater curvature which allows to see lesser sac.
- Depending on type of case, any of the body cavity can be opened first. Spinal cord is routinely not opened.
- It is convenient to start the examination with the cavity chiefly affected.
- In cases of death due to asphyxia (especially hanging and strangulation), neck should be opened last.
- Spinal cord can be approached either from posterior (most preferred) or anterior approach. High cervical spine injuries are best seen by posterior and thoracic spine by anterior approach.
- Blood for the sample is taken from femoral vein. The jugular or subclavian veins can also be used. 10-20 ml of blood is taken and it is taken before autopsy. 30 ml of blood should be preserved (minimum is 10 ml).

321. Bacteria most commonly involved in bowel decomposition after death is -

a) Streptococcus pyogenes

b) Clostridium welchii

c) Pseudomonas aeruginosa

d) None

Correct Answer - B

Ans. is 'b' i.e., Clostridium welchii [Ref Reddy 30th/e p. 149-152]

- Bowel decomposition is brought about by aerobic and anaerobic bacteria present in small intestine (e.g. C. welchii, staphylococcus, E.coli etc.) which release enzymes (especially lipase and lecithinase) which act on body to cause breakdown.

322. How many days a person can live without food and water ?

- a) 1 to 2 days
- b) 2 to 4 days
- c) 5 to 7 days
- d) 10 to 12 days

Correct Answer - D

Ans. is. d, 10 to 12 days [Ref Parikh 6th/e p. 3.74; SK Singhal ele p. 146]

Feeling of intense hunger lasts for → 30-48 hours

Emaciation & absorption of subcutaneous fat begins to occur → After 4-5 days

Newborn may survive without food & water → For 7-10 days

Adult may survive without food & water → 10-12 days

If food alone is withdrawn death occurs in → 6-8 weeks (50-60 days)

323. Negative autopsy is defined as -

- a) No cause of death is found on gross as well as histopathological examination
- b) Cause is apparent on gross examination but not on histopathological examination
- c) Gross findings are minimal
- d) Cause is apparent on gross examination but not found because of constraints on the part of doctor

Correct Answer - A

Ans. is 'a' i.e., No cause of death is found on gross as well as histopathological examination [Ref Dr. Anil Aggrawal p.124]

Types of autopsy

- Normal autopsy - cause is apparent from gross examination
- Defective autopsy - cause was ascertainable, but was not ascertained due to constraints on the part of doctor, hospital, facilities etc
- Obscure autopsy - gross findings are minimal, indecisive or obscure, as in adrenal insufficiency, anesthetic overdose, myxedema, rare plant poisons, thyrotoxicosis etc. subsequent examination like histology, microbiology, toxicology or serology reveal the cause.
- Negative autopsy / inconclusive autopsy - Cause is not clear from gross as well as subsequent examinations.

324. In Adipocere, color change seen is -

a) Grayish white

b) Black

c) Brown

d) Red

Correct Answer - A

Ans. is 'a' i.e. Grayish white [Ref Reddy 30th/e p. 155-156]

- Adipocere is a crumbly, waxy, water-insoluble material consisting mostly of saturated fatty acids. Depending on whether it was formed from white or brown body fat, adipocere is either grayish white or tan in color.

325. Not a feature of postmortem staining -

- a) Occur immediate after death
- b) Common in dependent part
- c) Disappear with putrefaction
- d) Margins are sharp

Correct Answer - A

Ans. is 'a' i.e., Occur immediate after death [Ref Reddy 30th/e p.141,142]

- Postmortem staining is an early sign (not immediate sign) of death.
- It refers to discoloration of skin and internal organs after death due to accumulation of fluid blood in toneless capillaries and small veins of dependent part of the body.
- It does not appear elevated above the surface but has sharply defined (usually horizontal) margins.
- It is an early sign of death. It starts at about 1 hour, becomes a series of mottled patches within 1-3 hours and these patches increase in size to coalesce in about 3-6 hours. After 6-12 hours, lividity is fully developed and fixed (unchangeable), i.e. primary lividity. It ends when putrefication sets in. Fixation of lividity is due to stagnation of blood in distended capillaries and venules (not due to coagulation of blood).

326. Acid injury can be differentiated from alkali injury by ?

- a) Liquefactive necrosis
- b) Acid burns are more dangerous
- c) Perforation is more common
- d) Affects more commonly esophagus

Correct Answer - C

Ans. is 'c' i.e. Perforation is more common

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327. Best temperature for putrefaction is -

a) 0-10 C

b) 10-45 C

c) 45-100 C

d) 100-150 C

Correct Answer - B

Ans. is 'b' i.e., 10-45 C [Ref Reddy 30th/e p. 149-152]

- Optimum temperature for putrefaction 10°C - 45°C.
- Putrefaction is the last stage in resolution of body from the inorganic to organic state and is certain sign of death.
- Putrefaction rate in air is twice as compared to in water, and eight time as compared to in earth (Casper dictum).
- Putrefaction is delayed in death due to wasting disease anemia, debility, poisoning by carbolic acid, zinc chloride, strychnine and chronic heavy metal poisoning.

328. Chicken fat appearance is seen in -

a) Antemortem wound

b) Postmortem wound

c) Gunshot injury

d) None

Correct Answer - B

Ans. is 'b' i.e. Postmortem wound [Ref Reddy 29th/e p. 164, 168; Parikh 6th/e p. 4.76]

- Chicken fat clot is seen in postmortem wound.
- Gaping of the wound, presence of vital reaction and increased serotonin are features of antemortem wound.

