

Total No. of Questions : 4]

SEAT No. :

**P3998**

[Total No. of Pages : 1

**[5246]-226**

**M. Pharmacy**

**CLINICAL IMMUNOLOGY AND ENZYMOLOGY**

**(2013 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) *Q.1 is compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw well labeled diagram wherever necessary.*

**Q1)** Give a detail account on production and purification of monoclonal antibodies.  
Add a note on applications of monoclonal antibodies. **[10]**

**Q2)** Solve any Three **[15]**

- a) Explain the immune response to tumors.
- b) Describe the graft rejection reaction.
- c) Brief the applications of hybridoma in immunology.
- d) Write about humoral autoantibody.

**Q3)** Write short note on (any Three) **[15]**

- a) Therapeutic value of autoantibodies
- b) Histocompatibility complex
- c) Adaptive immunity
- d) Therapeutic applications of enzymes

**Q4)** Explain in detail various techniques of immobilization of enzymes and their industrial applications. **[10]**

OR

Enlist different types of hypersensitivity reactions and explain in detail the mechanism underlying the hypersensitivity reactions.

