2022

ZOOLOGY

(Major)

Paper : 6·4

(Biotechnology, Bioinformatics and Computer Application)

Full Marks : 60

Time : Three hours

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

1. Choose the correct answer : 1×4=4

   (a) Which of the following is used to join the segments of DNA during genetic engineering ?

   (i) Gyrase

   (ii) Lipase

   (iii) Ligase

   (iv) Helicase

(b) Which of the following is a genetic vector ?

    (i) Plasmid

    (ii) Phage

    (iii) Cosmid

    (iv) All of the above

(c) The hub of operating system of UNIX is the

    (i) kernel

    (ii) GUI

    (iii) DOS

    (iv) shell

(d) Which one of the following is not a statistical computer programme ?

    (i) Systort

    (ii) Statistica

    (iii) SPSS

    (iv) Phylip

2. Fill in the blanks :   1×3=3

(a) _____ is an antibody that expresses a catalytic activity.

(b) The computer operating system which is operated by using the command line is _____.

(c) The technique by which 'Dolly' the sheep was obtained is called cloning by _____ transfer.

3. Answer the following :   2×4=8

(a) Distinguish' between genomic library and cDNA library.

(b) Write briefly on DNA recombinant technology.

(c) State the specific uses and advantages of slide culture.

(d) Write a note on genetically engineered microbes (GEMs).

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

(a) What are molecular probes ? How are they prepared ?   2+3=5

(b) Describe different methods of disaggregation of animal tissues as a prerequisite for animal culture.   5

(c) Give an account of different 'cell type' and 'cell line'. How can a cell line be obtained from a cultured cell ?   3+2=5

(d) Describe different transfection methods used successfully in animals.   5

(e) Briefly explain computer-aided techniques of data analysis. 5

5. Why is C++ called an object-oriented programming language ? What are the advantages of using C++ over other programming languages ? 4+6=10

Or

What do you mean by an operating system ? Write about the UNIX and Windows operating system. 2+8=10

6. What is gene cloning ? Describe the detailed methodology of gene cloning. 2+8=10

Or

Describe the methods of cell culture media preparation for plant cells and animal cells. 5+5=10

7. What is genetic engineering ? Explain the roles of different enzymes in various steps of genetic engineering technology. 4+6=10

Or

Write notes on the following : 5×2=10

(a) Northern blotting and Southern blotting

(b) Vectors of genetic engineering