

2018

2nd Semester

PHYSIOLOGY

PAPER—C3T

(Honours)

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

1. Answer any five questions :

5×2

(a) What is glia ?

(b) Define motor unit.

(c) Write two differences between multi unit and single unit smooth muscle.

- (d) What is denervation hypersensitivity ?
- (e) What is pacemaker potential ?
- (f) What are meant by "absolute refractory period" and "relative refractory period".
- (g) What is Weber-Fechner law ?
- (h) State the location and function of gap junction.

2. Answer any *four* questions : 4×5

- (a) What do you mean by synaptic plasticity ? State the role of Acetylcholine in nerve impulse transmission. 3+2
- (b) How olfactory receptors are stimulated ? What is olfactory adaptation ? 3+2
- (c) What are neurotrophins ? Describe the source and function of a neurotrophin. 2+3
- (d) What is Starling's law of heart ? State its physiological significance. 2+3

- (e) What do you mean by membrane potential? Discuss the roles of Na^+ and K^+ ions in the different places of development of action potential in a nerve. 2+3
- (f) Describe the role of calcium in muscle contraction. How ATP is utilized during contraction and relaxation of muscle? 2+3

3. Answer any *one* question : 1×10

- (a) What do you understand by "Coding" of sensory information? Describe the mechanism of learning with reference to synaptic plasticity. What is the underlying mechanism of facilitation at synapses. 2+4+4
- (b) What is end-plate potential? Discuss briefly the factors affecting end-plate potential? Describe the ultrastructural features of neuromuscular function. Define the differences between neurotransmitter and neuromodulators. $(2\frac{1}{2} + 2\frac{1}{2} + 2\frac{1}{2} + 2\frac{1}{2})$