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(CBCS)

(5th Semester)

ZOOLOGY

FIFTH PAPER

(Cell Biology)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(*Marks* : 10)

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

1. A type of transport in which specific permeases facilitate their crossing is

(a) active transport ( ) *(b)* simple diffusion ( )

(c) osmosis ( ) *(d)* facilitated diffusion ( )

2. Cell theory was originally proposed by

(a) Robert Hooke and Antonie Van Leeuwenhoek ( )

(b) Matthias Schleiden and Theodor Schwann ( )

(c) Rudolf Virchow ( )

(d) Camillo Golgi ( )

3. Which of the following cell organelles is involved in detoxification?

(a) Smooth endoplasmic reticulum ( )

(b) Rough endoplasmic reticulum ( )

(c) Ribosome ( )

(d) Contractile vacuole ( )

4. 70S ribosome is made up of

(a) 40S and 30S subunits ( )

(b) 50S and 30S subunits ( )

(c) 60S and 40S subunits ( )

(d) 20S and 40S subunits ( )

5. Absorption of fat droplets by intestinal epithelial cells is an example of

(a) pinocytosis ( ) *(b)* endocytosis ( )

(c) phagocytosis ( ) *(d)* exocytosis ( )

6. F1 particles are found in

(a) plasma membrane ( )

(b) peroxisome membrane ( )

(c) mitochondrial membrane ( )

(d) lysosomal membrane ( )

7. Connexin is a component of

(a) adherens junctions ( ) *(b)* desmosomes ( )

(c) tight junctions ( ) *(d)* gap junctions ( )

8. Inside the nucleus, the binding of the importin with Ran-GTP will result in

(a) binding of cargo ( )

(b) release of cargo ( )

(c) hydrolysis of GTP to GDP ( )

(d) breakdown of Ran ( )

9. If a cell cannot pass any of the cell cycle checkpoints, it will lead to

(a) apoptosis ( )

(b) necrosis ( )

(c) haemophilia ( )

(d) phagocytosis ( )

10. Synaptonemal complex is found in which stage of the cell cycle?

(a) Diakinesis ( )

(b) Metaphase II ( )

(c) Zygotene ( )

(d) Anaphase I ( )

(SECTION : B—SHORT ANSWER)

(*Marks* : 15)

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

UNIT—I

1. Active transport

OR

2. Cell theory

UNIT—II

3. Peroxisomes

OR

4. Functions of lysosomes

UNIT—III

5. Microfilaments

OR

6. Phagocytosis

UNIT—IV

7. Cell adhesion

OR

8. Nucleolus

UNIT—V

9. Stages of cell cycle

OR

10. Types of cancer

(SECTION : C—DESCRIPTIVE)

(*Marks* : 50)

Answer the following : 10×5=50

UNIT—I

1. What is simple diffusion? Give a detailed account on the 'Fluid Mosaic Model' of cell membrane. 2+8=10

OR

2. Describe in detail the structure of eukaryotic cell with suitable diagram. 10

UNIT—II

3. Describe the structure and functions of ribosomes. 10

OR

4. Describe the structure and functions of endoplasmic reticulum. 10

UNIT—III

5. Describe the structure and functions of mitochondria. 10

OR

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

(a) Microtubules

(b) Endocytosis

UNIT—IV

7. Describe the mechanism of nuclear transport. 10

OR

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

(a) Karyotyping

(b) Cell junction

UNIT—V

9. Explain the mechanism of cell cycle regulation. 10

OR

10. Elaborate the various stages of meiosis I with diagrams. 10

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