329. Thorn apple is ?

a) Dhatura

b) Nax vomika

c) Opioid

d) Cannabis

Correct Answer - A

**Ans. is 'a' i.e. Dhatura [Ref Parikh & hie p. 10.50-10.51;
Essentials offorensic medicine-812]**

Dhatura (thorn apple) grows on waste land all over india and is of two types (i) Dhatura alba and (ii) dhatura niger. All parts of plant is poisonous, especially seeds and fruits. Active principles of dhatura are levohyoscyamine, hyoscine (scopolamine) and atropine.

330. Homicidal gunshot wound can be differentiated from suicidal gunshot wound by-

- a) Multiple gunshot wounds
- b) Presence of gunpowder on hand
- c) No sign of struggle
- d) None

Correct Answer - A

Ans is 'a' i.e. Multiple gunshot wounds

Following are a few ways to Differentiate murder from suicide

1. Where on the body the injury occurred: A shot to the side of the head, in the mouth, or to the front of the chest is usually suicide. Wounds located anywhere else are most likely homicide.
2. Distance of gun from the body: Most suicide shots are at contact or near contact range, causing a burn mark around the wound and leaving gunpowder residue (which can be wiped off). At contact range, and if the gun is fired just above a bone, such as the skull or the sternum, a star-like wound is produced. Anything further away is likely homicide.
3. Angle of the shot: Most suicide shots are angled slightly upward.
4. Number of shots fired: After one shot, even if a suicide victim isn't dead, he would likely be unconscious or physically unable to fire a second time. Multiple shots usually indicate homicide.
5. Presence of gunpowder residue on victims hand: If a man shot himself, there would be powder residue from unburned carbon on the hand that fired the gun.
6. Shots through clothing: A suicide victim will rarely shoot through

clothing. If he shoots himself in the chest, which is unusual, he will open his shirt to expose the skin. Shots through clothing suggest homicide.

7. History, a note, other factors: If the victim left a suicide note, or was known to have personal problems, or if there was evidence of drug use or drinking, suicide is likely.
8. Evidence of a struggle: If there are scratches, cuts, bruises, homicide is likely.

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331. Beveling of skull is seen in -

- a) Broad end of the entry point in bullet injury
- b) Narrow end of the entry point in bullet injury
- c) Exit point of bullet
- d) Depressed fracture of the skull

Correct Answer - C

Ans. is 'c' i.e., Exit point of bullet [Ref Parikh 6th/e p. 4.43]

- Wound of entrance shows a punched in (clean) hole in the outer table. Cone shaped bone is detached from the inner table forming a crater that is larger than the hole of the outer table and shows beveling (sloping surface).
- Thus, from looking outside, entrance wound is clean cut hole and exit wound is bevelled opening.

332. Mickey Finn is ?

a) Chloroform

b) Methyl alcohol

c) Chloral hydrate

d) Ethylene glycol

Correct Answer - C

Ans. is 'c' i.e., Chloral hydrate [Ref Reddy 30th/e p. 540]

Mickey finn is a combination of alcohol and chloral hydrate.

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333. Most specific sign of Antemortem burns is -

a) Soot in respiratory passage

b) Cyanosis of fingernails

c) Pugilistic attitude

d) Heat ruptures

Correct Answer - A

Ans. is 'a' i.e., Soot in respiratory passage [Ref: Parikh 6th le p. 4.152-4.156]

- One of the most important characteristic of antemortem burns is the finding of 'Soot and carbon particles' in larynx, trachea and may be in lungs.

A. Specific signs (which indicate antemortem burning) :

1. Soot and Carbon particles in respiratory passages
2. Increased carboxy hemoglobin (>5%) in blood
3. Signs of vital reaction
4. Signs of inflammation
5. Red line of demarcation
6. True blister (vesicle) containing protein (albumin) and chloride
7. Increased enzyme and sulfhydryl (-SH) group
8. Increased serotonin and histamine
9. Signs of healing and repair.

B. Non-specific signs (may also occur in postmortem burning) :

1. Pugilistic attitude
2. Heat hematoma
3. Heat fracture
4. Heat ruptures.

334. Sex with cadaver is called -

a) Necrophilia

b) Exhibitionism

c) Voveyrism

d) Undinism

Correct Answer - A

Ans. is 'a' i.e., Necrophilia [Ref Narayan Reddy 30thie p. 394]

- Necrophilia : In this condition, there is a desire for sexual intercourse with dead bodies. It is said to have sadomasochistic foundation and that decomposition, foul smell and coldness act as stimulants.

335. Smack is -

a) Cocaine

b) Heroine

c) Dhatura

d) Cannabis

Correct Answer - B

Ans is 'b' i.e., Heroin

Heroin (smack or brown sugar) is the most commonly abused opioid and 2nd most commonly abused substance, after alcohol.

336. Sexual gratification by inflicting pain on partner -

a) Sodomy

b) Sadism

c) Necrophilia

d) Bestiality

Correct Answer - B

Ans. is 'b' i.e., Sadism [Ref Reddy 30th/e p. 394]

- Sexual gratification is obtained or increased from acts of physical cruelty or infliction of pain on one's partner.
- It is seen more commonly in men. To obtain sexual gratification, the sadist may bite, beat, whip, produce cuts on the victim, etc

337. Sexual gratification obtained by enema is called -

a) Exhibitionism

b) Fetichism

c) Klismaphillia

d) Frotteurism

Correct Answer - C

Ans. is 'c' i.e. Klismaphillia [Ref Internet]

- Klismaphilia (or klysmaphilia), is a paraphilia involving enjoyment of, and sexual arousal from, enemas.

