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(July)

BOTANY

(Honours)

**(Plant Reproductive Biology and
Plant Biotechnology)**

(BOTELH-602)

Marks : 56

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Answer **five** questions in total. Question No. **1** is compulsory. Answer the remaining **four** questions, selecting **one** from each Section

- 1.** Write short notes on the following : $4 \times 4 = 16$
- (a) Microsporogenesis in angiosperms
 - (b) Structure and function of embryo suspensor
 - (c) Vitrication
 - (d) BLAST

SECTION—I

- 2.** Describe the mechanisms determining pollen-pistil interactions. 10
- 3.** Describe the role of pollen morphology in taxonomy. 10

SECTION—II

- 4.** What is endosperm? Write a detailed note on the formation of different types of endosperms in angiosperms. 2+8=10
- 5.** Write notes on the following : 5+5=10
- (a) Structure and functions of synergids
 - (b) Significance of polyembryony

SECTION—III

- 6.** Describe the following in brief : 5+5=10
- (a) Methods of sterilization
 - (b) Somatic embryogenesis
- 7.** What are protoplasts? Explain the process of isolation of protoplasts from plant cells. Also explain the importance of protoplast culture in production of somatic hybrids. 1+5+4=10

(3)

SECTION—IV

8. Write short notes on the following : $2\frac{1}{2}\times 4=10$

- (a) Lambda phage as a cloning vector
- (b) Blunt-end ligation
- (c) CRYI gene and its importance in crop improvement
- (d) Phylogenetic tree

9. Write short notes on the following : $5+5=10$

- (a) Applications of genetic engineering in crop biotechnology
- (b) Development of golden rice via genetic engineering

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