(b) Electroporation method. 4

(c) Restriction enzymes. 4

OR

(p) Gene-gun method. 4

(q) c-DNA library. 4

(r) PCR. 4

6. Comment on :

(a) Micropropagation. 4

(b) Culture media. 4

(c) Totipotency. 4

OR

(p) Laminar air flow. 4

(q) Callus culture. 4

(r) Sterilization techniques. 4

7. Explain the following :

(a) Protoplast culture. 4

(b) Synthetic seed. 4

(c) Fermentation technology in Bakery Production. 4

OR

(p) Somatic hybridization. 4

(q) Salient achievements in crop biotechnology. 4

(r) Cryopreservation. 4

AQ–750

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) Question No.1 is compulsory and carries **8** marks.

(3) Question No.2 to 7 carry equal marks.

(4) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) Callus is an ———— mass of cells. ½

(ii) Inoculation of explant is carried out in ————. ½

(iii) Ti plasmid is isolated from ———— Bacterium. ½

(iv) The unit of recombination within the gene is called as ————. ½

(B) Choose the correct alternative (MCQ) :

(v) One gene–one enzyme hypothesis was proposed by : ½

(a) Johansen

(b) Benzer

(c) Mendel

(d) Beadle and Tatum.

(vi) The following part of cell is called as protein factory : ½

(a) Mitochondria
(b) Nucleus
(c) Vacuoles
(d) Ribosome

(vii) The Ac/Ds system in maize was discovered by : ½

(a) Barbara McClintock
(b) Watson and Crick
(c) Griffith
(d) Hargovind Khorana

(viii) The thermolabile enzyme used in PCR is : ½

(a) RNA polymerase
(b) DNA polymerase III
(c) Taq polymerase
(d) DNA ligase.

(C) Answer in **ONE** sentence :

(ix) What is anther culture ? 1

(x) What is cistron ? 1

(xi) What is Totipotency ? 1

(xii) What is the full form of PCR ? 1

2. Explain chemical composition and Double helical model of DNA. 12

OR

Describe :

(a) Satellite and Repetitive DNA. 6

(b) Nucleosome and Solenoid model. 6

3. Explain the following :

(a) Central dogma of protein synthesis. 4

(b) t-RNA. 4

(c) Fine structure of gene. 4

OR

(p) Transcription in eukaryotes 4

(q) Characteristics of genetic code (any **two**). 4

(r) Endomembrane system. 4

4. Explain in detail 'Operon concept' with special reference to Lac-operon. 12

OR

Describe primary, secondary, tertiary and quaternary structures of protein. 12

5. Explain :

(a) Plasmid as a vector. 4