

U.G. 2nd Semester Examination - 2020

ZOOLOGY

[HONOURS]

Course Code : ZOOH-CC-T-04

Cell Biology

Full Marks : 40

Time : 2½ 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** questions: 2×5=10
- i) What are the main propositions of cell theory?
 - ii) Differentiate between apoptosis and necrosis.
 - iii) What do you mean by endosymbiotic origin of mitochondria?
 - iv) What are desmosomes?
 - v) What do you mean by receptor mediated endocytosis?
 - vi) What is MTOC?
 - vii) What is heteropyknesis?
 - viii) What are CRE and CREB?

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

5×2=10

- i) Distinguish between Heterochromatin and Euchromatin. What do you mean by 'beads on a string' structure of chromatin? 2+3=5
- ii) What is G-protein? What are the sub-units of G-protein? How does G-protein act as molecular switch in cellular signalling? 1+1+3=5
- iii) "Lysosomes are said to be the suicidal bags in the cells"- substantiate the statement. 5
- iv) What is 'Signal hypothesis' in relation to protein sorting? What are translocon and Chaperones? 3+2=5

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

10×2=20

- i) Distinguish between virion and viroid. Describe the structure of a virion. Why are bacteria regarded as prokaryotic organism? What are PPLO and Prions? 2+4+2+2=10
- ii) Define cell cycle. What are the phases of cell cycle? What do you mean by check points in cell cycle? Discuss the process of regulation of cell cycle by CDK and Cyclin. 1+3+2+4=10

iii) Define cancer. Distinguish between Carcinoma and Sarcoma. How do you differentiate between Normal cell and Cancer cell? What are the processes of transformation of Proto-oncogenes into Oncogenes? What do you mean by Tumour suppressor genes?

$$1+2+2+3+2=10$$

iv) Why NO is important in cell signalling? What are growth factors and eicosanoids? What do you mean by second messengers in cell signalling? How does second messengers amplify cellular signalling? What do you mean by JAK/STAT pathway of cellular signal transduction?

$$2+2+2+2+2=10$$
