

514-004

Code No. 9395 / A

**FACULTY OF SCIENCE**  
**M.Sc. IV - Semester Examination, April / May 2014**

**Subject: Biochemistry**  
**Paper - III: Biotechnology**

**Time : 3 Hours**

**Max. Marks: 80**

**Note: Answer all questions from Part - A and Part - B. Each question carries 4 marks in Part - A and 12 marks in Part - B.**

**PART – A (4 x 8 = 32 Marks)**  
**(Short Answer Type)**

- ~~1~~ Biosensors
- ~~2~~ Abzymes
- ~~3~~ Biofertilizers
- 4 Anerobic fermentation
- 5 Viral vaccines
- ~~6~~ Immunotoxins
- ~~7~~ Antisense RNA
- 8 Applications of plant cell culture

**PART – B (4 x 12 = 48 Marks)**  
**(Essay Answer Type)**

9 (a) What are the various methods used to alter enzyme properties to enhance their activity?

**OR**

(b) What are the various techniques used to immobilize cells and enzymes? Give their applications.

10 (a) What are the various types of fermenters used in fermentation industries? Give examples.

**OR**

- (b) (i) Production of ethanol by fermentation
- (ii) Microbial insecticides

11 (a) What are stem cells ? Classify and mention their applications.

**OR**

- (b) Write short notes on :
  - (i) Interferons
  - (ii) Chimeric antibodies
  - (iii) Gene knockouts

12 (a) What are the various strategies involved in generation of transgenic plants?

**OR**

- (b) Write short notes on :
  - (i) Genetically modified foods
  - (ii) Edible vaccines

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