

WBCS MADE EASY CSM(O)-PHLY-II/22

2022

PHYSIOLOGY

PAPER-II

Time Allowed — 3 Hours

Full Marks — 200

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be given either in English or in Bengali but all answers must be in one and the same language.

Group-A

Answer any six questions.

1. (a) Describe the EM structure of skeletal muscle sarcomere with a neat diagram.
(b) What is the function of dihydropyridine (DHP) and ryanodine receptors during EC coupling?
(c) What is calsequestrin? (6+4)+6+4=20
2. (a) What are the differences between monosynaptic and disynaptic reflex?
(b) What do you mean by spatial and temporal summation?
(c) Distinguish between apolar and unipolar neurone.
(d) What are the Nissl substances? State their functions. 6+6+4+(2+2)=20
3. (a) State the recent advancement in the mechanism of long term memory.
(b) Describe the origin and outflow of parasympathetic efferent fiber passing through vagus and glossopharyngeal nerve.
(c) What do you mean by geniculate ganglion? 10+8+2=20
4. (a) Describe the neural pathways carrying unconscious kinesthetic impulses from periphery to brain with neat diagram.
(b) State briefly the differences between somatic and autonomic reflex arc.
(c) Describe the thermal changes that takes place in the skeletal muscle during contraction. 8+6+6=20
5. (a) Describe with neat diagram the ultrastructure of neuromuscular junction.
(b) Describe the role of syntexin and synaptobrevin proteins during the neuromuscular transmission.
(c) What do you mean by neurotransmitter and neuromodulator substances? (6+4)+(3+3)+(2+2)=20

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Please Turn Over

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6. (a) List the different layers of human retina.
(b) When light falls on the retina, on which layer it falls first?
(c) Describe briefly the process of accommodation of eye.
(d) What are the differences between fluent and non-fluent aphasia? $5+2+7+(3+3)=20$
7. (a) What do you mean by condensation and rarefaction in sound wave?
(b) Describe how the mechanical sound wave is converted into electrical neural signal with diagrammatic explanation of tip link mediated mechanism.
(c) What is Weber-Flechner law? $4+12+4=20$
8. (a) In what respect does a special sensation differ from general sense?
(b) Describe the process of olfactory transduction.
(c) What do you mean by odorus binding protein (OBP)?
(d) What do you know about primary taste modalities? $5+7+4+4=20$
9. (a) Describe with suitable diagram the histological structure of skin.
(b) Discuss the physical process in the regulation of body temperature.
(c) What do you mean by insensible perspiration?
(d) What is Sebum? $6+8+4+2=20$
10. (a) What is physical fitness?
(b) Discuss the assesment of physical fitness by modified Harvard step test method.
(c) What do you mean by warm up and cool down process?
(d) What do you understand by static work and dynamic work? $4+6+4+6=20$

Group-B

Answer *any four* questions.

11. (a) Describe the histology of adenohipophysis.
(b) What do you understand by hypothalamic neurosecretory substances (HNSS)? State briefly their functions on the anterior pituitary.
(c) Describe how the posterior pituitary hormone acts on milk ejection in lactating mother.
(d) What are the functions of oxytocin in male body? $6+(4+4)+4+2=20$

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12. (a) Mention two important functions of calcium in human body.
(b) Write the name and origin of hormones which regulate the calcium level in blood. Give a brief account of their role in calcium homeostasis in blood.
(c) What is the normal blood calcium level in human body?
(d) What is reverse T_3 (rT_3)? 2+(2+4+8)+2+2=20
13. (a) Discuss the role of insulin in the maintenance of normal blood sugar level.
(b) What are type-I and type-II diabetes mellitus?
(c) Describe the role of ADH in osmoregulation. 10+4+6=20
14. (a) What are the active principles of adrenal cortex?
(b) Discuss the role of glucocorticoids on inflammation and immunological processes.
(c) How does the thyroid gland accumulate iodide required for thyroid hormone biosynthesis?
(d) Why the action of growth hormone on growth is inhibited after attainment of a particular age? 4+(3+3)+6+4=20
15. (a) Describe the role of Leydig Cells and Sertoli Cells in spermatogenesis process.
(b) Describe the physiological changes of ovary and uterus during menstrual cycle.
(c) Describe with suitable diagram the microscopic structure of spermatozoa. 8+8+4=20
16. (a) Discuss the goiter and anemia control program implemented by Govt. of India.
(b) What do you mean by 0-db (zero decibel) sound?
(c) Describe the effect of sound pollution in human body and its preventive measure. (5+5)+2+(4+4)=20
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