

2021

PHYSIOLOGY — HONOURS

Paper : CC-3

(Cell Signalling and Nerve-muscle Physiology)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Group - A

1. Answer **any five** questions : 2×5
- (a) Write down the full form of JAK-STAT.
 - (b) What do you mean by retrograde axoplasmic flow?
 - (c) What is Nissl Substance?
 - (d) State the function of microglia.
 - (e) What is MEPP?
 - (f) Define muscle twitch.
 - (g) Define single unit smooth muscle with one example.
 - (h) Distinguish between neurotransmitters and neuromodulators.

Group - B

2. Write short-notes on **any two** of the following : 5×2
- (a) G protein-coupled receptors.
 - (b) Electrotonic potentials.
 - (c) Wallerian degeneration of nerve fibre.
 - (d) Strength-Duration relationship of stimulus in a nerve.

Group - C

Answer **any three** questions.

3. (a) Describe the phosphatidylinositide pathway of signal transduction.
(b) Enumerate the role of cyclic AMP as an intracellular messenger. 6+4

Please Turn Over

4. (a) Describe how the resting membrane potential is generated and maintained in a nerve fibre.
(b) What is saltatory conduction?
(c) State the fate of an antidromically conducted nerve impulse. 7+2+1
5. (a) Explain the Indefatigability property of a nerve fibre.
(b) Mention the functions of Titin.
(c) Describe the process of synaptic transmission of a nerve impulse. 2+2+6
6. (a) Distinguish between motor unit and motor point.
(b) Discuss the process of myelinogenesis.
(c) Differentiate between G-actin and F-actin. 2+6+2
7. (a) What do you mean by C-type nerve fibre?
(b) What do you mean by isotonic and isometric contraction?
(c) Describe the process of excitation-contraction coupling in skeletal muscle contraction. 2+3+5
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