Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 11-Feb-2023

Time: Three Hours **Max. Marks: 100 Marks**

PHYSIOLOGY – PAPER - II (RS-4)
Q.P. CODE: 1023
(QP contains two pages)

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS **2 x 10 = 20 Marks**

1. Trace the visual pathway. Explain the lesion that occur at different levels
2. Describe the structure of neuromuscular junction and explain the transmission across it. Add a note on neuromuscular blockers

SHORT ESSAYS **8 x 5 = 40 Marks**

3. Explain the steps in synthesis and regulation of thyroid hormone synthesis
4. Describe the mechanisms of heat loss and heat gain in the body
5. Describe the stages and regulation of spermatogenesis
6. A middle aged man reported to medical out-patient department with complaints of trembling of hands while attempting to do some work. On examination he was found to have impaired co-ordination and ataxia
   a) Describe the signs and symptoms of cerebellar disease
   b) Explain the tests used to assess cerebellar functions
7. Explain the properties of sensory receptors
8. Describe the actions of insulin
9. Explain the action of glucocorticoids
10. Illustrate the pain pathway. Explain the gate control theory of pain

SHORT ANSWERS **10 x 3 = 30 Marks**

11. Explain the physiological significance of muscle spindle
12. Explain the clinical features that occur below the level of lesion in Brown – Sequard syndrome
13. List the functions of luteinizing hormones
14. What is Papez circuit?
15. What is the basis of sex differentiation in a fetus?
16. Explain fetoplacental unit
17. Explain summation in synapse
18. List the functions of blood brain barrier
19. Differentiate between pituitary and thyroid dwarfs
20. Justify the use of L-dopa in Parkinsonism

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Multiple Choice Questions **10 x 1 = 10 Marks**

21 i) Endolymph is secreted by
- A. Reissner's membrane
- B. Tectorial membrane
- C. Stria vascularis
- D. Outer hair cells

21 ii) Heteronymous hemianopia is seen in lesion of
- A. Optic chiasma
- B. Lateral geniculate body
- C. Optic tract
- D. Optic nerve

21 iii) Spinocerebellar tract carries the sensation of
- A. Conscious Proprioception
- B. Crude touch
- C. Unconscious Proprioception
- D. Pain

21 iv) Site of action of aldosterone on the renal tubule
- A. Proximal convoluted tubule
- B. Loop of Henle
- C. Early distal convoluted tubule
- D. Collecting duct

21 v) The phase of menstrual cycle occurring after ovulation is
- A. Proliferative phase
- B. Secretory phase
- C. Bleeding phase
- D. Midluteal phase

22 i) Chronaxie is increased when
- A. Excitability of tissue is low
- B. Threshold of excitation is decreased
- C. Local excitatory state is present
- D. Membrane potential is near firing level

22 ii) In inverse stretch reflex
- A. Golgi tendon organ is receptor
- B. Muscle length is detected
- C. Single synapse present
- D. Excitation of same alpha motor neuron is seen

22 iii) After hyperpolarisation in action potential is due to
- A. Opening of sodium channels
- B. Opening of potassium channels
- C. Slow closure of sodium channels
- D. Slow closure of potassium channels

22 iv) The only situation when the neuron is directly exposed to the external environment is in
- A. Taste buds
- B. Skin
- C. Cornea
- D. Olfactory mucous membrane

22 v) The action of cholecalciferol on intestinal transport of calcium is mediated through
- A. Troponin
- B. Calbindin
- C. Calmodulin
- D. Cyclic AMP

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