

63(FY) SEM-1/MAJ1/ZOOMAJ1014

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(Held in 2024)

ZOOLOGY

Paper : ZOOMAJ1014

(Cell Biology and Histology)

Full Marks : 50

Pass Marks : 20

Time : 2 hours

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

1. Choose the correct answer : 1×5=5

(a) Who is called the father of cell biology?

- (i) Richard Altmann
- (ii) Robert Hooke
- (iii) Theodor Schwann
- (iv) Rudolf Virchow

(b) Barr body is a

- (i) heterochromatinized X-chromosome
- (ii) euchromatinized X-chromosome
- (iii) heterochromatinized Y-chromosome
- (iv) euchromatinized Y-chromatin

(2)

- (c) The functional unit of muscle contraction is
- (i) H-band
 - (ii) A-band
 - (iii) myofibril
 - (iv) sarcomere
- (d) Lysosomes are known as 'suicidal bags' because
- (i) catalytic activity
 - (ii) hydrolytic activity
 - (iii) synthetic activity
 - (iv) parasitic activity
- (e) In the cell cycle replication of DNA takes place in
- (i) G₁-phase
 - (ii) M phase
 - (iii) S phase
 - (iv) G₂-phase

2. Answer the following questions (any five) :

2×5=10

- (a) What is viroid? Mention its one function. 1+1=2
- (b) Distinguish between white fibres and yellow fibres.

(3)

- (c) Differentiate between mitosis and meiosis.
- (d) Write two main characteristics of epithelial tissue.
- (e) Name two plasma proteins. Write their functions. 1+1=2
- (f) Differentiate between euchromatin and heterochromatin.
- (g) Write a short note on 'mordants'.

3. Answer the following questions (any five) :

5×5=25

- (a) Write a short note on 'mycoplasma'.
- (b) What is endoplasmic reticulum? Write the structure of endoplasmic reticulum. 2+3=5
- (c) What is called cytoskeleton? Write the structure and functions of microtubules. 1+4=5
- (d) Mention different types of cell junctions with their functions.
- (e) Give detailed account of the events that occur during prophase-I of the meiotic division.
- (f) "Mitochondria is a semi-autonomous structure." Justify this statement.
- (g) Write the basic principles of staining and fixation.

(h) What do you mean by cell cycle? Give an account of various phases of cell cycle. 1+4=5

4. Answer any *one* of the following questions : 10

(a) What do you mean by plasma membrane? Mention various models of plasma membrane with labelled diagram. 2+8=10

(b) What is cell signalling? Describe about different types of cell signalling molecules. 2+8=10