338. To examine the vaginal cells in of the rape victim test used is -

a) Lugol's iodine test

b) Takayama test

c) Florence test

d) Precipitin test

Correct Answer - A

Ans is 'a' i.e. Lugol's iodine test [Ref G Rao p. 301]

Lugol's iodine test

- It is done on the washing of glans penis (or from a moist blotting paper) of accused, which then exposed to iodine vapors or lugol's iodine solution. Brown color means the test is positive (on 4th day). Brown color is due to glycogen present in vaginal epithelial cells of the victim.

339. Acid used for forging signature is ?

a) Sulphuric acid

b) Nitric acid

c) Carbolic acid

d) Oxalic acid

Correct Answer - D

Ans. is 'd' i.e., Oxalic acid [Ref Parikh 6th /e p. 8.32-8.34; Reddy's Essentials of forensic medicine and toxicology 27th/e p. 468-469]

Oxalic acid is used to erase writing, as a bleaching agent and in calico printing

340. Absorption elution technique is used for

-

a) Blood group detection

b) Species detection

c) Seminal stain examination

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Blood group detection [Ref Parikh 6th/e p. 7.15-7.18; SK Singhal 4th/e p. 158-162]

For blood grouping, following tests are used :

- 1) Immunological (serological) :
 1. absorption-elution test,
 2. absorption-inhibition test,
 3. mixed agglutination test,
 4. latex test.
- 2) Enzymological methods.
- 3) Latte's crust method.

341. Arrow poison is ?

a) Opium

b) Curare

c) Cannabis

d) Cyanide

Correct Answer - B

Ans. is 'b' i.e. curare [Ref Dr. Anil Aggrawal p. 447]

Arrow poisons ?

- .. Plant based -Abrus precatorius, aconite, calotropis, croton oil, curare, strychnine, stropanthus.
- ?. Animal based -Batracotoxin (BTX).

342. Test to know the species from blood stain is -

a) Takayama test

b) Benzidine test

c) Precipitin test

d) Teichmann's test

Correct Answer - C

Ans. is 'c' i.e., Precipitin-test [Ref Parikh 6^m/e p. 7.15-7.18; S.K. Singhal 4^e/e p. 158-162]

For detection of species, serological (immunological) tests are used. These tests are :

Precipitin test	Haemagglutination inhibition test
Gel diffusion test.	Double diffusion test.
Precipitation electrophoresis.	Latex agglutination test.
Isoenzyme method (enzymological test)	

343. All of the following are true for ingestion of acid except -

- a) They are hygroscopic
- b) Coagulate proteins
- c) Hemoglobin to hematin
- d) Systemic symptoms are severe

Correct Answer - D

Ans. is 'd' i.e. Systemic symptoms are severe

Acids fix, destroy and erode the surface with which they come in contact. They mainly act locally by

1. Hygroscopic extraction of water from tissues
2. Coagulation of proteins
3. Conversion of hemoglobin into hematin.

As a rule there is no remote systemic action with exception to shock.

344. Papaver somniferum milk exudes from ?

a) Leaf

b) Root

c) Poppy seed

d) Unripe capsule

Correct Answer - D

Ans. is 'd' i.e., Unripe capsule [Ref Reddy 30th/e p. 533-534]

Opioids (opiates) are derived from the poppy plant. Opium is the dried juice obtained by incision of the unripe capsule of the white poppy, papaver somniferum. Natural derivatives of opium are morphine, heroin and codeine.

345. Max damage is done by which poison -

a) Irritant poison

b) Corrosive poison

c) Alcohol

d) Opioid

Correct Answer - B

Ans. is 'b' i.e., Corrosive poison [Ref Rajesh Bardale p. 437]

Corrosives fix, destroy and erode the surface with which they come in contact. Thus, they cause extensive tissue damage.

Irritants produce less severe damage than corrosives and produce symptoms simulating gastroenteritis.

346. Least toxic form of lead is -

a) Lead acetate

b) Lead oxide

c) Lead carbonate

d) Lead sulphide

Correct Answer - D

Ans. is 'd' i.e., Lead sulphide [Ref Parikh 6th le p. 9.17-9.20; Reddy 30th le p. 497-498]

No heavy metal is poisonous in native form, except lead. Metallic lead and all its salts are poisonous. The principal salts which produce toxic effects are : (1) Lead acetate (sugar of lead), (2) lead carbonate (safeda or white lead), (3) lead chromate, (4) lead monoxide (lethrage), (5) lead tetraoxide (red lead, vermilion, sindur) and (6) lead sulphide (least toxic).

347. Marsch test is done for poisoning with ?

a) Lead

b) Mercury

c) Arsenic

d) Nickel

Correct Answer - C

Ans. is 'c' i.e. Arsenic [Ref Parikh 6thle p. 9.9-9.11; Reddy 30th/e p. 493-494; Essentials offorensic medicine-812]

Marsh's test and Reinsh's test were used arsenic poisoning, but are obsolete now.

