

## U.G. 2nd Semester Examination - 2019

**ZOOLOGY****[HONOURS]**

Course Code : ZOOH/CC-T-04

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.***Answer all the questions.**

1. Answer any **five** questions: 2×5=10.
- a) Compare the ribosomes of prokaryotes and eukaryotes.
  - b) How does p<sup>53</sup> play role of "guardian of a genome"?
  - c) How does cAMP perform the role of a second messenger?
  - d) How does APC make sister chromatids free to move to opposite poles?
  - e) What is endomembrane system of a cell?
  - f) What are virions?



g) How does a proto oncogene become an oncogene?

h) What are MAPs? State their functions.

2. Answer any **two** questions:  $5 \times 2 = 10$

a) Diagrammatically represent the virulent life cycle of a bacteriophage. How does the life cycle of a virulent phage differ from that of a non-virulent phage?  $3+2=5$

b) What are the components of cytoskeleton of a cell? Mention their roles in different kinds of cell movements.  $3+2=5$

c) Describe the structure of core particle of nucleosome. Compare constitutive and facultative heterochromatin with examples.  $3+2=5$

d) Discuss the role of MPF in cell cycle progression. Define START and restriction point in eukaryotic cells.  $3+2=5$

3. Answer any **two** of the following:  $10 \times 2 = 20$

a) Give an account of the structure of membrane phospholipid, its distribution and role in membrane fluidity. Distinguish between communicating junctions and occluding

junctions. Add a note on different kinds of transport across the cell membrane.

$(2+2+1)+2+3=10$

b) Give an account of ultrastructure of mitochondria with a neat labelled diagram. How chemiosmotic theory relate the formation of ATP to electron flow in mitochondrial membrane? Name two electron carriers that shuttles between respiratory chain complexes.

$(4+1)+4+1=10$

c) Elucidate the mitochondrial pathway of apoptosis. Mention different categories of cell surface receptors along with their ligands. Add a note on GPCR.

$4+2+4=10$

d) What is secretory pathway of protein sorting? How co-translational translocation of protein occur through this pathway? State the role of SNARE proteins in vesicle fusion. Mention any two functions of lysosomes.

$2+4+3+1=10$