Roll No. ..... **Total No. of Pages : 2**

PC 11715-NH

CS/2111
PLANT BIOTECHNOLOGY—BHB-26
Semester—V

Time Allowed : Three Hours] [Maximum Marks : 74

Note :– Attempt *two* question from the each Section A and B and the Section C is compulsory.

SECTION—A

1. (a) What is callus ? How will you induce callus from it ? 6

   (b) Brief note on micropropagation. 5

2. Write an essay on organogenesis and its application. 11

3. Describe the modes of production of haploids plants and their various applications in crop improvement. 11

4. (a) Define Gynogenic haploids. Briefly explain the various factors affecting gynogenesis. 6

   (b) Brief note on ploidy level and chromosomal doubling. 5

SECTION—B

5. (a) Enlist the limitation of somatic hybridization. 5

   (b) Give a brief account of various methods for selection of somatic hybrid cells. 6

6. How will you isolate protoplast from the plant cell ? Give the applications of protoplast culture. 11

7. How growth promoting bacteria can help in the biocontrol of pathogens in plants ? Discuss in details. 11

8. (a) Define Nitrogen fixation. Enlist the name various microbes involved in nitrogen fixation. 5

   (b) Write down the role of nitrogenase enzyme in nitrogen fixation. 6

SECTION–C

9. Explain the following :—

   (i) Totipotency

   (ii) Explants

   (iii) Embryogenesis

   (iv) Diploidization

   (v) Anther Culture

   (vi) Cryo differentiation

   (vii) Uses of haploids

   (viii) Examples of somecloncal variations

   (ix) Embryo rescue

   (x) Homozygous lines

   (xi) PGPB

   (xii) Cybrids

   (xiii) Leghaemoglobin

   (xiv) Hydrogenase

   (xv) Nodulations 15×2=30