

2024

( 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. Naked DNA is found in

- (a) bacterial cells ( )      (b) fungal cells ( )  
(c) plant cells ( )      (d) animal cells ( )

2. Plasma membrane is basically composed of

- (a) phospholipid bilayer ( )  
(b) glycoproteins ( )  
(c) carbohydrates ( )  
(d) proteins and carbohydrates ( )

3. The transfer vesicle from rough endoplasmic reticulum fuse with which region of Golgi complex?

- (a) Protein arms ( )  
(b) Medial ( )  
(c) Cis face ( )  
(d) Trans face ( )

4. In which of the following cells lysosomes are absent?
- (a) Erythrocytes ( )      (b) Muscle cells ( )  
 (c) Hepatocytes ( )      (d) Liver cells ( )
5. The main structural protein microfilament is
- (a) lamin ( )      (b) desmin ( )  
 (c) tubulin ( )      (d) actin ( )
6. Oxyzones of  $F_0-F_1$  particles occur on
- (a) mitochondrial outer membrane ( )  
 (b) thylakoid ( )  
 (c) mitochondrial inner membrane ( )  
 (d) mitochondrial matrix ( )
7. Pore-like structural connection between adjacent cells is an example of
- (a) gap junction ( )  
 (b) desmosome ( )  
 (c) tight junction ( )  
 (d) cell junction ( )
8. The chromatids of the paired homologous chromosomes joined at one or more discrete points are called
- (a) telomeres ( )      (b) chromomeres ( )  
 (c) chiasmata ( )      (d) chrononemata ( )
9. Spread of the cancer cells within the body is known as
- (a) metastasis ( )  
 (b) morphogenesis ( )  
 (c) metamorphosis ( )  
 (d) angiogenesis ( )
10. DNA replication occurs at which of the following stages of the cell cycle?
- (a)  $G_1$  stage ( )  
 (b) S stage ( )  
 (c)  $G_2$  stage ( )  
 (d) M phase ( )

**( SECTION : B—SHORT ANSWERS )**

*( Marks : 15 )*

Write notes on the following :

3×5=15

**UNIT—I**

1. Limitation of cell theory

**OR**

2. Facilitated diffusion

**UNIT—II**

3. Functions of Golgi complex

**OR**

4. Peroxisomes

**UNIT—III**

5. Endocytosis

**OR**

6. Phagocytosis

**UNIT—IV**

7. Tight junction of cell-cell interactions

**OR**

8. Karyotype

**UNIT—V**

9. Types of cancer

**OR**

10. Metaphasic plate

**( SECTION : C—DESCRIPTIVE )**

( Marks : 50 )

Answer the following questions :

10×5=50

**UNIT—I**

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

**OR**

2. What is fluid mosaic model? Describe in detail the structure of cell membrane with supporting diagram. 2+8=10

**UNIT—II**

3. Describe the structure and functions of ribosome. 10

**OR**

4. Write a note on the structure and functions of endoplasmic reticulum. 10

**UNIT—III**

5. What is the importance of mitochondria in the cell? Write a note on the structure of mitochondria with supporting diagram. 3+7=10

**OR**

6. What is cytoskeleton? Write a note on microtubules and microfilaments. 2+8=10

**UNIT—IV**

7. Describe in detail the structure and functions of nuclear membrane. 10

**OR**

8. Explain the structure and functions of nucleolus. 10

**UNIT—V**

9. With a neat labeled diagram, describe the different stages of meiosis. 10

**OR**

10. Give an account on the different types of carcinogens. 10

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