

Total No. of Printed Pages—4

**2 SEM TDC ZOOH (CBCS) C 4**

**2 0 2 3**

( May/June )

**ZOOLOGY**

( Core )

Paper : C-4

**( Cell Biology )**

Full Marks : 53

Pass Marks : 21

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

1. Choose the correct answer of the following : 1×5=5

(a) During mitosis, ER and nucleolus begin to disappear at

- (i) late prophase
- (ii) early metaphase
- (iii) late metaphase
- (iv) early prophase

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- (b) Which one among the following lipids is not found in the plasma membrane?
- (i) Phosphoglyceride
  - (ii) Sphingolipid
  - (iii) Phytanic acid
  - (iv) Cholesterol
- (c) Which of the following is not a function of cytoskeleton in a cell?
- (i) Intracellular transport
  - (ii) Maintenance of cell shape and structure
  - (iii) Support of the organelle
  - (iv) Cell motility
- (d) The largest family of cell surface receptors that transmit signals to intracellular targets is
- (i) hormone
  - (ii) enzyme
  - (iii) G-protein
  - (iv) All of the above
- (e) The site of aerobic respiration in eukaryotic cells is
- (i) peroxisome
  - (ii) plastid
  - (iii) mitochondria
  - (iv) cilia

( 3 )

2. Distinguish between (any two) :  $3 \times 2 = 6$
- (a) Aerobic and Anaerobic respiration
  - (b) Tight junctions and Gap junctions
  - (c) Active and Passive transport
  - (d) G-protein and G-protein coupled receptors
3. Write short notes on (any two) :  $3 \times 2 = 6$
- (a) Nuclear envelope
  - (b) Second messengers
  - (c) Actin and myosin proteins
  - (d) Mitochondrial DNA
4. Describe different steps of electron transport system with diagrams.  $6 + 2 = 8$
- Or
- Write the different stages of meiosis with necessary diagrams.  $5 + 3 = 8$
5. What is cell signalling? Describe the structure of G-protein coupled receptor.  $2 + 5 = 7$
- Or
- What is nucleosome? Mention its importance in DNA packaging.  $2 + 5 = 7$

( 4 )

6. Discuss the structure and function of microtubules. 4+4=8

*Or*

Write the structure and function of lysosomes. 4+4=8

7. What is cell cycle? Explain the regulation of cell cycle in eukaryotes. 1+7=8

*Or*

What is facilitated transport? Explain how molecules/substances are transported across the cell membrane with suitable diagram through facilitated diffusion. 2+6=8

8. Write an account on fluid mosaic model of plasma membrane. 5

*Or*

State and explain endosymbiotic hypothesis. 5

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