

3 (Sem-6) ZOO M 4

2 0 1 4

ZOOLOGY

(Major)

Paper : 6.4

Full Marks : 60

Time : 3 hours

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

GROUP—A

(Biotechnology)

1. Choose the correct answer : 1×7=7

(a) The technique by which the first mammalian clone animal 'Dolly' the sheep was obtained, is

- (i) cloning by gene transfer
- (ii) cloning by nuclear transfer
- (iii) cloning without help of gametes
- (iv) None of the above

(b) Introduction of foreign genes into plant or animal cells using micropipette is

- (i) electroporation
- (ii) chemical-mediated gene transfer
- (iii) microinjection
- (iv) particle gun

(2)

(c) The enzyme that cuts specific site in the DNA is

- (i) DNA polymerase
- (ii) DNA ligase
- (iii) reverse transcriptase
- (iv) restriction endonuclease

(d) Genetic Engineering is

- (i) addition/removal of genes
- (ii) plastic surgery
- (iii) study of extranuclear genes
- (iv) None of the above

(e) The enzyme which is used to remove contaminating RNA from a DNA sample is

- (i) ribonuclease
- (ii) DNA polymerase
- (iii) RNA polymerase
- (iv) helicase

(3)

- (f) Ligase is used for
- (i) transduction
 - (ii) replication
 - (iii) cleaving DNA molecule
 - (iv) joining bits of DNA
- (g) cDNA is derived from
- (i) DNA
 - (ii) mRNA
 - (iii) tRNA
 - (iv) rRNA

2. Define the following : 2×4=8

- (a) Gene cloning
- (b) Gene library
- (c) Primary cell culture
- (d) Natural media of tissue culture

3. Answer any *two* of the following : 5×2=10

- (a) Describe briefly the process of gene transfer in animal embryo.
- (b) Describe the different types of restriction enzymes with their functions.
- (c) State the importance of gene cloning.
- (d) Write briefly on the application of cDNA library.

(4)

4. Answer any *two* of the following : $10 \times 2 = 20$
- (a) Describe the procedure of construction of cDNA library.
 - (b) Write briefly how a clone of a specific gene can be obtained.
 - (c) Discuss the importance and applications of animal cell culture.
 - (d) Describe different media preparation for propagation and culture of cell lines.

GROUP—B

(**Bioinformatics and Computer
Application for Biologists**)

5. Write briefly on (any *one*) : 5
- (a) Computer-aided techniques for data presentation
 - (b) Programming language
6. Explain the features of C⁺⁺ with input and output statements used in C⁺⁺. 10

Or

What do you understand by operating system? Discuss the Windows Operating System.

4+6=10

★ ★ ★