2019

ZOOLOGY

(Major)

Paper : 3.2

(Cell Biology)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer (any *seven*) : 1×7=7

(a) Microtubules consist primarily of the actin/myosin/tubulin protein.

(b) Active transport moves the substances across the plasma membrane against/along their concentration gradients using ATP/without ATP.

(c) During aerobic glycolysis 8/6/10 ATP molecules are produced.

(d) Oxidative phosphorylation takes place in ribosome/lysosome/cell membrane/F_1 particle of mitochondria.

(e) Cell theory was put forwarded by Robert Hooke / Robert Brown / Leeuwenhoek/Schleiden and Schwann.

(f) Naked DNAs are present in plant cell/animal cell/bacterial cell/protozoa.

(g) The center of a cell is cilia/flagella/nucleus/centrioles.

(h) G_0 phase lies at the end of G_1/G_2/S-phase/M-phase.

2. Write short notes on the following (any *four*) : 2×4=8

(a) Elementary particle

(b) Ultrastructure of Golgi bodies

(c) Molecular structure of nucleosome

(d) Facilitated diffusion

(e) Plasmid DNA or extra-chromosomal DNA

3. Answer any *three* of the following : 5×3=15

(a) Discuss the chemical properties of protoplasm.

(b) Differentiate between salivary and lampbrush chromosomes.

(c) Discuss the significance of mitotic and meiotic cell divisions.

(d) Differentiate between prokaryotic cell and eukaryotic cell.

(e) Why lysosomes are called 'suicide bag of the cell'?

(*Continued*)

4. Describe the electron transport system of mitochondria. 10

Or

Define endoplasmic reticulum. Write the functions of ER. Explain the significance of SER and RER. 1+6+3=10

5. Name the most popular two models of cell membrane. Write a note on the functions of plasma membrane with respect to transport of solutes. 2+8=10

Or

What is mitotic apparatus? Describe their structures, assembly and disassembly of the microtubules and functions of mitotic apparatus. 2+6+2=10

6. What is the natural recombination? When does it take place? What is the outcome of crossing-over? 2+4+4=10

Or

Why ribosomes are known as protein factory of the cell? Describe how ribosomes are involved in protein synthesis. 3+7=10

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