QP. CODE: MB2019106

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MBBS FIRST YEAR SUPPLEMENTARY EXAMINATIONS: NOVEMBER, 2024

PHYSIOLOGY PAPER-II

Time: 3 Hours **Max Marks: 100**

Note: Answer all questions.

Give Diagrammatic representation whenever necessary

Multiple Choice Questions: **10x1=10**

1. Which of the following describes a connection between components of the basal ganglia?
   a) The subthalamic nucleus releases glutamate to excite the globus pallidus, internal segment

   b) The substantia nigra pars reticulata releases Dopamine to inhibit the striatum

   c) The substantia nigra pars compacta releases Dopamine to excite the Globus pallidus, external Segment

   d) The striatum releases acetylcholine to excite the substantia nigra para reticulata

2. Tetany features include all of the following except
   a) Neuromuscular hyperexcitability
   b) Carpopedal spasm
   c) Trousseau's sign
   d) Clotting defects

3. Calcium metabolism is mainly dependent on
   a) Calcitonin
   b) Parathormone
   c) Thyroxine
   d) Growth Hormone

4. Oogenesis begins:
   a) From approx. 10th week of foetal life
   b) At term
   c) After birth
   d) At puberty
5. First synapse of fibers conducting pain takes place at the level of
   a) Medulla to nucleus cuncatus
   b) Grey matter of dorsal horn of spinal cord
   c) Medulla in Nucleus Gracilis
   d) Thalamus in posterior ventricular musclues

6. Feed forward inhibition:
   a) Helps to limit the duration of excitation of Purkinje cells produced by any given afferent impulses
   b) Refers to excitation granule cell is rapidly stopped by negative feedback loop
   c) Determines inhibitory Purkinje fiber discharge
   d) regulates excitatory mossy fiber discharge

7. Satiety centre in hypothalamus is regulated by:
   a) Gastric dilatation
   b) Blood glucose levels
   c) Blood insulin levels
   d) Fatty acids

8. Olfactory receptors are:
   a) Sensitive to physical stimuli
   b) Rapidly replaced
   c) Slowly adapting

d) Bipolar neurons

9. A patient complaining of muscle weakness was given neostigmine injection, which improves his muscle strength. The Neostigmine acts by
   a) Blocking the action of acetylcholine
   b) Interfering with action of amine oxidase
   c) Interfering with the action of acetylcholine esterase
   d) Interfering with the action of carbonic anhydrase

10. Which of the following is NOT a characteristic of an action potential
    a) Refractory period
    b) Conductivity
    c) Accommodation
    d) Graded response to increasing strength of stimuli

Essay/ Long Answer Questions: **2x15=30**

11. A 48-years old female visits, doctor with complaints of weakness, weight gain and feeling of excessive cold. On investigations, her TSH was high and T3, T4 were low.
    a) Identify the condition.
    b) Describe in detail the biosynthesis of thyroid hormone Enumerate the functions of the thyroid hormone in different organ systems.
    c) List the conditions caused due to the alterations in serum thyroid hormone levels. (2+5+5+3)
12. A male aged 50 years came with progressive loss of vision. On examination, he had loss of vision of temporal quadrants of both eyes.

    a) Identify the condition and where is the most probable site of lesion.
    b) Trace the visual pathway.
    c) Describe the effects of lesion at various levels (3+6+6)

Short Answer Questions: **7x6=42**

13. Describe the steps involved in the transmission of impulses across the neuromuscular junction. Discuss the role of neuromuscular blocking agents.

14. Mention the stages of Spermatogenesis and describe the role of hormones and factors influencing Spermatogenesis.
15. Enumerate the Functions of thalamus.
16. Describe the tests for ovulation.
17. Discuss the role of skin in temperature regulation.
18. Describe the causes and manifestations of Cushing's Syndrome.
19. Describe the mechanisms involved in pain modulation.

Very Short Answer Questions: **6x3 =18**

20. Renshaw cell inhibition
21. Receptor potential.
22. Describe the rights and responsibilities of patients.
23. List the contraceptive methods in females. Briefly explain the mechanism of action of intrauterine contraceptive devices.
24. Describe Sarco-tubular system in skeletal muscle
25. Cochlear microphonic potentials

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