Five-Year Integrated M.Sc. Examination, 2024
Semester - V
Course: LS-3-5-1
(System Physiology)

Time: Four Hours **Full Marks: 80**

Questions are of value as indicated in the margin

Answer ***Question No.01*** and ***any Six*** from the rest

1 **Write short notes on *any ten* of the following** 2x10=20

(a) Local potential and action potential
(b) Transducin
(c) Aaxon hillock
(d) Fetalhemoglobin
(e) Richmond Lang effect
(f) Triple Response
(g) Long Distance Transport
(h) RUBISCO
(i) Photorespiration
(j) Antenna pigment complex
(k) Non-cyclic electron transport
(l) Red drop & Emerson enhancement effect
(m) Photosynthetic pigments of Plants

2 How is the human brain protected from injury? Write brief notes on the following with respective functions: a) Cerebrum b) Cerebellum. 3+3.5+3.5=10

3 How does the renin-angiotensin-aldosterone mechanism function? Why is it controlled by the kidneys? Why the loop of Henle is important for the formation of concentrated urine? 5+2+3=10

4 How is nerve impulse transmitted across synapse? Write a brief note on motor neurons and sensory neurons. 4+3+3=10

5 Briefly describe cardiac cycle. Give an account of ABO blood group system. 5+5=10

6 Briefly describe the carbon fixation mechanism in C3 plants. 10

7 What do you mean by Photoperiodism? Critically discuss the structure and role of phytochrome. 3+7=10

8 Write the role of the P protein. How does the pressure-flow hypothesis explain phloem

loading and unloading? Explain two theories that contribute to the ascent of sap in plants.

2+4+4 = 10

9 What role does gibberellic acid (GA) play in seed germination? How do phytohormones regulate phototropism? Discuss the role of different phytohormones in senescence and abscission in plants.

2.5+2.5+5 = 10

10 Explain nitrate assimilation and denitrification. Why is nitrogen fixation required in anaerobic conditions? How are root nodules formed in leguminous plants?

4+2+4 = 10

1.