2 0 1 9

(CBCS)

(5th Semester)

ZOOLOGY

FIFTH PAPER

(Cell Biology)

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. Mitochondria is absent in

(a) eukaryotic cells ( )

(b) prokaryotic cells ( )

(c) all plant cells ( )

(d) None of the above ( )

2. Active transport is

(a) movement of molecules against concentration gradient ( )

(b) movement of molecules along concentration gradient ( )

(c) movement of molecules to and fro plasma membrane ( )

(d) All of the above ( )

3. Which part of the cell forms nuclear envelope during cell division?

(a) Centriole ( )

(b) Nucleus ( )

(c) Golgi complex ( )

(d) Endoplasmic reticulum ( )

4. During starvation, digestion of intracellular stored food substances of the cytoplasm was done by

(a) mitochondria ( )

(b) Golgi complex ( )

(c) lysosome ( )

(d) endoplasmic reticulum ( )

5. If the outer membrane is removed from a mitochondrion, the remaining structure is called

(a) mitoribosome ( )

(b) microsome ( )

(c) peroxisome ( )

(d) mitoplast ( )

6. The main constituents of microfilaments are

(a) actin and myosin ( )

(b) actin and nexin ( )

(c) actin and dynein ( )

(d) actin and tubulin ( )

7. The key factor that helps in the transport of molecules across nuclear membrane is

(a) carnitine transferase ( )

(b) cyclic AMP ( )

(c) Ran GTP ( )

(d) cadherin ( )

8. The rod-like chromosomes having centromere at the terminal region are called

(a) telocentric ( )

(b) metacentric ( )

(c) submetacentric ( )

(d) acrocentric ( )

9. Cyclin B-CDK1 complex is found in

(a) S phase ( )

(b) G_1 phase ( )

(c) G_1 to S transition ( )

(d) G_2 to M transition ( )

10. The amount of DNA after S phase is

(a) N ( )

(b) 2N ( )

(c) 3N ( )

(d) 4N ( )

SECTION—B

(*Marks* : 15)

Write short notes on the following : 3×5=15

1. Cell theory

OR

Fluid mosaic model of cell membrane

2. Rough endoplasmic reticulum

OR

Peroxisomes

3. Endocytosis

OR

Phagocytosis

4. Karyotyping

OR

Chromosome structure

5. Cell cycle checkpoints

OR

M phase of cell cycle

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

1. What is prokaryotic cell? Give a comparative account of the structure of prokaryotic and eukaryotic cells. 2+8=10

OR

Discuss different methods by which molecules are transported across cell membrane. 10

2. Describe the structure, composition and function of Golgi complex. 10

OR

Discuss the structure and function of ribosomes. 10

3. Describe the structure and function of mitochondria. 10

OR

Write short notes on the following : 5+5=10

(a) Microtubules

(b) Microfilaments

4. Describe the different components and functions of extracellular matrix. 10

OR

Write short notes on the following : 5+5=10

(a) Cell adhesion

(b) Cell junction

5. Discuss different types of cancer and characteristics of cancer cells. 4+6=10

OR

Explain in detail the different stages of meiotic cell division with suitable illustrations. 10

★ ★ ★