2023

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*
Figures in the right hand margin indicate marks.
Draw labelled diagrams wherever necessary.

GROUP – A

1. Fill in the blanks. (all) [1 × 8

(a) _____ enzyme is a molecular glue.

(b) _____ is a autonomously replicating circular extra-cromosomal DNA.

(c) Making multiple copies of the desired DNA template is called _____.

(d) The RNAs detected and separated by _____ blotting technique.

(e) _____ enzyme is usually used for polymerisation reaction in PCR.

(f) P_1 cloning vector is an example of _____.

(g) _____ enzyme is used to dephosphorylate the vector.

(h) The therapy which replaces defective gene by a healthy gene is called _____ therapy.

GROUP – B

2. Answer any eight of the following questions within two to three sentences each. [1½ × 8

(a) Define cosmid.

(b) What do you mean by Transgenic ?

(c) What is sickle cell anaemia ?

(d) Define DNA micro-array.

(e) What are linkers ?

(f) What is RFLP ?

(g) Define southern blotting.

(h) What is type-II restriction endonuclease ?

(i) Define electroporation.

(j) What do you mean by annealing ?

GROUP – C

3. Write notes on any eight of the following within 75 words each. [2 × 8

(a) Genomic library

(b) Expression vectors

(c) DNA sequencing

(d) Knockout mice

(e) DNA micro injection

(f) Benefits of cloning

(g) Recombinant DNA in medicine

(h) DNA finger printing.

(i) Features of cloning vector

(j) Gene therapy

GROUP – D

*Answer **all** questions within 500 words each.*

4. Discuss the scope, development and applications of biotechnology. [6

OR

What are restriction enzymes ? Discuss about type-II restriction enzymes.

5. Describe polymerase chain reaction. [6

OR

Give an account of DNA microarray.

6. Write in detail about nuclear transplantation in animals. [6

OR

Discuss applications of transgenic animals for production of donor organs.

7. What is recombinant DNA ? Discuss its role in health and medicines. [6

OR

Write an essay on production of commercial products from animal cell culture.