

M.B.B.S. FIRST PROFESSIONAL EXAMINATION, SEPTEMBER-2025**PHYSIOLOGY
PAPER - SECOND****[Time allotted: Three hours]****SET – A****[Max Marks: 100]****Q. 1. Multiple choice questions (Darken the single best response in OMR sheet. Time allotted 20 minutes) (20 x 01 = 20)**

1. Which of the following act through tyrosine kinase receptor?
 - a. Insulin
 - b. Glucagon
 - c. Growth hormone
 - d. FSH
2. Peptide hormones are water soluble so need second messenger system. The c AMP mediates action of all except
 - a. Glucagon
 - b. FSH
 - c. LH
 - d. Estrogen
3. A young boy during brain surgery for tumor developed hormonal imbalance. On investigation it was found that pituitary stalk was transected during surgery. All the following hypothalamic hormones levels will be decreased except
 - a. Prolactin
 - b. GHRH
 - c. TRH
 - d. GnRH
4. A 70 years old man developed decreased ADH hormone levels. Strongest stimulator for ADH secretion is
 - a. Hyperosmolarity
 - b. Hyponatremic
 - c. Hypotension
 - d. Hypovolemia
5. A 40 years old lady developed hyperthyroidism. Which of the following is not a feature of hyperthyroidism
 - a. Tachycardia
 - b. Heat intolerance
 - c. Systolic hypertension
 - d. Weight gain
6. A young lady was diagnosed with adrenal medullary tumor. There was increased levels of catecholamine in blood. All the following are metabolic effects of catecholamine except
 - a. Increased blood glucose
 - b. Increased glucagon secretion
 - c. Increased lipolysis
 - d. Decreased ketone bodies
7. A type II diabetic patient with blood sugar levels 400mg% was given insulin. Rapid infusion of insulin causes which of the following
 - a. Hyperkalemia
 - b. Hypokalemia
 - c. Hypernatremia
 - d. Hyponatremia
8. Sperms become motile in
 - a. Prostate
 - b. Seminal vesicles
 - c. Epididymis
 - d. Vas deference
9. Prostaglandin in semen are mainly secreted by –
 - a. Prostate
 - b. Seminal vesicles
 - c. Epididymis
 - d. Vas deference
10. Main hormone in luteal phase is –
 - a. Estrogen
 - b. Progesterone
 - c. Prolactin
 - d. Oxytocin
11. Estrogen mainly causes development of which component of the breast
 - a. Duct system
 - b. Lobuloalveolar system
 - c. Parenchyma of the breast
 - d. Myoepithelial cells of breast
12. A young lady after road traffic accident developed loss of itching sensation. Sensation of itch is transmitted by
 - a. Dorsal column pathway
 - b. Anterior spinothalamic tract
 - c. Lateral spinothalamic tract
 - d. Dorsal spinocerebellar tract
13. A 4 year boy after trauma to right arm while playing developed muscle weakness. The afferent fibre from the muscles of right arm are transmitted to spinal cord by -
 - a. I a fiber
 - b. I b fiber
 - c. III fiber
 - d. IV fiber
14. A 8 year old boy was diagnosed with lesion in cortico-spinal tract in MRI. Cortico- spinal tract lesion leads to all except
 - a. Spasticity
 - b. Extensor plantar response
 - c. Cog wheel rigidity
 - d. Exaggerated reflexes
15. Function of pre-optic nucleus of hypothalamus
 - a. Temperature regulation
 - b. Thirst
 - c. Intestine stimulation
 - d. Satiety center.
16. Window of limbic system is
 - a. Hypothalamus
 - b. Amygdala
 - c. Hippocampus
 - d. Thalamus
17. Transducin is required for
 - a. Smell
 - b. Somatic sensation
 - c. Audition
 - d. Vision
18. A 65 years old male after ischemic stroke developed pure word deafness. In pure word deafness the lesion is likely in
 - a. Superior temporal gyrus
 - b. Angular gyrus
 - c. Calcarine gyrus
 - d. Frontal gyrus
19. Lateral inhibition is exerted by
 - a. Horizontal cell
 - b. Amacrine cell
 - c. Bipolar cell
 - d. Ganglion cell
20. Nightmares is seen in
 - a. REM sleep
 - b. Stage II NREM sleep
 - c. Stage IV NREM sleep
 - d. Stage I NREM sleep

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Note: Attempt all questions in sequence.
Draw suitable diagrams (wherever necessary)

Q. 2. Give reasons: (5 x 2 = 10)

- a. Suprathreshold stimulus may initiate action potential during relative refractory period
- b. Polyuria in diabetes mellitus
- c. Pain of gall bladder felt at tip of right shoulder
- d. Cornea is transparent
- e. Scrotal temperature is lower than core body temperature

Q. 3. Problem based question: (5 x 2 = 10)

A 12 years old girl came to Medicine OPD with recurrent carpopedal spasm in both hands since 2 months. Her siblings are normal. She has no sign of rickets or short stature. Her blood pressure was 110/80 mmHg. While recording her blood pressure doctor noticed Trousseau's sign is positive. She looks otherwise healthy. Looking at case history answer the following questions

- a. What the child is suffering from.
- b. What investigations you will advise in this patient.
- c. What is Trousseau's sign.
- d. What other signs can be observed in the child.
- e. What is reason of recurrent spasm in hands.

Q. 4. Write short note: (4 x 6 = 24)

- a. Functions of cortisol
- b. Mechanism of phototransduction
- c. Difference between EPSP and IPSP
- d. What is the importance of communication skill in doctor –patient relationship.

Q. 5. Structured question:

(i) Describe the structure of neuromuscular junction with help of a diagram. Explain the mechanism of transmission across it. What drugs act at different site of neuro muscular junction. (4+4+2=10)

(ii) Name the nuclei of basal ganglia. Describe the functions with relevant connections. Add a note on Parkinsonism. (2+4+4=10)

Q. 6. Write in brief: (4 × 4 =16)

- a. Pituitary dwarf
- b. Tympanic reflex
- c. Flow chart for regulation of testosterone secretion.
- d. Contraception methods in female
