

**M. SC. (BIOCHEMISTRY)
(MSCBCH)**

**Term-End Examination
December, 2025**

**MBC-011 : ANIMAL AND PLANT TISSUE
CULTURE**

Time : 3 Hours

Maximum Marks : 100

Note : (i) Answer any **five** questions.

(ii) All questions carry equal marks.

1. (a) Describe different sterilization techniques used for tissue culture. 10
- (b) Discuss the physical methods of introduction of DNA into plant host cells. 10
2. (a) Explain any *four* types of plant tissue culture. 10

- (b) Describe the process of somatic embryogenesis. 10
3. (a) Elaborate on the techniques of anther and pollen culture. 10
- (b) Explain the types of culture media for animal cell lines and plant tissue. 10
4. (a) Explain the different methods of mammalian cell hybridization. 10
- (b) Describe the isolation, culture and applications of stem cells. 10
5. Write short notes on the following : $4 \times 5 = 20$
- (a) Gene knock-out and gene knock-in
- (b) CRISPR
- (c) Insect resistance transgenic plants
- (d) Golden rice
6. (a) Describe transgenic plants developed for biotic stress tolerance. 10
- (b) Give an overview of hybridoma technology. Explain the selection of hybrids. 10

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7. (a) What are high value therapeutics ?
Describe their characteristic features. 10
- (b) Write a detailed note on antibody engineering. 10
8. Describe the following : 10+10
- (a) DNA footprinting
- (b) Counting of mammalian cells

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