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MBC-011

M. SC. BIOCHEMISTRY (MSCBCH)

Term-End Examination

June, 2026

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.

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1. (a) Describe the essential components and organization of plant tissue culture laboratory. 10
 - (b) Explain any *two* of the following : 5+5
 - (i) Protoplast and meristem cultures
 - (ii) Batch culture
 - (iii) Plant cell bioreactors

2. Describe the following : 5×4=20
- (a) Direct and indirect micropropagation
 - (b) Androgenic haploid production
 - (c) Gene addition and gene subtraction
 - (d) Terminator technology
3. (a) Describe the factors influencing *in vitro* differentiation in plant tissue culture. 10
- (b) Differentiate monolayer and suspension culture. 10
4. (a) Describe mammalian cloning techniques and give its importance. 10
- (b) Compare embryonic and adult stem cells. 10
5. Write notes on the following : 4×5=20
- (a) Gene constructs
 - (b) Mammalian virus vectors
 - (c) Herbicide resistant plants
 - (d) Flavr Savr tomato

6. (a) Discuss transgenic plants developed for biotic stress tolerance. 10
- (b) What are monoclonal antibodies ? Describe their production. 10
7. (a) What are Biologics ? Explain interferons and their applications. 10
- (b) Discuss immunotoxins as therapeutic agents. 10
8. (a) Explain transgenic strategy for herbicide tolerance with example. 10
- (b) Write a detailed note on cloning of mammalian and non-mammalian species. 10

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