



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 2nd Semester Examination, 2022

PHYACOR03T-PHYSIOLOGY (CC3)

PHYSIOLOGY OF NERVE AND MUSCLE CELLS

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.*

Answer any *five* questions from the following

8×5 = 40

1. (a) Discuss the ionic events that take place during the various phases of nerve action potential. 4
(b) Discuss briefly the thermal changes of nerve during activity. 2
(c) What is Nernst potential? 2
2. (a) Explain the following properties of nerve fibres: 3+3
(i) Summation, (ii) Accommodation
(b) What is axoplasmic flow? 2
3. (a) What are neurotransmitters, co-transmitters and neuromodulators? 2+2+2
(b) What is compound action potential? 2
4. (a) Describe the structure of the neuro-muscular junction with a neat diagram. 4+2
(b) Explain the effect of nerve fibre diameter and myelination on the conduction velocity of nerve impulse. 2
5. (a) Describe the EM structure of skeletal muscle sarcomere with a neat diagram. 4+2
(b) What is sarcotubular system? 2
6. (a) What is Ryanodine receptor? Discuss its role during excitation-contraction Coupling of skeletal muscles. 4+2
(b) What is optimal load? 2
7. (a) With the help of a strength – duration curve, explain Rheobase, Chronaxie and utilization time. 6
(b) Distinguish between single unit and multiunit smooth muscle fibre. 2

8. (a) Describe the molecular mechanism of EPSP and IPSP with examples. 2+2
- (b) Distinguish between motor point and motor unit. 2
- (c) Name two nerve growth factors. 2

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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