348. Which of the following is most specific for arsenic poisoning ?

a) Red velvety stomach mucosa

b) Blue lining on gums

c) Tremors

d) Anemia

Correct Answer - A

Ans. is 'a' i.e. Red velvety stomach mucosa [Ref Parikh 6th/e p. 9.9-9.11; Reddy 30th/e p. 493-494; Essentials of forensic medicine-812]

Red velvety mucosa is a typical postmortem finding in acute arsenic poisoning.

349. Miscarriage due to negligence of doctor is seen under which IPC ?

a) Sec 310 IPC

b) Sec 311 IPC

c) Sec 312 IPC

d) Sec 314 IPC

Correct Answer - C

Ans. is 'c' i.e., Sec 312 IPC

Sec 312 IPC refers to "causing miscarriage" of a woman pregnant with a child, punishable up to 3 years, but if she is "quick" with her child the punishment may extend to 7 years.

350.

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According to section 82 IPC a child's act is not considered as a crime if he is -

a) < 4 years

b) < 7 years

c) < 12 years

d) < 18 years

Correct Answer - B

Ans. is 'b' i.e., < 7 years

82 A child under the age of seven is incapable of committing an offence. This is so because action alone does not amount to guilt unless it is accompanied by a guilty mind. And, a child of that tender age cannot have a guilty mind or criminal intention with which the act is done. This presumption, however, is only confined to offenses under the IPC but not to other Acts, e.g., the Railway Act.

351. Dowry death is under which IPC ?

a) IPC 304 A

b) IPC 304 B

c) IPC 305 A

d) IPC 305 B

Correct Answer - B

Ans. is 'b' i.e., IPC 304 B

304-B IPC : Dowry death : 10 years of imprisonment which can extend to life.

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352. Lendrum stain is done for ?

- a) Air embolism
- b) Fat embolism
- c) Amniotic fluid embolism
- d) None

Correct Answer - C

Ans. is 'c' i.e., Amniotic fluid embolism [Ref Handbook of autopsy practise 3rdle p. 283]

Amniotic fluid embolism diagnosis

- Sections of lungs and other organs are stained using Phloxine-Tartrazine (Lendrum staining) to detect squames,
- Alcian Blue to detect mucin.
- Sudan Black or Oil Red to detect vernix caseosa.

353. CrPC 26 ?

- a) Division of offence
- b) Division of negligence
- c) Division of malpractice
- d) None

Correct Answer - A

Ans. is 'a' i.e., Division of offence

According to Sec 26 of CrPC, 1973, Offences under the Criminal Procedure Code (hereinafter the "CrPC") are divided into:

1. Offences under Indian Penal Code (IPC) (triable by HC, Sessions Court and other court shown in the 1st Schedule to the CrPC)
2. Offences under any other law (empowers HC, when no court is mentioned for any offence under any law other than IPC, to try such offences)

354.

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Which section belongs to marital rape ?

a) 375A

b) 376A

c) 376B

d) 375B

Correct Answer - B

Ans. is 'b' i.e., 376A [Ref Reddy 30"Ve p. 377] Marital rape

It is forceful sexual intercourse with wife who is living separately from him under a decree of separation, or any custom or usage without her consent.

It is punishable with imprisonment up to 2 years provided the age of wife is not below 12 years- Section 376 A, I.P.C.

355. Plaintiff is a person who ?

a) Files case in civil court

b) Acts as defender

c) Gives judgement

d) None

Correct Answer - A

Ans. is 'a' i.e., Files case in civil court [Ref Internet]

Plaintiff is a person who files a case in civil court. .

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356. DNA finger printing cannot be taken from ?

a) Saliva

b) Tooth

c) Buccal mucosa

d) Blood

Correct Answer - B

Ans. is 'b' i.e., Tooth [Ref Parikh 6th le p. 7.2-7.15]

DNA finger-printing/ DNA profiling

- Is a technique employed by forensic scientists to assist in the identification of individuals by their respective DNA profile
- it is a fool proof method to conclusively fix the paternity/ maternity.
- The most desirable method of collecting a reference sample is the use of a buccal swab. When this is not available (e.g.
- because a court order may be needed and not obtainable) other methods may need to be used to collect a sample of blood,
- saliva, semen, or other appropriate fluid or tissue from personal items (e.g. toothbrush, razor, etc.) or from stored
- samples (e.g. banked sperm or biopsy tissue)

357. Which of the following is not seen in finger prints ?

a) Loop

b) Circles

c) Whorl

d) Arch

Correct Answer - B

Ans. is 'b' i.e., Circles [Ref Reddy 30th ed p. 75-76]

Classification of finger prints:

- Loops (60-70%)- radial, ulnar
- Whorls (25-35%)- concentric, spiral, double spiral, almond shaped
- Arches (6-7%)- plain, tented, exceptional
- Composite (1-2%)- central pocket loops, lateral pocket loops, twinned loops, accidentals
- Most common type - Loops.
- Least common type -> Composite.

358. Which snake bite causes hematologic abnormalities ?

a) Cobra

b) Krait

c) Viper

d) Sea snake

Correct Answer - C

Ans. is 'c' i.e., Viper [Ref Parikh & Ye p. 9.44]

Hematotoxic Vipers

Myotoxic Sea snakes

Neurotoxic Elapids- cobra, Krait, coral

359. What is first external sign of decomposition of dead body -

- a) Decomposition of liver and intestine
- b) Greenish discolouration over right iliac fossa
- c) Greenish discolouration over dependent parts
- d) Blood stained froth from mouth

Correct Answer - B

Ans. is 'b' i.e., Greenish discolouration over right iliac fossa

[Ref Reddy 30th/e p. 150-152]

First external sign of putrefaction - Green discoloration in right iliac fossa.

