



ATAL BIHARI VAJPAYEE MEDICAL UNIVERSITY, LUCKNOW

MBBS 1st PROFESSIONAL EXAMINATION - JAN - 2023

TIME : 3 Hrs

SUBJECT : PHYSIOLOGY - PAPER - II

Max. Marks : 100

Note: Attempt all questions. Answer Part - I and Part - II in separate answer books. All part of a question should be answered together.

PART - I

PAPER CODE:

2312130002

(6 + 5 + 4 = 15 Marks)

Q.1 Long Answer Question

A 38 yr old boxer sustained a jab on his lower jaw during a boxing championship fight. He managed to continue the fight as the pain was not felt that severe. Later on upon medical examination and investigations it came out to be a fracture of lower jaw requiring surgical intervention. In the view of above clinical scenario answer following questions-

- How the pain travels from periphery to the central nervous system? Elaborate with a labelled diagram.
- Why the boxer didn't felt the severity of the pain during the fight? Explain in brief in context to the endogenous pain inhibitory system.
- What is referred pain? Explain with an example.

Q.2 Short Notes Questions (within 500 words)

(3x 5= 15 Marks)

- Physiological changes in pregnancy.
- Hypothyroidism in adults.
- Countercurrent exchanger.

Q.3 Short Answer Questions (within 100 words)

(5x 2 = 10 Marks)

- Neuropaxia. *→ Myelination is the mid last form of neurons forming devices regulating the rate of conduction*
- Action of Insulin on fat metabolism. *→ they transfer stored vit. from adipose tissue to liver*
- Indicators of ovulation.
- Inulin clearance test.
- Differentiate between pituitary dwarf and thyroid dwarf.

Q.4 Multiple Choice Questions

(10 x 1 = 10 Marks)

1. The type of estrogen found in highest concentration in adult female during reproductive age group is:	2. Some cells secrete chemicals into the extracellular fluid that acts on neighboring cells of a different type. This type of regulation is known as:
- Pregnenolone - Estradiol ✓ <i>(3) Day 1 to 7 and 14 day before next menses are considered</i> - Estrone - Estril	- Endocrine ✓ - Neuroendocrine - Autocrine - Paracrine
3. Fertilization normally takes place in which part of the fallopian tube:	4. Somatostatin profoundly inhibits the secretion of all of the following except:
- Infundibulum - Fimbrial end - Isthmus - Ampulla ✓ <i>(1) Ampulla is the narrowest part of the fallopian tube</i>	- Cortisol ✓ - Insulin - Glucagon - Growth hormone
5. Potassium is maximally absorbed in which part of nephron:	6. In the absence of ADH:
- Proximal convoluted tubules - Distal convoluted tubules ✓ <i>between the negatively charged cells</i> - Collecting ducts - Loop of Henle	- Obligatory water absorption is increased - Obligatory water absorption is decreased - Facultative water absorption is deficient ✓ - There would not be any water absorption in renal tubules
7. Testosterone production is mainly controlled by:	8. Growth hormone level is decreased in:
- Epididymis - Sertoli cells - Leydig cells ✓ <i>hormone is produced by Leydig cells</i> - Seminiferous tubules	- Hypoglycemia - REM sleep ✓ - Exercise - Fasting
9. Relaxation of mesangial cell is brought about by:	10. Insulin mediated glucose uptake occurs through:
- Angiotensin II - cAMP ✓ <i>protein kinase C</i> - Antidiuretic hormone - Endothelin	- GLUT1 - GLUT2 - GLUT3 - GLUT4 ✓

(5) The accommodation reflex is the Vernet response for focusing on near object



PART - II
PAPER CODE: 2312230002
(5 + 6 + 4 = 15 Marks)
Q.1 Long Answer Question

- Draw a well labeled diagram of visual pathway.
- Describe the effects of lesions at different sites in the optic pathway on the field of vision.
- Add a note on homonymous hemianopia

Q.2 Short Notes Questions (within 500 words)
(3x 5= 15 Marks)

- Composition and functions of cerebrospinal fluid.
- Micturition reflex.
- Mechanism of temperature regulation.

Q.3 Short Answer Questions (within 100 words)
(5x 2 = 10 Marks)

- Biological clock
- Functions of middle ear
- Safe Period.
- Anion gap.
- Accommodation reflex

Q.4 Multiple Choice Questions
(10 x 1 = 10 Marks)

1 Glutamate neurotransmitter is synthesized by which part of basal ganglia: - Globus pallidus interna - Globus pallidus externa - Subthalamic nucleus ✓ - Putamen	2 Golgi tendon organ provides the central nervous system information about: - Velocity of shortening of the muscle - Moment to moment length of the muscle - Tension developed in the muscle ✓ - Change in the joint angle produced by the muscle
3 Most of the refraction in the eye occurs at: - Anterior surface of cornea ✓ - Posterior surface of cornea - Anterior surface of lens - Posterior surface of lens	4 The macula densa in kidney is located in relation to: - PCT - DCT - Afferent arterioles ✓ - Efferent arterioles
5 Average Endoplasmic potential is: -60 mV -90 mV +40 mV +80 mV ✓	6 Romberg sign is seen in : - Pyramidal tract lesion - Parkinsonism - Cerebellar ataxia - Sensory ataxia ✓
7 Which of the following is true about Brown Sequard syndrome: - Ipsilateral loss of joint senses - Contralateral loss of joint sensation - Ipsilateral loss of pain and temperature sense ✓ - Contralateral loss of vibration sense	8 Lower motor neuron lesion is characterised by all except : - Deep reflexes are absent - Muscle atrophy is seen - Spastic paralysis is seen ✓ - Individual muscles are affected
9 K-Complex and Sleep spindles are seen in which stage of sleep: - Stage 1 NREM Sleep - Stage 2 NREM Sleep ✓ - Stage 3 NREM Sleep - REM Sleep	10 Anti diuretic hormone (ADH) is secreted by which part of hypothalamus: - Supraoptic nucleus ✓ - Paraventricular nucleus - Preoptic nucleus - Ventromedial nucleus