* M C A - 0 0 3 - 1 1 9 2 0 0 2 - 1 3 0 - 2 *

MCA-003-1192002 Seat No. _____

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

April / May - 2018

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)

(a) What is totipotency ?

(b) What are the major components of the tissue culture media?

(c) Distinguish between mother plant and explants.

(d) What is the use of DNA ligase in genetic engineering?

(e) How can the active site of enzyme protected during enzyme immobilization?

(f) Highlight characteristics of hinge region.

(g) Define the term "heterodimer".

(h) What is gene targeting?

(i) Give a brief account on enzymatic digestion of antibodies.

(j) What is the difference between agglutination and precipitation?

2 Answer any **two** of the following : (7 Marks each)

(a) Discuss concepts and techniques of cells immobilization.

(b) Discuss in detail about basic principles and techniques of bioremediation. Give overview of recent advances.

(c) Explain in detail about types, methods and applications of animal tissue culture.

3 Answer the following : (7 Marks each)

(a) Give a detailed account on most commonly used bacterial cloning vectors.

(b) Describe the basic structure of antibody and highlight antibody mediated effector functions.

OR

(a) Give insight into the role of restriction enzymes in biotechnology.

(b) What is the role of phytohormones in plant tissue culture? Explain its role at various stages of plant tissue culture.

4 Answer the following : (7 Marks each)

(a) What is callus? What are the major steps for callus induction? Add a note on its applications in various fields.

(b) Give a detailed account on principles and techniques of plant tissue culture.

5 Write a note on any **two** of the following :

(7 Marks each)

(a) Monoclonal Antibodies

(b) Innate Immune System

(c) DNA isolation techniques

(d) IgE mediated hypersensitivity.
