

3 (Sem-3) ZOO M 1

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ZOOLOGY

(Major)

Paper : 3.1

Full Marks : 60

Time : 2½ hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks (any three) : 1×3=3

- (a) — are the small tunnels seen in bone.
- (b) — is the main protein of connective tissue in animals.
- (c) The cell body of a neuron is called —.
- (d) — forms the brush border.

2. Write True or False : 1×2=2

- (a) Skeletal muscle creates heat.
- (b) The yellow colouration sometimes associated with adult fat is due to the presence of numerous lipid droplets.

3. Answer the following questions : $1 \times 2 = 2$

- (a) What is the function of adipose tissue?
 (b) Which type of cartilage forms the skeleton of the foetus?

4. Answer any *four* from the following questions : $2 \times 4 = 8$

- (a) What is mordant? Give an example.
 (b) How many types of cartilage are there? Name them.
 (c) What are the functions of epithelium?
 (d) Draw a neat labelled diagram of a mammalian heart.
 (e) What are the four types of tissue found in the body of a mammal?
 (f) Name different modes of respiration in amphibia.

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

- (a) Write the principle and procedure of histological staining of proteins. 5
 (b) Give a comparative account of the organs of hearing and balancing in fish and amphibia. 5

(c) Write a brief note on functions.

(d) Describe the basic structure of cartilage with its biological importance.

(e) How are dyes classified? Give their chemical composition and their properties.

6. Answer any *three* from the following questions :

(a) Give a brief account of the development of kidney in vertebrates.

(b) Explain the evolutionary changes in the structure of aortic arches.

(c) Describe the composition and properties of blood.

(d) Give a comparative account of the structure of the eye in vertebrates.

(e) Write briefly about the types of epithelial tissue with their functions.

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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.

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(Continued)

- 4. (a) Write the structure of Golgi apparatus. Discuss the functions performed by Golgi apparatus.

Give an account of the role of eukaryotic ribosomes in protein synthesis.

- (b) Describe the structure of mitochondria with reference to electron transport chain.

How many models of the cell membrane do you know? Describe the functions of transport proteins.

- (c) Give an account of the structure of a chromosome. Describe the changes in chromosome shape at anaphase.

What do you understand by cell cycle? Give an account of the various phases of the cell cycle in eukaryotic cells. How is cell cycle regulated by cyclin-dependent kinases?

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