Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.PHARM (NEW)/SEM-6/PT-609/2012

2012

PHARMACEUTICAL BIOTECHNOLOGY & INDUSTRIAL MICROBIOLOGY

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) Penicillin is a
      a) β lactum antibiotic
      b) Protein synthesis inhibitor
      c) DNA synthesis inhibitor
      d) None of these.

   ii) Recombinant DNA technology is useful for
      a) gene bank b) genetic mapping
      c) transformation d) both (a) & (b).

   iii) Which of the following have the maximum ethanol content ?
      a) Beer b) Wine
      c) Brandy d) Whiskey.

iv) Which of the following micro-organisms is used for vitamin B 12 assay ?

a) *S. aureus* b) *S. typhi*

c) *L. leishmannii* d) none of these.

v) Vaccines are administered to provide

a) naturally acquired active immunity

b) naturally acquired passive immunity

c) artificially stimulated active immunity

d) all of these.

vi) Activase is used for

a) Myocardial infarction

b) Sugar control

c) Vitamin synthesis.

d) Pulmonary embolism and myocardial infarction.

vii) Immobilization of plant cell is required for production of

a) 2° metabolite b) 1° metabolite

c) phyto pharmaceutical d) none of these.

viii) Hybridoma cell is produced by

a) fusion of antibody producing cell with myeloma cell

b) fusion of two myeloma cells

c) fusion of two normal cells

d) none of these.

ix) Hydroxylation is a type of

a) Biotransformation b) Chemotransformation

c) Both of these d) None of these.

x) The most abundant class of antibody that comprises 80% of serum is

a) IgE b) IgG

c) IgM d) None of these.

xi) Which of the following miro-organisms are employed mostly in alcohol production by fermentation ?

a) *Saccharomyces cerevisiae*

b) *Zymomonas mobilis*

c) both (a) & (b)

d) none of these.

xii) Immunoglobulins (antibodies) are basically

a) Lipoprotein b) Phospholipid

c) Glycoproteins d) Nucleoproteins.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. a) What do you mean by the term "Clone" ?

b) Give one example of cloning with the special reference to sheep "DOLLY". 2 + 3

3. Discuss in brief the complement fixation test. 5

4. What are the different steps involved in the design of a fermentor ? 5

5. "All immunogens are antigens but all antigens are not immunogens." Explain with reason. 5

6. Out line the manufacture of beer, including the purpose of different stages of it. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What do you mean by antigen-antibody interaction ?
   b) Mention different types of antigen-antibody interaction.
   c) Briefly explain the following terms :
      i) Transformation ii) Conjugation iii) Transduction.

   $1 + 5 + (3 \times 3)$

8. Describe the different stages involved in streptomycin production by fermentation method with a real sketch of fermenter design. 15

9. What do you mean by enzyme immobilization ? What are the techniques employed in immobilization ? Write the steps involved in immobilization on porous glass. 5 + 5 + 5

10. Write the advantages of biotransformation over chemotransformation. Briefly describe biotransformation of steroids with suitable examples. Write the difference between ales beer and lager beer. 5 + 5 + 5

11. a) What are the monoclonal antibodies ?
    b) What are the purposes of hybridoma technology ?
    c) How do you select a myeloma cell and produce monoclonal antibody by hybridoma technology ?
    d) What are the applications of monoclonal antibody ?

    2 + 3 + 7 + 3