2022

ZOOLOGY — HONOURS

Paper : CC-4

(Cell Biology)

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.

1. Answer ***any five*** questions : 2×5

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

   (b) Define cis-trans polarity of Golgi.

   (c) Name two kinetochore associated protein.

   (d) Distinguish active transport and facilitated diffusion.

   (e) Name two enzymes of inner mitochondrial membrane.

   (f) Distinguish between N-linked and O-linked glycosylation.

   (g) Why RTKs are so called?

   (h) Which organelle is known as 'traffic police' and why?

Answer ***any four*** from the following.

2. (a) With suitable diagrammatic illustration explain signal transduction through RTK pathway.

   (b) Define and explain membrane asymmetry.

   (c) What is RBC ghost? (2+3)+(1+3)+1

3. (a) Describe the modification of secretory protein in Golgi.

   (b) Mention the function of KDEL.

   (c) Explain the endosymbiotic hypothesis of mitochondrial origin. 5+2+3

4. (a) Explain the role of P_{53} in DNA damage checkpoint.

   (b) Briefly mention the process of G2-M transition of cell cycle in yeast.

   (c) Define APC/C. 4+4+2

5. (a) What is haplo-insufficiency?

(b) Distinguish between hereditary and sporadic Ratinoblastoma preferrably with flow diagram.

(c) With suitable illustration explain the intrinsic pathway of apoptosis. 2+4+4

6. Both histones and non-histones proteins are essential for DNA packaging in eukaryotic cells. However, these classes of proteins are fundamentally dissimilar in a number of ways. Describe how they differ in terms of—

(a) their protein characteristics

(b) their interaction with DNA

(c) their role in DNA packaging. 3+3+4

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

(a) V Snare and 'T' Snare

(b) Desmosomes

(c) Intermediate filament

(d) Clathrin coated vesicle.

8. (a) Distinguish between proto-oncogene and tumour suppressor gene.

(b) Define burkitt's lymphoma, glycocalyx, transducer.

(c) What are MPFs? 2+(2+2+2)+2
