

Paper Code-010201

 M.B.B.S. 1<sup>st</sup> professional Annual University Examination

PHYSIOLOGY

PAPER-I

Time: 3 Hours

Maximum Marks: 100

Note:

- ❖ The candidates must limit their answers to the answer book (30 Pages) issued to them. No supplementary/Continuation answer sheet shall be provided
- ❖ Attempt all questions sequentially.
- ❖ Attempt Part-A & Part-B in separate answer books and Part-C in OMR sheet. Illustrate your answers with suitable diagrams, graphs and flow charts.
- ❖ OMR sheets shall be collected 20 minutes after starting of examination.

**Section A**
**Total-40**

**Q1.** A 55 year old male brought to the emergency after a road traffic accident. On examination, his vitals were normal. He was well oriented in respect to time, place and person, on examination, he had loss of pain and temperature on his left side of body where as there was loss of position, vibration and two point discrimination on right side of his body. 1+1+6+2=10

- a) What is the probable diagnosis?
- b) Which side is the lesion?
- c) Which tracts are involved in carrying the sensations and the basis of differential loss of sensations on the two sides?
- d) What are the motor symptoms seen below the level of lesion?

**Q2. Short Notes:**
**4x5=20**

- a) Myasthenia Gravis
- b) Parkinsonism.
- c) Role of Inner ear in hearing
- d) Refractive errors

**Q3. Short Answer Questions:**
**5x2=10**

- a) Differentiate between resting and intentional tremor
- b) Differentiate between sensory and motor aphasia
- c) Differentiate between REM sleep and NREM sleep
- d) Compound Action Potential
- e) Cholinergic receptors

### Section B

Total-40 Marks

**Q1.** A 50 years old anxious looking female comes to outpatient department with complains of weight loss of 5 kg in last 5 months, bulging of the eyes and palpitation. She tells that her appetite has increased and has intolerance to heat. On examination, resting tremor and swelling in the midline of neck, which moves on swallowing is observed. Her resting pulse was 102/min and BP 140/70mmHg. (1+3+6=10)

- What is the most likely diagnosis of the above patient?
- What are the investigations required to establish the diagnosis of above patient?
- What is the physiological basis of main clinical features observed in above patient?

**Q2. Short Notes:**

(4x5)=20

- Fetoplacental unit
- Myasthenia gravis
- Cushing syndrome
- Spermatogenesis and its regulation

**Q3. Short Answer Questions:**

(5x2)=10

- Tests for ovulation.
- Difference between simple diffusion and facilitated diffusion
- Genesis of Resting Membrane potential
- Why there is neuromuscular hyperexcitability in Tetany.
- Enlist qualities of a good physician

### Section-C

20x1=20 Marks

**Q1.** Receptor for stretch reflex is

- Golgi tendon organ
- Golgi bottle neuron
- Muscle spindle
- Cfibres

**Q2.** Complete transection of the brainstem between superior and inferior colliculi result in

- Decorticate rigidity
- Decerebrate rigidity
- Resting tremor
- Cog wheel rigidity

- Q3. Lesion of which cranial nerve result in Bell's palsy
- V
  - VI
  - VII
  - VIII
- Q4. A 25 years old woman takes a home pregnancy test 7 weeks after her last menstrual period. The pregnancy test is positive. What hormone is measured in urine in this test?
- Human Chorionic Gonadotropin
  - Estrogen
  - Progesterone
  - Human chorionic somatotropin
- Q5. Circadian rhythm is regulated by
- Thalamus
  - Hypothalamus
  - Basal ganglia
  - Cerebellum
- Q6. Defficiency of which of the following hormones play an important role in lowering of ionised calcium ion level?
- Parathyroid hormone
  - Calcitonin
  - Thyroxin
  - PTH related peptide
- Q7. Lesion of visual pathway at optic chiasma result in
- Bitemporal hemianopia
  - Binasal hemianopia
  - Right Homonymous Hemianopia
  - Left homonymous hemianopia
- Q8. The accommodation reaction consist of
- Pupillary constriction
  - Pupillary dilatation
  - Divergence of visual axis
  - Divergence of eyeballs
- Q9. The satiety centre is located in the -
- Dorsomedian nucleus of hypothalamus
  - Ventromedian nucleus of hypothalamus
  - Perifomical region
  - Lateral hypothalamic area
- Q10. During pregnancy, Corpus luteum is maintained by
- Estrogen
  - Progesteron
  - LH
  - FSH
- Q11. Lesions in... lead to sensory ataxia -
- Posterior column
  - Vermis
  - Flocculo-nodular lobe
  - Vestibular apparatus
- Q12. Which of the following volume is measured by using Deuterium oxide
- Total body water
  - Extracellular fluid
  - Intracellular fluid
  - Plasma

**Q13.** Resting membrane potential is mainly due to permeability of the membrane to which ion?

- (a) Sodium
- (b) Potassium
- (c) Chloride
- (d) Calcium

**Q14.** Inhibition of the spinal cord may be brought about by

- (a) Glutamic acid
- (b) Aspartic acid
- (c) Glycine
- (d) Strychnine

**Q15.** The electrical potential difference necessary for a single ion to be at equilibrium across a membrane is best described by the

- (a) Von't Hoff equation
- (b) Goldman equation
- (c) Fick's law
- (d) Nernst equation

**Q16.** The intensity of sensory stimuli is determined by -

- (a) Duration of latent period
- (b) Amplitude of action potential
- (c) Frequency of action potential
- (d) Amplitude of generation potential

**Q17.** In an awake subject, relaxed with eyes closed EEG recording shows the following

- (a) Alpha rhythm
- (b) Beta rhythm
- (c) Theta rhythm
- (d) Delta rhythm

**Q18.** Which of the following inhibits the secretion of growth hormone by anterior pituitary?

- (a) Exercise
- (b) Somatomedins
- (c) Stress
- (d) Fasting

**Q19.** The Wernicke's area and Broca's area communicate with each other via a fibre bundle called

- (a) The fornix
- (b) The reticular activating system
- (c) The arcuate fasciculus
- (d) The thalamocortical tract

**Q20.** Chronic administration of glucocorticoids result in

- (a) Decrease in lymphocyte count
- (b) Decrease in RBC count
- (c) Increase in basophil count
- (d) Increase in eosinophil count