

2013

ZOOLOGY

(Major)

Paper : 3.1

Full Marks : 60

Time : 2½ hours

Acc No.
19.95

The figures in the margin indicate full marks for the questions

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

- (a) The setup of teeth in Fish, Amphibia and Reptile is — type.
- (b) The stomach of birds is divisible into — and —.
- (c) The most primitive heart is found in —.
- (d) Mammal has — aortic arch.

2. Write True or False : 1×2=2

- (a) Camel is the only mammal which possesses nucleus in its RBC.
- (b) Secretion of the thyroid gland helps in metamorphosis.

3. Answer the following :

1×2=2

- (a) Write the name of two basophilic dyes.
 (b) Blood is a connective tissue. Justify.

4. Answer any *four* questions from the following :

2×4=8

- (a) What are the various modifications of hairs in mammals?
 (b) Name the bones of the pelvic girdle in vertebrates.
 (c) What are the different parts of the venous system in land vertebrates?
 (d) Draw a neat labelled diagram of a nephron.
 (e) State the different types of kidney in vertebrates. State in which class the metanephric kidneys are found.
 (f) What is neutral dye? Write the names of two neutral dyes.

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

5×3=15

- (a) Describe the organ of hearing and balancing in fish.

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(b) Write a brief note on epidermal glands for classes.

(c) On what basis dyes are classified? Write about the chemical classes of dyes and their properties.

(d) Write a brief note on histological stains with their functions.

(e) Give a comparative account of the salivary gland in bird and mammal.

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

(a) Describe a neuron with a neat labelled diagram.

(b) Give a comparative account of the nervous system in vertebrate series.

(c) Describe the basic principles of staining and staining. Write about the biological science.

(d) Write the principle of histo-chemical staining and nucleic acids.

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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) The nucleoplasmic ratio is one of the factors that governs the size of the cell.
- (b) The major part of the cytoplasm of a cell is largely in the gel state.
- (c) Histones are the small basic proteins associated with RNA of eukaryotic cells.
- (d) In 70S ribosome, the RNA/protein ratio is 2 : 1.
- (e) The phagosome fuses with a primary lysosome to form a secondary lysosome in which the food material is digested by enzymes.

- (f) Centrioles are morphologically identical to the basal body of cilia and flagella.
- (g) The terminal part of a chromosome beyond secondary constriction is called satellite.

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

- (a) Gram +ve bacteria
- (b) Plasmids
- (c) Mycoplasma
- (d) Ubiquinone

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

- (a) Write the functional significance of Golgi bodies.
- (b) Write on the biogenesis of 80S ribosome.
- (c) Write the events that occur during interphase of cell cycle that prepare the cell for nuclear division.
- (d) Write a brief note on the structure of eukaryotic chromosome.
- (e) Write a brief note on physical properties of protoplasm.

4. (a) Write the structure of endoplasmic reticulum and discuss the functions performed by it.

Or

“Lysosomes are said to be the garbage bags in the cells.” Explain the chemical composition and functions of a lysosome.

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

Or

What do you mean by cytoskeleton? Name its major components and their functions. Mention how they are involved in a variety of cell movements.

- (c) Write an essay on the transport of substances across plasma membrane.

Or

What are the characteristics of a cell membrane? Discuss its permeability and chemical composition of a cell membrane.
