AW–1769

B.Sc. (Part–III) Semester–VI Examination

BOTANY

(Molecular Biology and 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) The backbone of DNA is made up of _____ Bonds. ½

(ii) The organelle involved in Protein synthesis is _____. ½

(iii) Lac Z gene of Lac operon encodes _____ enzyme. ½

(iv) GMO stands for _____. ½

(B) Choose the correct alternative (MCQ) :

(i) Phage DNA used by Hershey and Chase is radio labelled with : ½

(a) ^{35}S (b) ^{32}P

(c) ^{60}CO (d) ^{3}H

(ii) Gene as a unit of mutation terms as : ½

(a) Recon (b) Muton

(c) Cistron (d) Nucleotide

(iii) Gene Battery Model is given by : ½

(a) Jacob and Monad (b) Crick

(c) Britton and Davidson (d) Emil Fischer

(iv) For aseptic transfer of explant on nutrient medium needs : ½

(a) Incubator (b) Centrifuge

(c) Oven (d) Laminar Air flow

(C) Write answer in **one** sentence each :

(i) Define plasmid. 1

(ii) Give the site of protein synthesis in the cytoplasm. 1

(iii) Which is initiation codon ? 1

(iv) What is Protoplast ? 1

2. Explain :

(a) Griffin's experiment. 4

(b) Ac-Ds system. 4

(c) Nucleosome model. 4

OR

(d) Chemical composition of DNA. 4
(e) Replication fork. 4
(f) Satellite DNA. 4

3. Describe the different types of RNA. 12

OR

Describe transcription and m-RNA processing in Eukaryotes. 12

4. Describe operon concept with special reference to Lac Operon. 12

OR

Describe Primary, Secondary, Tertiary and Quaternary structures of proteins. 12

5. Explain :
(g) Ti plasmid. 4
(h) Genomic DNA Library. 4
(i) Restriction endonucleases. 4

OR

(j) Phages as cloning vector. 4
(k) cDNA Library. 4
(l) PCR. 4

6. Explain :
(m) Autoclave. 4
(n) Micropropagation. 4
(o) Role of hormones in Tissue culture. 4

OR

(p) Laminar Air flow. 4
(q) Totipotency. 4
(r) Callus culture. 4

7. Describe in brief :
(s) BT-cotton. 4
(t) Edible vaccines. 4
(u) Protoplast culture. 4

OR

(v) Somatic hybridization. 4
(w) Alcohol production by fermentation. 4
(x) Synthetic seeds. 4