2018

ZOOLOGY

(Major)

Paper : 3.1

(Comparative Anatomy and Histology)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. State True or False (any *two*) : 1×2=2

(a) Axon carries impulses away from the cell body.

(b) Integrated nucleus is found in RBC.

(c) Thyroid gland developed from the ectodermal cell.

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

(a) Stratum corneum is made up of _____ cells.

(b) The internal nares open at _____.

(c) The space where heart of mammal is located known as _____.

(d) The gills of the amphibia are certainly _____ in origin.

3. Answer the following questions : 1×2=2

(a) What is the function of heparin?

(b) Name the only integumentary gland found in birds.

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

(a) Procedure of double staining

(b) Accessory respiratory organs in fishes

(c) Metachromatic dye with examples

(d) Write the difference between bone and cartilage.

(e) Draw a neat labelled diagram of mammalian heart.

5. Answer the following questions (any *three*) : 5×3=15

(a) What are the different types of horn found in mammals? Elaborate your answer with appropriate examples. 2+3=5

(b) Write a brief note on lymph with its function. 5

(c) Write the basic principles of fixation and its biological importance. 5

(d) Write a comparative account of thyroid gland in fish and reptiles. 5

(e) Distinguish between mesonephors kidney and metanephors kidney. 5

6. Answer the following questions (any *three*) : 10×3=30

(a) Write briefly about the different types and functions of connective tissue with proper diagrams. 10

(b) What is aortic arch? Discuss the modification of aortic arches from the origin of different vertebrates group. 2+8=10

(c) Give a comparative account of organs of hearing and balancing in vertebrate groups. 10

(d) What are dyes? Write the difference between acid and basic dyes. Write the chemical composition of dyes and their properties. 2+4+4=10

(e) Write the principles and procedure of histological staining of carbohydrate and proteins. 5+5=10

(f) Write about the different types of muscular tissue with suitable diagrams. 10

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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. Write True or False : 1×7=7

(a) During interphase, nucleolus comprises of an amorphous part and filamental structures—the nucleolonema.

(b) Ribosome is known as 'suicide bag' of a cell.

(c) G_2-phase is the part of the cell cycle in which DNA is replicated.

(d) The convex face of cisternae of Golgi body is called the forming face.

(e) Some bacteria assume different forms in their life cycle, they are said to be pleomorphic.

(f) There is a definite ratio of the cytoplasm and nucleus of the cell, which is known as kern-plasm ratio.

(g) Active transport moves the substances across the plasma membrane against their concentration gradients using energy.

2. Write short notes on the following : 2×4=8

(a) Lampbrush chromosome

(b) Role of centromere in cell division

(c) Axoneme

(d) Synapsis

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

(a) Define lysosome. How can they be regarded as polymorphic?

(b) State the differences between mitosis and meiosis.

(c) Describe the ultrastructure of the centrioles.

(d) Describe the process of biogenesis of ribosomes.

(e) Write briefly on exocytosis and endocytosis with examples.

4. (a) Describe the ultrastructure of Golgi bodies. State their various functions. 3+7=10

Or

What do you understand by cell cycle? Give an account of the salient features of various phases of cell cycle. 2+8=10

(b) 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+2+3=10

Or

What are microtubules? Describe their structures, assembly, diassembly and functions. 2+8=10

(c) Describe the function of mitochondria with special reference to electron transport system. 10

Or

Describe the structure of plasma membrane. State different types of modification of plasma membrane. Write briefly the functions of plasma membrane. 5+3+2=10

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