B.Sc. Part–III Semester–VI Examination
BOTANY
(Molecular Biology & Biotechnology)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) There are seven questions in all.

(2) Q. 1. is compulsory and carries **8** marks.

(3) Q. 2. to Q. 7. carry equal marks.

(4) Draw neat and well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) _____ enzymes joins the okazaki fragments of DNA. ½

(ii) Lac operon is discovered in _____ Bacteria. ½

(iii) Undifferentiated and unorganised mass of cells is called as _____. ½

(iv) The purine bases of DNA are Adenine and _____. ½

(B) Choose the correct alternatives (MCQ) :

(i) Which is not core histone protein of Nucleosome ?

(a) H_2a (b) H_1

(c) H_3 (d) H_4 ½

(ii) The template for Transcription is :

(a) DNA (b) mRNA

(c) Plasmid (d) Protein ½

(iii) The term Gene is given by :

(a) Wobble (b) Watson

(c) Crick (d) Johanson ½

(iv) Crown gall disease in plant is caused by :

(a) E. coli (b) Agrobacterium

(c) Pseudomonas (d) Streptococcus ½

(C) Write answer in one sentence each :

(i) Define codon. 1

(ii) Name the thermostable enzyme use in PCR. 1

(iii) Define Totipotency. 1

(iv) What is Cryopreservation ? 1

2. Describe Watson and Crick model of DNA. 12

OR

Define Replication. Explain DNA Replication in Eukaryotes. 12

3. Explain :

(a) Clover leaf model of tRNA. 4

(b) Concept of Gene. 4

(c) Translation in Eukaryotes. 4

OR

(d) Characteristics of Genetic Code (any two). 4

(e) Concept of gene. 4

(f) Structure of Ribosome. 4

4. Explain :

(g) Structural genes in Lac-operon. 4

(h) Tertiary structure of protein. 4

(i) Primary structure of protein. 4

OR

(j) Secondary structure of protein. 4

(k) Britton Davidson model. 4

(l) Protein folding mechanism. 4

5. Explain cloning vectors used in recombinant DNA technology. 12

OR

Explain Agrobacterium mediated gene transfer in plants. 12

6. Explain :

(m) Composition of MS medium. 4

(n) Sterilization techniques in Tissue Culture. 4

(o) Growth Chamber. 4

OR

(p) Autoclave. 4

(q) Role of Hormones in Tissue Culture. 4

(r) Micropropagation. 4

7. Describe in brief :

(s) BT-cotton. 4

(t) Haploid culture. 4

(u) Edible vaccines. 4

OR

(v) Protoplast culture. 4

(w) Synthetic seeds. 4

(x) Achievements of crop biotechnology (any two). 4