

SS/MBBS-I/PHY-I/02-23

2023

(February)

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. Name the contractile proteins of skeletal muscle and its functions. Describe the sequence of events of excitation contraction coupling. What is sarcomere? Write briefly about difference between isometric and isotonic contractions. [4 + 6 + 2 + 3 = 15]

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

(a) Brown-Sequard syndrome

(b) Colour blindness

(c) Programmed cell death

(d) Organ of Corti

3. Describe and discuss the role of a physician in health care system. 5

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

(i) The word 'milieu interieur' is coined by

(a) Claude Bernard

(b) Sherrington

(c) Starling

(d) W. B. Canon

(ii) Testosterone is secreted by

(a) Sertoli cell

(b) Leydig cell

(c) spermatid

(d) granulosa cell

(iii) The fibres that connect cell membrane to the nuclear membrane are

(a) microfilaments

(b) intermediate filaments

(c) microtubules

(d) kinesin

(iv) Body posture and complex coarse movements are controlled mostly by

(a) cerebrum

(b) cerebellum

(c) spinal cord

(d) extrapyramidal tract

(v) Frontal eye field corresponds to Brodmann area

(a) 3, 1, 2

(b) 4, 6

(c) 8

(d) 18, 19

(vi) The centre point of a lens is known as

(a) nodal point

(b) principal axis

(c) principal focus

(d) visual point

(vii) Sound of minimal intensity which the human ear may perceive is

(a) zero decibel

(b) 20 decibel

(c) 40 decibel

(d) 60 decibel

(viii) Which area of hypothalamus functions as thermostat?

(a) Preoptic

(b) Paraventricular

(c) Dorsomedial

(d) Lateral

(ix) The best contraceptive measure in male is

(a) conventional method

(b) vasectomy

(c) coitus interruptus

(d) drug gossypol

- (x) The hormone that stimulates bone resorption is
- (a) estrogen
 - (b) cortisol
 - (c) testosterone
 - (d) calcitonin

SECOND HALF

5. Explain in detail the synthesis, secretion and functions of thyroid hormones. Describe the various tests to assess the thyroid functions. [4 + 2 + 5 + 4 = 15]
6. Write short notes on the following : [5 × 3 = 15]
- (a) Menopause.
 - (b) Klinefelter's syndrome
 - (c) Diabetes insipidus
7. Give the physiological basis of the following : [2 × 2 = 4]
- (a) Lactational amenorrhoea
 - (b) Permissive action of glucocorticoids
8. Compare and contrast between the following : [2 × 3 = 6]
- (a) EPSP and IPSP
 - (b) Rods and Cones
 - (c) Dwarfism and Cretinism

9. Read the following case history and answer the questions :

A 50-year-old man reported to the OPD complaining of some neurological problems. On examination, he had difficulty in speaking and was unable to move his finger along the line and stop at the right part. He showed drunken gait and could not do supination and pronation of the upper limb at a fast rate.

(a) What is the probable diagnosis?

(b) Name two tests for confirmation of your diagnosis.

(c) Differentiate between sensory and motor ataxia. [2 + 4 + 4 = 10]

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