2019

ZOOLOGY — HONOURS

Paper : CC–4

Full Marks : 50

The figures in the margin indicate full marks.

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

Answer ***question nos.*** **1** and **2** and ***any other three*** questions from the rest.

1. Answer ***any five*** from the following : 2×5

(a) Distinguish between peroxisome and oxisome.

(b) How oxidative phosphorylation and mitochondrial respiratory chain are coupled?

(c) Distinguish facilitated diffusion and secondary active transport.

(d) What do you mean by protein glycosylation? State its significance.

(e) What is Barr body? How many Barr body is expected in a nucleus with a chromosomal composition of 22AA + XXY?

(f) State any two features of apoptotic cell.

(g) Distinguish between v-onc and c-onc.

(h) 'S-phase is most active in eukaryotic cell cycle'— Justify this statement.

2. Write short notes on (***any two***) : 5×2

(a) Membrane asymmetry

(b) Philadelphia chromosome

(c) Centriole

(d) Cis-trans polarity of Golgi

(e) Desmosome.

3. (a) State the process of signal transduction by RTK pathway. Give one example of signalling molecule functioning via JAK/STAT pathway.

(b) 'P53 is the gurdian of genome' — Explain.

(c) Explain the process of G_2-M transition in cell cycle. (4+1)+3+2

4. (a) Mention briefly the extrinsic pathway of apoptosis.

(b) State the role of Golgi reticulum system in protein translocation.

(c) Distinguish between sporadic and hereditary retinoblastoma. 4+3+3

5. (a) How lysosomal proteins are modified and sorted in Golgi?

(b) Distinguish between euchromatin and heterochromatin.

(c) Briefly describe the structure of F1-F0 particle. 3+4+3

6. (a) Describe tripartite organization of nucleolus. What are sub nucleolar components of nucleolus?

(b) Why is mitochondrion considered as semi-autonomous organelle?

(c) What is secondary lysosome?

(d) Inspite of highly acidic contents of lysosome, the membrane of the organelle is not destroyed. — Explain. (2+2)+2+2+2

7. (a) Mention the name of accessory proteins of microfilament and microtubule.

(b) State the functional significance of following cytoskeleton proteins — Cofilin, Spectrin, Cadherin. 4+(2+2+2)

8. (a) Describe the structure and function of tight and gap junction.

(b) Explain the role of importin during import process to nucleus.

(c) Explain the higher order chromatin packaging with suitable diagram. 4+2+4
