

Total No. of printed pages = 4

3 (Sem 3) ZOO M1

2015

**ZOOLOGY**

**(Major)**

Paper : 3.1

Full Marks – – 60

Time – Three hours

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

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

- (a) Skeletal muscles are enclosed in a sheath of connective tissue called \_\_\_\_\_.
- (b) Columnar epithelium with goblet cell is called \_\_\_\_\_ epithelium.
- (c) The mature bone cells are called \_\_\_\_\_.
- (d) Nervous tissue transmit messages in the form of \_\_\_\_\_.

[Turn over

2. Write true or false :  $1 \times 2 = 2$

- (a) Lymph is responsible for the removal of interstitial fluid from tissues.
- (b) Perichondrium is found around hyaline cartilage.

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

- (a) Which connective tissue is used to attach the skin to the underlying tissue ?
- (b) Name the tissue that helps in defending the body against infections and the spread of tumors.

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

- (a) What are Filoplumes ? What it is also known as ?
- (b) Who have developed Feulgen technique ? What is its use ?
- (c) Name the different types of dermal scales that covers the body of fishes.
- (d) Why pronephros are known as head kidney and in which animal it is still a functional kidney ?

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(e) Mention two functions of connective tissue.

(f) Draw a neat labeled diagram of a mammalian kidney.

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

- (a) Give a comparative account of the heart in Amphibia and Reptilia.
- (b) Define staining. Describe the various techniques of organic stains with chemical investigation.
- (c) What is immunohistochemistry? Describe various techniques of immunohistochemical investigation.
- (d) Describe the structure and function of nervous tissue.
- (e) Define metachromasy. Describe the differences between metachromatic dyes and metachromatic pigments.

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

- (a) Give a comparative account of the gland in reptiles and birds from birds ?

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(b) Write a brief account about the organs of hearing and balancing in birds and mammals with suitable diagrams.  $5+5=10$

(c) Describe the structure and functions of skeletal muscle with suitable diagram.  $6+2+2=10$

(d) Give a comparative account of the heart in vertebrate series. 10

(e) What is bone? Describe in detail the histological structure of compact and spongy bone.  $1+5+4=10$

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3 (Sem 3) ZOO M2

2015

ZOOLOGY

(Major)

Paper : 3.2

Full Marks - 60

Time - Three hours

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

1. Write true or false :  $1 \times 7 = 7$

- (a) Cell theory was first coined by Von Mohl.
- (b) The size of the cells of multicellular organisms ranges between 80–100  $\mu\text{m}$ .
- (c) The nuclear region of prokaryotic cells is called nucleus.
- (d) Liposomes are small spherical bodies whose surface is formed by a bilayer of protein molecules.

[Turn over

- (e) Histones are fat soluble proteins which are rich in amino acids, glycine and valine.
- (f) Mitochondria are not found in liver cells.
- (g) Escherichia coli is a gram +ve symbiotic bacillus of colon of human beings and other vertebrates.

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

- (a) Bacteriophage
- (b) Factors which control the shape of the cells
- (c) Role of centromere
- (d) Cytokinesis.

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

- (a) Physical properties of protoplasm
- (b) Cell cycle
- (c) Biogenesis of Ribosomes
- (d) Main functions of Golgi bodies
- (e) Glycolysis.

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4. (a) Describe the ultrastructure of endoplasmic reticulum.

Or  
What are lysosomes? Describe the structure and function of lysosomes and their role in the cell.

(b) Differentiate between rough and smooth endoplasmic reticulum. Describe the structure and function of each.

State the difference between the structure and function of rough and smooth endoplasmic reticulum in salivary gland chromosomes.

(c) Describe the function of the nucleus with special reference to its structure.

Or  
What are the characteristics of the cell membrane? Describe its structure and chemical composition.

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