U.G. 2nd Semester Examination - 2021

ZOOLOGY

[HONOURS]

Course Code : ZOOL-H-CC-T-04

(Cell Biology)

Full Marks : 20 Time : 1 Hour

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** questions out of the following: 1 X 5 = 5

i) What do you mean by facilitated transport across the plasma membrane?

ii) What is SRP?

iii) Define oxidative phosphorylation.

iv) What do you mean by GPCR?

v) What is Rb gene?

vi) What are plakins?

vii) How do apoptotic cells express "eat me" signals on their cell surface?

viii) Define second messenger in cell signaling.

2. Answer any **one** question out of the following: 5 X 1 = 5

i) Distinguish between active transport and passive transport across the plasma membrane. Draw and describe the structure of coronavirus. 2+3 = 5

ii) Distinguish between cis-Golgi and trans-Golgi network. What do you mean by microtubule motor proteins? How do intermediate filaments differ from microfilaments? 2+1+2 = 5

iii) What are tight junctions? State the importance of heterochromatin in eukaryotic cell? What do you mean by oncogenes and tumour suppressor genes? 1+2+2 = 5

3. Answer any **one** question out of the following: 10 X 1 = 10

i) Draw and describe fluid mosaic model of structure of plasma membrane. Explain the mechanism of regulation of cell cycle. What do you mean by the packaging of nucleosomes? 5+3+2 = 10

ii) What do you mean by cellular protein sorting? Describe the 'Signal hypothesis' for cellular protein sorting. Write a note on vesicular transport in eukaryotic cell. 2+4+4 = 10

iii) Distinguish between apoptosis and necrosis. State the role of 'caspases' in apoptosis? Why are cAMP and cGMP important for cell signaling? What do you mean by 'Hedgehog signaling pathway'? 2+2+4+2= 10