First internal sign of putrefaction Green discoloration under liver.

These are due to involvement of caecum which contains more gas and is full of bacteria.

360. Black papper adultrant is ?

a) Khesari dal

b) Dried papaya seed

c) Fine sand

d) None

Correct Answer - B

Ans. is `b' i.e., Dried papaya seed

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361. In vitrous what is measured for time since death -

a) Sodium

b) Potassium

c) Proteins

d) Chloride

Correct Answer - B

Ans. is 'b' i.e., Potassium [Ref: Reddy 30th/e p. 139]

Post mortem changes in eye are :

- Loss of corneal reflex
- Opacity of cornea- cornea becomes opaque in 2 to 4 hours.
- Flaccidity of eye ball- within minutes after death due to decreased intraocular tension.
- Pupils are dilated within one minute of death, pupils react to atropine for about one hour.
- Retina- fragmentation of blood column in retinal vessels occur within minutes to one hour.
- Chemical change- a steady rise in the potassium values occur in the vitrous humor after death upto 100 times.

362. Most common drug abuse in India ?

a) Cannabis

b) Amphetamine

c) Cocaine

d) Heroine

Correct Answer - D

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

Amongst the given options, heroin is the most commonly abused substance :

- Alcohol → 43.9 %
- Opioids (including heroin) → 26%
- Cannabis → 11.6 %

363. In how many hours does a dead body float in India in summer ?

a) 6 hours

b) 12 hours

c) 24 hours

d) 48 hours

Correct Answer - C

Ans. is 'c' i.e., 24 hours

Time of floatation of dead body in drowning is ordinarily 24 hours after death in summer and 2 to 3 days in cold season.

- 1. The body floats quicker in summer due to early putrefaction)
- 2. It floats up sooner in shallow or saline water because of its higher specific gravity)
- 3. Floatation is quicker in polluted water due to quicker decomposition)
- 4. Bodies of women and fatty persons float earlier as they are lighter. Bodies of the children float up earlier as bones are lighter.

364. Ethylene Glycol antidote is ?

a) Barbiturates

b) Acetylcysteine

c) Ferric chloride

d) Fomipizole

Correct Answer - D

Ans. is 'd' i.e., Fomipizole [Ref Reddy 30th/e p. 533]

Antidote for ethylene glycol poisoning is fomipizole.

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365. In medicolegal autopsy, cavity to be opened first is ?

a) Thoracic

b) Abdomen

c) Cervical

d) Any of the above

Correct Answer - D

Ans. is 'd' i.e., Any of the above [Ref Reddy 30thle p. 97]

Depending on type of case, any of the body cavity can be opened first. Spinal cord is routinely not opened.

It is convenient to start the examination with the cavity chiefly affected

366. True about Stab Wounds ?

a) Depth is greater than Breadth

b) Breadth is greater than depth

c) Length is greater than breadth

d) It has wound of entry and exit

Correct Answer - A

Ans. is 'a' i.e., Depth is greater than breadth [Ref Reddy 30th le p. 179]

Stab/ puncture wound is an injury caused by pointed weapons such as dagger, knife, needle, arrow, scissor and its depth is the greatest dimension.

367. Oochronosis is seen in which poisoning ?

a) Hydrochloric acid

b) Carbolic acid

c) Oxalic acid

d) Formic acid

Correct Answer - B

Ans. is 'b' i.e., Carbolic acid [Ref Reddy 30th/e p. 489]

Chronic carbolic acid poisoning/phenol marasmus

- The poisoning is characterised by anorexia, weight loss, headache, vertigo, dark urine and pigmentation of skin & sclera.
- Carbolic acid/ Phenol is converted into hydroquinone & pyrocatechol in the body before being excreted in the urine.
- Hydroquinone or pyrocatechol may cause pigmentation in the cornea and various cartilages- Oochronosis.
- Oochronosis is commonly associated with alkaptonuria, in which homogentisic acid gets deposited in cartilages, ligaments & fibrous tissues.

368. Marshalls triad is seen in ?

a) Explosive injury

b) Gunshot injury

c) Drowning injury

d) None

Correct Answer - A

Ans. is 'a' i.e., Explosive injury [Ref
epository.up.ac.za/bitstream/handle/2263/19400/Blumenthal_Does(
Marshall's triad includes punctate-bruises, abrasions and small
punctate lacerations all of which are typically found in an explosive
bomb blast.

369. Burtonian lines on gums is seen in poisoning with ?

a) Lead

b) Mercury

c) Mercury

d) Zinc

Correct Answer - A:B

Ans. is 'a > b' i.e., Lead > Mercury [Ref Reddy 30⁶/e p.497-498]

Burtonian line is blue line, which is seen on upper gums in lead poisoning.

Similar blue line (but not called burtonian line in these cases) is also seen in poisoning with Mercury (Hg), Copper (Cu), Silver (Ag), bismuth (Bi), and Iron (Fe).

