

2021

Time :As in Programme

Full Marks : 80

The figures in the right-hand margin indicate marks.

Draw labelled diagram wherever necessary.

Group-A (Practical Component)

1. Answer the followings (within 30 Words each). (3x10=30)

- (a) What is micropropagation?
- (b) Expand BAG.
- (c) Define callus.
- (d) What is totipotency?
- (e) What is cDNA library?
- (f) Name two methods of direct DNA transfer.
- (g) Name the gene responsible for pest resistant in cotton.
- (h) Name enzyme used for PCR reaction?
- (i) Name one reporter genes in transgenic analysis.
- (j) Which is used for gelling of semisolid tissue culture media?

Group-B (Theory Component)

Answer any **Four** of the following (within 300 words each). (12.5x4=50)

- 2. Discuss the roles of vitamins and hormones in plant tissue culture media.
- 3. Write notes on the following:
 - a) Media sterilization b) Aseptic culture techniques
- 4. Discuss the protoplast isolation and culture techniques in plants.
- 5. Write notes on the following:
 - a) Cybrids and Hybrids b) Cryopreservation
- 6. Describe pUC 18 cloning vector and its application in gen engineering.
- 7. Write notes on the following:
 - a) PCR mediated gene cloning b) Cosmid vetor
- 8. Discuss the method of *Agrobacterium* mediated gene transfer in plants.
- 9. Write notes on the following:
 - a) cDNA library b) Electroporation
- 10. Discuss application of biotechnology in herbicide resistant plants.
- 11. Write notes on the following:
 - a) Edible vaccines b) Biosafety