

QP Code: 3273

Reg No:

**M. Pharm Part I Degree Examinations - June 2012
(Pharmac eutics)**

Paper III - Industrial Microbiology and Biotechnology

Time: 3hrs

Maximum Marks: 100

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays

(2x20 =40)

1. Outline the production of bacterial vaccines and discuss the modern vaccine technologies.
2. Describe the design of an industrial fermentor and discuss aeration-agitation System and pH control with the help of a neat diagram.

Short Essays

(6x10=60)

3. Define recombinant DNA technology and explain the desirable features of plasmids used as - vectors for transfer of genes.
4. Define K_M and enlist the factors affecting enzyme activity. Derive Michaelis-Menten equation of enzyme kinetics.
5. Enlist different methods of gene sequencing and explain Sanger's method.
6. Define the term fermentation. Describe the production of citric acid.
7. Discuss the production of Hepatitis-B vaccine.
8. How does a pathogen develop resistance to antibiotics. Explain the mechanisms.
