



Seat No. _____

H-003-1192002-N

M. Sc. (Microbiology) (Sem. II) (CBCS)

(W.E.F. 2016) Examination

April - 2023

MICRO-208 : Biotechnology & Immunology

Faculty Code : 003

Subject Code : 1192002

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

- 1 Answer any seven of the following : (2 marks each) 14
- (a) Enlist properties desirable for matrices used in enzyme immobilization.
 - (b) How can one protect the inactivation of enzymes during immobilization by covalent binding?
 - (c) What are recalcitrant compounds?
 - (d) What is the nomenclature of BamH1 and HindIII restriction endonucleases?
 - (e) Enlist the key differences between plasmid and cosmid vectors.
 - (f) Which micronutrients are used in plant tissue culture media preparation?
 - (g) What is protoplast culture?
 - (h) What is ADCC ?
 - (i) Define adjuvants. Give examples of different adjuvants.
 - (j) Enlist factors contributing to the development of autoimmune diseases.
- 2 Answer any two of the following : (7 marks each) 14
- (a) Describe the concept of bioremediation and its advantages.
 - (b) Explain enzyme immobilization by adsorption and ionic binding.
 - (c) Discuss various strategies used for the immobilization of cells.

- 3** Answer the following : (7 marks each) **14**
- (a) Discuss various vectors used in genetic engineering.
 - (b) Discuss different strategies used for DNA isolation.

OR

- 3** Answer the following : (7 marks each) **14**
- (a) Give a brief account of recombinant clones.
 - (b) Write a note on gene targeting.
- 4** Answer the following : (7 marks each) **14**
- (a) Give a detailed account of seed culture and callus culture.
 - (b) Discuss applications of plant tissue culture with suitable examples.
- 5** Answer any two of the following : (7 marks each) **14**
- (a) Discuss IgG and IgM antibodies in detail.
 - (b) Write a note on ELISA.
 - (c) Explain immediate hypersensitivity.
 - (d) Describe in detail inflammation.
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