370. Cyanide odour is of ?

a) Rotten egg

b) Fish

c) Fruity

d) Bitter almond

Correct Answer - D

Ans. is 'd' i.e., Bitter almond [Ref Reddy 30th/e p. 578]

Odors associated with poisoning

- Garlik like : Phosphorus, arsenic, zinc phosphide, aluminium phosphide (celphos), arsine gas, tellurium, parathion, malathion, arsenic.
- Rotten eggs : Hydrogen sulphide, mercaptans, disulphiram.
- Fishy or musty : Zinc phosphide.
- Bitter almonds : Cyanide, HCN.
- Acrid : Paraldehyde, chloral hydrate.
- Burnt rope : Cannabis.
- Kerosene like : Kerosene and organophosphates.
- Phenolic smell : Carbolic acid.

371. La facies symapthique is seen in ?

- a) Hanging
- b) Strangulation
- c) Myocardial insufficiency
- d) Railway accident

Correct Answer - A

Ans. is 'a' i.e., Hanging [Ref Reddy 30th/e p. 526]

La facies symapthique: eye on the side of the knot in hanging remains open, due to overstretching of cervical sympathetic chain of the neck on this side.

It occurs in hanging due to pressure of ligature knot on the cervical sympathetic chain.

372. Victim was choked with mouth & nose covered with elbow around neck. It is called as ?

a) Mugging

b) Garrotting

c) Bansadola

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Mugging [Ref Reddy 30th/e p. 321]

Mugging: Strangulation is caused by holding the neck of the victim in the bend of the elbow.

Garrotting: The victim is attacked from behind. The throat may be grasped or a ligature is thrown over the neck & quickly tightened, by twisting it with a lever, which results in sudden loss in consciousness and collapse.

Bansdola: one strong bamboo or stick is placed across the back of the neck & another across the front. Both the ends are tied with a rope due to which the victim is squeezed to death

373. First aid should be given in acid contact ?

- a) Wash with normal water soap
- b) Wash with mild alkali agent
- c) Wash with strong alkali
- d) Refer to higher centre

Correct Answer - B

Ans. is 'b' i.e., Wash with mild alkali agent [Ref Reddy 30Th le p. 485]

The most critical aspect of acid burn care is the constant and prolonged washing of the area with water at a room temperature to get the acid out immediately.

To try and minimize the damage, the effects of acid should be neutralized by applying a mild alkali solution to the affected area (solution of sodium bicarbonate and water).

374. Frotteruism is ?

- a) Sexual pleasure is obtained by witnessing the act of urination
- b) Sexual gratification by rubbing private parts
- c) Sexual practise involving three people
- d) None

Correct Answer - B

Ans. is 'b' i.e., Sexual gratification by rubbing private parts [Ref Reddy 30thie p. 395]

Frotteurism : is contact with another person in order to obtain sexual gratification. Sexual gratification by rubbing private parts against a female body in crowd. It is punishable under Section 290 I.P. C., with fine upto Rs 200.

375. What acts as both poison & antidote ?

a) CuSO_4

b) HgCl_2

c) As_2O_3

d) Thallium arsenate

Correct Answer - A

Ans. is 'a' i.e., CuSO_4 [Ref: Reddy 30th/e p. 500, 503]

Copper sulphate acts as a poison & an antidote for phosphorus poisoning.

Copper sulphate when ingested causes burning pain in stomach with colicky abdominal pain, vomiting. In severe cases, hemolysis, hemoglobinuria, methemoglobinemia, jaundice, pancreatitis & cramps & convulsions. Death can occur due to hepatic & renal failure.

It is given in gastric lavage for phosphorous poisoning as it coats the particles of phosphorous with a film of copper sulphide which is harmless.

376. Estimate volume of ringer lactate in first 8 hrs for 40% burns in 50 kg male with 2° burns?

a) 8 lt

b) 4 lt

c) 2 lt

d) 6 lt

Correct Answer - B

Answer: B. 4 lt

Parkland formula most commonly used IV fluid - Lactated Ringer's Solution

Fluid calculation

- $4 \times \text{weight in kg} \times \% \text{TBSA burn}$
- Give 1/2 of that volume in the first 8 hours
- Give other 1/2 in next 16 hours
- Warning: Despite the formula suggesting cutting the fluid rate in half at 8 hours, the fluid rate should be gradually reduced throughout the resuscitation to maintain the targeted urine output, i.e., do not follow the second part of the formula that says to reduce the rate at 8 hours, adjust the rate based on the urine output.

Example of fluid calculation

- 50-kg man with 40% TBSA burn

Parkland formula:

- $4 \times 50 \times 40 = 8,000 \text{ ml}$
- Give 1/2 in first 8 hours = 4,000 ml in first 8 hours
- Adjust fluid rate to maintain urine output of 50 ml/hr

377. Posthumous child is:

- a) Child delivered after death of biological mother
- b) Child delivered after death of biological father
- c) Born after death of parents
- d) has been abandoned by parents

Correct Answer - B

Answer: B. Child delivered after death of biological father

A child born after death of his/ her biological father

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378.

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M'naghten rule comes under which section of IPC?

a) Crpc 84

b) C pc 48

c) Ipc 84

d) IPC 48

Correct Answer - C

Answer: C. Ipc 84

M'naghten rule (legal test or right or wrong test) :

- It states that an accused person is not legally responsible, if it is clearly proved that at the time of committing the crime, person was suffering from such a defect of reason from abnormality of mind that he didn't know the nature and quality of act he was doing or that what he was doing was wrong i.e. a person is not responsible if he is not of sound mind.
- It is accepted in india as law of criminal responsibility and is embodied in section 84 1PC as - "nothing is an offence which is done by a person, who at the time of doing it, by reason of unsoundness of mind is incapable of knowing the nature of act, or that he is doing what is either wrong or contrary to law".

