2019

B.Sc. (Honours)

5th Semester Examination

BIOTECHNOLOGY

Paper - DSE2T

Full Marks : 40 Time : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

(Animal Diversity)

1. Answer any *five* questions : 5×2=10

(a) Define coelom. Give example of two acoelomate animals. 1+1

(b) What do you mean by protostomes ? Give example. 1+1

(c) Name four locomotary devices in protozoa. 2

[Turn Over]

(d) Write importance of specules in porifera. 2

(e) Name different types of stinging cells in Coelenterata. 2

(f) What do you mean by metameric segmentation ? Give two examples. 1+1

(g) What do you mean by arthrodial membrane ? Where you can find it ? 1+1

(h) Name one larval form of Echinodermata, Annelida, Mollusca and Arthropoda.

½+½+½+½

2. Answer any *four* questions from the following : 4×5=20

(a) Write down the characteristic features of Aschelminthes ? Write its parasitic adaptive features. Mention two pathogenic natures of Aschelminthes. 1+2+2

(b) Describe Leuconoid types of canal system in porifera with proper diagram. 3+2

(c) What do you mean by metamorphosis ? Write down the hormonal regulation of metamorphosis in arthropoda. 2+3

(d) Differentiate carrier from vector. Write the morphometry of infectitious stage of plasmodium. 2+3

(e) What do you mean by vermicomposting ? Write its significance. 2+3

(f) What is cnidoblast cell ? Describe its structure and function. 1+(2+2)

3. Answer *one* question from the following. 1×10=10

(a) What is torsion ? Describe torsion in mollusca with proper diagram and its significance. 1+6+3

(b) Why Hemichordata is considered under non-chordate phyla ? Determine systematic position of Balanoglosus with proper affinities. 3+7

[Turn Over]

(Animal Biotechnology)

1. Answer any *five* questions : 5×2=10

(a) Write the role of M_{13} in gene manipulation. 2

(b) Write down the Sanger method for DNA sequencing. 2

(c) What is Palindromic sequence ? 2

(d) Write down the role of alkaline-phosphatase in recombinant DNA technology. 2

(e) What is the significance of ethidium bromide ? 2

(f) Why type-II restriction enzyme is used instead of type-I & type-III in recombinant DNA technology ? 2

(g) What is cosmid ? Write its application in biotechnology. 1+1

(h) Write the rules of naming of restriction enzymes in genetic manipulation. 2

2. Answer any *four* questions from the following : 4×5=20

(a) Differentiate between cDNA Library and Genomic Library. What are BAC & YAC ? 3+2

(b) Define transgenesis. Write a brief note on transgenic animals. 1+4

(c) Describe the steps of gene cloning. 5

(d) Write a brief note on plasmid. Write down the structure of pBR322. 3+2

(e) What are the causes of cystic fibrosis and sickle cell anaemia ? Write short note on – gene knockout. 3+2

(f) Write brief notes on : 2½+2½

(i) DNA microarray

(ii) Blue-white screening.

[Turn Over]

3. Answer any *one* question from the followings : 1×10=10

(a) Describe the steps of the southern blotting. Differentiate it from western blotting. 6+4

(b) (i) Discuss in brief procedure of PCR.

(ii) Write a note on Taq DNA polymerase.

(iii) Write down the significance of DNA fingerprinting. 6+2+2