ZOO200 (MAJOR)

Student's Copy

### 2024

(NEP-2020)

(3rd Semester)

## ZOOLOGY (MAJOR)

( 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. In prokaryotes, hair-like outgrowths which attach to the surface of other bacterial cells are
  - (a) flagella () (b) pilli ()
  - (c) capsule () (d) plasmids ()
- All cells arise from pre-existing cells. This tenet of cell theory was put forward by
  - (a) Schwann ( ) (b) Virchow ( )
  - (c) Schleiden () (d) Robert Hooke ()

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3.	In mitochondria, cristae are sites for		
	(a) increasing the capacity of the mitochon	drior	n to synthesize ATP ( )
	(b) phosphorylation of flavoproteins	(	)
	(c) breakdown of macromolecules	(	)
	(d) the cell's overall packaging (	)	
4.	Which of the following is the largest single compartment?	men	nbrane-bound intracellular
	(a) Ribosome ( )	(b)	Golgi apparatus ( )
	(c) Endoplasmic reticulum ( )	(d)	Lysosome ( )
_	Q 1 is subtraction and implement in		
5.	Golgi apparatus are involved in		
	(a) modification of proteins ( )		
	(b) synthesis of proteins ( )		
	(c) degradation of proteins ( )	ì	
	(d) digestion and waste removal (	)	
6.	Which is the most abundant protein in h	umar	n body?
	(a) Hemoglobin ( )	(b)	Collagen ()
	(c) Fibrinogen ( )	(d)	Albumin ( )
-	Emertin hinds the cargo		
7.	Exportin binds the nucleus ()	(b)	inside the cytoplasm ( )
	(a) inside the mitchendria ( )	(d)	in the nuclear lamina ( )
	(c) in the mitochonuna ( )	1-7	
8.	What is G <sub>0</sub> ?		
	(a) Cyclin-dependent kinase ( )		
	(b) Checkpoint just before $G_1$ (	)	
	(c) Cell cycle control point ()		
	(d) Complete resting stage of cell cycle		()

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- and the second sec
  - 9. Programmed cell death is called
  - (a) anaplasia ( )
    (b) metastasis ( )
    (c) apoptosis ( )
    (d) angiogenesis ( )

    10. The characteristic of \_\_\_\_\_ stage is the separation of sister chromatids.

    (a) prophase ( )
    (b) metaphase ( )
    - (c) anaphase () (d) telophase ()

# ( SECTION : B-SHORT ANSWERS )

(Marks: 25)

Write short notes on any five of the following, taking at least one from each Unit :  $5 \times 5 = 25$ 

UNIT-I

- 1. Structure of prokaryotic cell
- 2. Facilitated transports

Unit—II

- Peroxisomes
- 4. Structure of prokaryotic ribosomes

Unit—III

- 5. Microtubules
- Microfilaments

Unit—IV

- 7. Cell cycle checkpoints
- 8. Cyclin-CDK complex

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## ( SECTION : C-DESCRIPTIVE )

#### ( Marks : 40 )

Answer four of the following questions, taking one from each Unit : 10×4=40

#### UNIT-I

- 1. Give an account of cell theory. Explain its tenets and limitations. 4+6=10
- Describe the ultrastructure of cell membrane. State briefly the functional significance of cell membrane.

### UNIT-II

- **3.** Describe the structure and function of Golgi complex. 10
- **4.** Describe in detail the structure and function of lysosomes. 10

#### UNIT-III

- Give a detailed account of the structure and transport of molecules across nuclear membrane.
   10
- 6. Write notes on the composition and function of extracellular matrix. 10

#### UNIT-IV

- Describe the different stages of first meiotic cell division with suitable diagrams.
   10
- 8. Write short notes on the following : 5+5=10
  - (a) Carcinogens
  - (b) Characteristic of cancer cell

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( Cell Biology )

Full Marks : 75

Time : 3 hours

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### ( SECTION : A-OBJECTIVE )

(Marks: 10)

Tick ( $\checkmark$ ) the correct answer in the brackets provided :  $1 \times 10 = 10$ 

- 1. In prokaryotes, hair-like outgrowths which attach to the surface of other bacterial cells are
  - (a) flagella ( ) (b) pilli ( )
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	(q)	phosphorylation of flavoproteins	( )
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	(q)	synthesis of proteins ()	
	(c)	degradation of proteins ()	
	(q)	digestion and waste removal (	(
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	(a)	Hemoglobin ( ) (/	) Collagen ( )
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	(a)	inside the nucleus ( ) (b	inside the cytoplasm (
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	(a)	Cyclin-dependent kinase ( )	
	(q)	Checkpoint just before $G_1$ ( )	
	(c)	Cell cycle control point ( )	
	(q)	Complete resting stage of cell cycle	( )
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9.	programmed cell de	ath is	s called			
	(a) anaplasia	_	(	(q)	metastasis (	-
	(c) apoptosis	_	-	(q)	angiogenesis (	-
01	The characteristic c	f	<ul> <li>stage is the sep</li> </ul>	oarat	ion of sister chromatic	ds.
	(a) prophase	_	-	(q)	metaphase (	
	(c) anaphase	<u> </u>	(	(q)	telophase (	-
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	3. Peroxisomes					
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	5. Microtubules					
	6. Microfilaments		UNIT—IV			
	7. Cell cycle check)	points				

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8. Cyclin-CDK complex

( SECTION : C-DESCRIPTIVE )	
( Marks : 40 )	
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UNITIII	
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