379. Bluish discoloration of gastric mucosa seen in which poisoning?

a) Mercury

b) Cadmium

c) Amytal sodium

d) Arsenic

Correct Answer - C

Answer: C. Amytal sodium

S. No.	Poison	Color
1.	Copper sulfate, amytal capsule	Blue
2.	Ferrous sulfate	Green
3.	Sulphuric hydrochloric/acetic acid	Black/charred
4.	Nitric acid	Yellow
5.	Carbolic acid	Buff/white
6.	Arsenic	White particles
7.	Mercury	Slate
8.	Cresols	Brown

380. Muscle pain, nephropathy caused by which metal poisoning

a) Arsenic

b) Cadmium

c) Mercury

d) Lead

Correct Answer - A

Answer: A. Arsenic

Nephropathy is caused by most of heavy metals. Muscle pain is associated with arsenic.

381. Which is the first organ to putrefy :

a) Brian

b) Heart

c) Prostate

d) Kidney

Correct Answer - A

Answer: A. Brian

The order of putrefaction is - earliest to last → larynx, trachea → Stomach, intestine → liver, spleen → Brain, Lungs → Heart, Kidney → Bladder, Uterus/Prostrate → Skin, muscles, tendon → lastly, bones.)

382. Locard is famous for:

- a) Theory of exchange
- b) Fingerprint study
- c) Formula for estimation of stature
- d) System of personal identification using the body measurement

Correct Answer - A

Answer: A. Theory of exchange

Edmund locard is famous for theory of exchange.

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383. When does basiocciput fuses with basisphenoid?

a) 18 to 22

b) 22 to 25

c) 14-16

d) 12-14

Correct Answer - A

Answer: A. 18 to 22

The basioccipital fuses with the basisphenoid at about 18 to 21 years.

384. What is the smell of mummified body?

a) Odourless

b) Putrid

c) Pungent

d) Offensive

Correct Answer - A

Answer: A. Odourless

A **mummy** will smell odourless, this is because the internal organs are removed (which are the biggest factors in the decay process) and replaced with natron (which dries them out, preventing 'proper' decay). The rest of the **body** is also dried using natron.

385. Patient presented with proximal tubule proteinuria. Which metal is likely to be associated with it?

a) Cadmium

b) Mercury

c) Gold

d) Lead

Correct Answer - A

Answer: A. Cadmium

Early kidney damage and proteinuria seen in people, occupationally or environmentally exposed to **cadmium**.

386. Which of the following constitutional article is not related to children:

a) 23

b) 21-A

c) 42

d) 24

Correct Answer - C

Answer: C. 42

Constitutional Guarantees that are meant specifically for children include:

- Right to free and compulsory elementary education for all children in the 6-14 year age group (Article 21 A)
- Right to be protected from any hazardous employment till the age of 14 years (Article 24)
- Right to be protected from being abused and forced by economic necessity to enter occupations unsuited to their age or strength (Article 39(e))
- Right to equal opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity and guaranteed protection of childhood and youth against exploitation and against moral and material abandonment (Article 39 (f))
- Right to early childhood care and education to all children until they complete the age of six years (Article 45)

Besides, Children also have rights as equal citizens of India, just as any other adult male or female:

- Right to equality (Article 14)
- Right against discrimination (Article 15)
- Right to personal liberty and due process of law (Article 21)

- Right to being protected from being trafficked and forced into bonded labour (Article 23)
- Right of minorities for protection of their interests (Article 29)
- Right of weaker sections of the people to be protected from social injustice and all forms of exploitation (Article 46)
- Right to nutrition and standard of living and improved public health (Article 47)

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387. Which of the statement regarding Factory act is correct

- a) Child age less than 14 carrying serious work earn more money
- b) Less than 14 yr not done for factory act
- c) More than 72 hour work per week
- d) More than 82 hours a week

Correct Answer - B

Answer: B- Less than 14 yr not done for factory act

The Factory Act prohibits the employment of children below 14 years and declares 15 to 18 years as belonging to the adolescent group. Adolescents require fitness certificate prior to employment in a job. Act also prescribed a maximum 48 hours per week, not exceeding 9 Hours per day with at least half hour rest after 5 hour continuous work.

388. Which of the following is the law on child sexual abuse in India?

- a) Child Sexual Abuse Prevention Act
- b) Protection Of Children from Sexual Offences Act (POCSO)
- c) Child Welfare Act
- d) Sexual Offences Act

Correct Answer - B

Ans: B. POSCO Act

The Protection of Children from Sexual Offences (POSCO) Act, 2012,2019

- It is applicable to the whole of India.
- It defines a child as any person below the age of 18 years and provides protection to all children
- Offences covered under the Act:
- Penetrative Sexual Assault
- Aggravated Penetrative Sexual Assault
- Sexual Assault
- Aggravated Sexual Assault
- Sexual Harassment of the Child
- Use of Child for Pornographic Purposes

389. Punishment of perjury comes under IPC section?

a) IPC 191

b) IPC 192

c) IPC 193

d) IPC 197

Correct Answer - C

Ans: C. IPC 193

Defines punishment for fabricating false evidence

The witness is liable to be prosecuted for perjury, and the imprisonment may extend up to seven years.

