

U.G. 5th Semester Examination - 2025

PHYSIOLOGY

[MAJOR-VII]

Course Code : PHYSIOL-M-T-7

(Skin and Muscle Function)

[NEP-2020]

Full Marks : 40

Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

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

1. Answer any five from the following questions:

2×5=10

- a) Define homeothermy. How is it different from poikilothermy?
- b) State two functions of motor neurons.
- c) What is saltatory conduction?
- d) Define all-or-none law.
- e) What is a sarcomere?
- f) Define end-plate potential.
- g) What is latent period in a muscle twitch?
- h) What is synaptic fatigue?

[Turn Over]

2. Answer any **two** from the following questions:

5×2=10

- a) Differentiate between EPSP and IPSP.
- b) Describe structure of the neuromuscular junction (NMJ) with a labelled diagram.
- c) Differentiate between isometric and isotonic contractions.
- d) Write a short note on hypothermia.

3. Answer any **two** from the following questions:

10×2=20

- a) What are the two types of sweat glands? Explain the role of the hypothalamus in thermoregulation. What is hibernation? Give example of an animal that hibernates.

2+5+2+1=10

- b) What are bipolar neurons? Give an example. State any two difference between myelinated and unmyelinated nerve fibres. Discuss genesis of action potential with a suitable diagram.

2+1+2+5=10

- c) State two characteristic differences between skeletal and cardiac muscle. What is the role of Ca^{2+} in muscle contraction? Define the sliding filament theory.

4+3+3=10

- d) What is synaptic plasticity? Explain the mechanism of neuromuscular transmission. What is synaptic delay?

2+6+2=10