

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. Pharm. – SEMESTER – VI • EXAMINATION – WINTER • 2016**

**Subject Code: 260002**

**Date: 21-10-2016**

**Subject Name: Pharmaceutical Microbiology and Biotechnology - II**

**Time: 02:30 pm - 05:30 pm**

**Total Marks: 80**

**Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|-------------|--|-----------|
| <b>Q.1</b>  | (a) What is gene cloning? Describe gene cloning by restriction endonuclease.   | <b>06</b> |
|             | (b) Discuss scope of biotechnology.  | <b>05</b> |
|             | (c) Write a detailed note on Transformation.   | <b>05</b> |
| <b>Q.2</b>  | (a) What is mutation? Enlist types of mutation. Write a note on mutagens.  | <b>06</b> |
|             | (b) Write a short note on Replica plate method to identify the mutants.  | <b>05</b> |
|             | (c) Write a note on humulin.   | <b>05</b> |
| <b>Q.3</b>  | (a) Differentiate: (i) Active and Passive Immunity (ii) Toxin and Toxoid   | <b>06</b> |
|             | (b) Classify vaccines. Write a note on production of live bacterial vaccine.   | <b>05</b> |
|             | (c) Write a note on Schick test.   | <b>05</b> |
| <b>Q.4</b>  | (a) Write a note on Immunoglobulins.   | <b>06</b> |
|             | (b) Comment : (i) Second line defense is nonspecific defense.<br>(ii) TAB is mixed polyvalent vaccine.                           | <b>05</b> |
|             | (c) Write a note on serological reactions.   | <b>05</b> |
| <b>Q.5</b>  | (a) Draw well labeled diagram of a fermenter. Describe its parts in brief.   | <b>06</b> |
|             | (b) Discuss upstream processing for fermentation of Penicillin.  | <b>05</b> |
|             | (c) Discuss downstream processing of fermentation on Vitamin B <sub>12</sub> .   | <b>05</b> |
| <b>Q. 6</b> | (a) Comment: (i) Liquid media is preferred in large scale fermenters.<br>(ii) Seed culture is used for large scale fermentation. | <b>06</b> |
|             | (b) What is importance of primary and secondary screening in fermentation?<br>Describe any one of primary screening method.      | <b>05</b> |
|             | (c) Give flow sheet for production of streptomycin by fermentation.  | <b>05</b> |
| <b>Q.7</b>  | (a) What is immobilization of enzymes? Give its advantages and applications.   | <b>06</b> |
|             | (b) Enlist techniques of Immobilization of enzymes. Discuss any two in detail.   | <b>05</b> |
|             | (c) Discuss factors affecting enzyme kinetics.   | <b>05</b> |

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