193 IPC: punishment for false evidence, (punishment for perjury): imprisonment up to 7 years and also liable for fine

191 IPC: Giving false evidence (perjury) under oath.

192 IPC: Fabricating false evidence (perjury)

THE ESSENTIALS OF FORENSIC MEDICINE AND TOXICOLOGY

-Dr. K.S. NARAYAN REDDY 33rd edition-pg-13

390. When civil negligence is brought up against a doctor, the onus of proof lies upon -

- a) Judicial first-degree magistrate
- b) Police not below the level of sub-inspector
- c) Doctor
- d) Patient

Correct Answer - D

Ans: D. Patient

"Generally speaking, it is for the patient in an action for negligence to establish the guilt of the doctor, whose innocence is otherwise assumed."- Parikh

However, in cases where the rule of res ipsa loquitur is applied, the patient need not prove negligence. Res ipso loquitur means that "the thing or fact speaks for itself." The patient has to merely state what according to him was the act of negligence.

Civil negligence

- When a patient (or his relative, in case of patient's death) files suit in a civil court to get compensation from his doctor for the injury or death of the patient due to doctor's negligence.
- A doctor files a civil suit to get fees from his patient, who refuses to pay alleging negligence.

Note that?

- Even if a doctor is negligent, a patient is not entitled to any compensation if no damage has occurred.
- An error in diagnosis or treatment is not negligence provided proper care and skill has been exercised.

- Contributory negligence is not a defense in criminal negligence. (Contributory negligence is any negligence on the part of the patient or his attendant, which along with the doctor's negligence, contributed to the injury)
- Criminal negligence cases are dealt with under I.P.C. section 304A.

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391. Relatives of a patient told during postmortem examination that the person had a tattoo - which was now invisible. How to identify?

a) Examine the Lymph node

b) Spectrophotometer

c) Ordinary light

d) X-ray

Correct Answer - A

Answer- A-Examine the Lymph node

Tattoo marks are permanent when dye penetrates the dermis.

Infrared photography makes old tattoos readily visible.

A faded tattoo mark becomes visible by the use of ultraviolet lamp or rubbing the part and examining with a magnifying lens.

Marks are recognized even in decomposed bodies (Aret) when the epidermis is removed. Lymph nodes near the tattoo mark show pigment deposition.

392. True about hymen in Child rape is-

- a) Hymen easily tears because it is thin
- b) Hymen easily tears because it is in the front
- c) Hymen hardly tears because it is highly elastic
- d) Hymen hardly tears because it is situated deep

Correct Answer - D

Answer-D- Hymen hardly tears because it is situated deep

The hymen may not rupture after rape if:

- Penetration was not full
- The hymen is tough, fleshy and elastic
- In a young child, full penetration may not occur

Gautam Biswas Review of forensic medicine & Toxicology 2/e; pg-332

https://www.who.int/violence_injury_prevention/resources/publications/

393. Magnan's symptoms are related to

a) Cocaine poisoning

b) Cannabis

c) Cannabis

d) Alcohol

Correct Answer - A

Answer: A. Cocaine poisoning

Magnan's sign or Symptom is a clinical sign in which people with **cocaine** addiction experience **paraesthesia** which feels like a constantly moving foreign bodies, (**cocaine** bugs) such as fine sand or powder, under the **skin**. It is the most tactile hallucination.

Degeneration of the central nervous system occurs, and the patient may suffer from hallucinations, convulsions, delirium, and insanity.

Magnan's symptom or cocaine bugs is characteristic, in which there is a feeling as if grains of sand are lying under the skin or some small insects are creeping on the skin giving rise to itching sensation (formication, tactile hallucination) with resultant excoriation, leading to irregular scratches and ulcers.

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394. Parents of the Child complains of assaulted by one of their relatives and anal pain in a child, On investigation test shows yellow iodine crystals with picric acid - what is the name of the test?

- a) Florence test
- b) Barberio's test
- c) Acid phosphatase test
- d) Creatine Phosphokinase

Correct Answer - B

Answer: B. Barberio's test

It detects spermin (secreted by the prostate) and uses an aqueous or alcoholic solution of picric acid.

A saturated aqueous or alcoholic solution of picric acid, when added to the spermatic fluid, produces yellow needle-shaped rhombic crystals of spermine picrate. The reaction probably depends on the presence of prostatic secretion.

The Acid Phosphatase Test: The prostatic secretion element of seminal fluid contains 500 to 1000 times greater acid phosphatase than any other body fluid. Human red cells, semen of higher apes, and juice of cauliflower have acid phosphatase level similar to that of human semen

THE ESSENTIALS OF FORENSIC MEDICINE AND TOXICOLOGY
By Dr. K.S. NARAYAN REDDY 33/e- pg-434

395. The Magistrate can detain the maximum number of days for a mentally ill person as per mental health care is

a) 30 days

b) 90 days

c) 50 days

d) 100 days

Correct Answer - A

Ans: A. 30 days

* If the Magistrate is satisfied that it is necessary to detain the alleged mentally ill person in a psychiatric hospital, he passes a Reception Order (order for admission and detention), which is valid for 30 days. If he is not satisfied, he may refuse the application, giving his reasons in writing, a copy of which is supplied to the applicant.

* Admission Under Special Circumstance

- A mentally ill person may not be able to express his willingness for admission as a voluntary patient, Such person can be admitted in a psychiatric hospital (psychiatric nursing home) for a period of 90 days if an application is made by a relatives and friends