

SS/MBBS-I/PHY-I/01-22**2022****(January)****First Professional MBBS Examination****PHYSIOLOGY****Paper-I****Full Marks: 100****Time: 3 hours****The figures in the margin indicate****full marks for the questions****Write the answers to the two Halves in separate books****Answer all questions****FIRST HALF**

1. With a labelled diagram trace the visual pathway. Discuss the effects of lesions of various parts of visual pathways. What is physiological scotoma? [2 + 6 + 5 + 2 = 15]

2. Write short notes on the following : [5 × 4 = 20]

(a) Thalamic syndrome

(b) Blood-brain barrier

(c) Milk ejection reflex

(d) Triple response

3. Discuss the role of a physician as a communicator. 5

4. Choose the correct option from the following: [1 × 10 = 10]

(i) The colour of eyes is due to

- (a) sclera
- (b) cornea
- (c) pupil
- (d) iris

(ii) Hair growth in either sex at puberty is due to

- (a) growth hormone
- (b) insulin
- (c) androgens
- (d) oestrogen in females

(iii) Endolymph contains high concentration of

- (a) sodium
- (b) magnesium
- (c) potassium
- (d) calcium

(iv) Menstruation occurs due to

- (a) surge of LH just prior to mid-cycle
- (b) failure of corpus luteum to involute
- (c) sudden reduction of progesterone and oestrogen at the end of the ovarian cycle
- (d) excessive secretion of progesterone and oestrogen at the end of the ovarian cycle

(v) Anosmia means

- (a) decreased sensation of smell
- (b) no sensation of smell
- (c) alteration of smell
- (d) normal sensation of smell

(vi) Cerebellar Nystagmus occurs due to damage to

- (a) vermis
- (b) flocculonodular lobe
- (c) anterior lobe
- (d) posterior lobe

(vii) Shortening of skeletal muscle in response to stimulation is characterized by

- (a) decreased width of I and H bands
- (b) decreased width of A band
- (c) decreased width of A and I bands
- (d) increased width of H zone

(viii) Smooth muscle does not contain

- (a) actin
- (b) myosin
- (c) tropomyosin
- (d) troponin

(ix) Resting membrane potential is close to the isoelectric potential for

- (a) Na^+
- (b) K^+

(c) Ca^{2+}

(d) Cl^-

(x) Which is not a feature of basal ganglia lesion?

(a) Rigidity

(b) Dysmetria

(c) Akinesia

(d) Resting tremors

SECOND HALF

5. What are the hormones secreted by the testes? Describe the functions of testosterone. What is cryptorchidism? What will happen if the testes are removed in an individual before and after puberty?

[2 + 6 + 3 + 2 + 2 = 15]

6. Write short notes on the following :

[5 × 3 = 15]

(a) Excitatory post-synaptic potentials

(b) Klinefelter syndrome

(c) Gap junctions

7. Compare and contrast the following :

[2½ × 4 = 10]

(a) Features of upper motor neuron and lower motor neuron lesions

(b) Type I and Type II diabetes mellitus

(c) Lysosomes and Peroxisomes

(d) Fast pain and Slow pain

8. A 60-year-old man visits his physician complaining of trembling hands and difficulty in walking. Other than this he had no significant health problems.

Physical examination showed that the tremor diminished while performing a task. He also had a masked facial expression. When walking, the patient has difficulty taking the first step but after that he was able to walk with a shuffling gait.

- a) What may be this clinical condition?
- b) What are the other features of this condition?
- c) Discuss the physiological disorder.
- d) What is the treatment?

[2 + 3 + 3 + 2 = 10]

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