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ZOOLOGY

(Major)

Paper : 3.2

Full Marks : 60

Time : 2½ hours

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

1. Write 'True' or 'False' : 1×7=7

- (a) Some bacteria assume different forms in their life cycle, they are said to be pleomorphic.
- (b) Mesosomes, the infolds of cell membrane of some bacteria, bear respiratory enzymes.
- (c) The protein layer provides elasticity and mechanical resistance to the plasma membrane.
- (d) Euchromatin takes light stain and has less RNA content.

- (e) During interphase, nucleolus comprises of an amorphous part and filamental structures—the nucleonema.
- (f) A microtubule is walled by 13 proto-filaments formed of globular subunits of protein tubulin.
- (g) The $\text{Na}^+ \text{K}^+$ exchange pump is a multipurpose active transport carrier protein.

2. Write short notes on the following : $2 \times 4 = 8$

- (a) Ribonucleoprotein particles
- (b) Chemical properties of protoplasm
- (c) Lampbrush chromosome
- (d) Oxysomes

3. Answer any *three* from the following : $5 \times 3 = 15$

- (a) Give the main functions of endoplasmic reticulum.
- (b) Define lysosome. How can they be regarded as polymorphic?
- (c) What are the main functions of the basal bodies and the centriole?
- (d) Write on endocytosis.
- (e) Write on oxidative decarboxylation.

4. (a) Write the structure of Golgi bodies. Discuss the various functions performed by Golgi bodies. $3+7=10$

Or

Give an account of the structure of eukaryotic ribosomes and their roles in protein synthesis. $3+7=10$

- (b) Describe the structure and functions of mitochondria with special reference to electron transport system. $4+6=10$

Or

How many models of plasma membrane do you know? Explain which of the models of it is more dynamic and why. Describe the mechanism of active transport. $2+5+3=10$

- (c) Give an account of the structure of chromosome. Distinguish between chromonema and chromatid. Write a short note on the different chromosomal shapes at anaphase. $5+3+2=10$

Or

What do you understand by cell cycle? Give an account of the salient features of various phases of cell cycle. How is eukaryotic cell cycle regulated by cyclin-dependent kinases? $2+6+2=10$

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