Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Pharm(N)/SEM-6/PT-609/2011

2011

PHARMACEUTICAL BIOTECHNOLOGY AND 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) Lager Beer is

      a) Bottom fermented beer

      b) Top fermented beer

      c) Middle fermented beer

      d) None of these.

   ii) All are methods of enzyme immobilization 'on' support *except*

      a) adsorption b) entrapment

      c) cross-linking d) covalent binding.

iii) Single stranded DNA that is converted from an *m*-RNA template is

a) *r*-DNA b) *c*-DNA

c) 2-DNA d) all of these.

iv) An example of "delayed hypersensitivity" is

a) contact dermatitis

b) arthus reaction

c) both of these

d) tissue graft rejection.

v) Determination of base sequences in DNA strand is

a) gene synthesis b) gene mapping

c) gene sequencing d) gene probe.

vi) Break down of fibrin is catalyzed by

a) Plasmin b) Renin

c) Rennin d) Ptyalin.

vii) Which of the following enzymes does not produce sticky ends ?

a) *EcoRI* b) *EcoRV*

c) *PstI* d) All of these.

viii) The storage condition for lyophilized vaccine is

a) <–20°C b) 2° – 8°C

c) room temperature d) none of these.

ix) Example of vaccine made from metabolic products is

a) Diphtheria b) Cholera

c) Whooping cough d) Polio.

x) Penicillin, an antibiotic is produced by

a) Penicillium chrysogenum

b) P. glacum

c) P. patulum

d) P. griseofulvin.

xi) Which of the following is predominant in mucous secretion ?

a) IgA b) IgM

c) IgD d) IgG.

xii) Streptomyces olivacens is the micro-organism used to produce

a) Vitamin *A* b) Vitamin *B*

c) Vitamin B_{12} d) Vitamin B_6 .

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Write a short note on streptokinase.

3. How will you determine the amount of "Antigen" or "Antibody" present in a sample of blood by the method of "RIA" ?

4. What are the factors affecting the enzyme kinetics ? Explain them in briefly.

5. Write down the different steps involved in Transduction.

6. Write a short note on the raw materials required for the fermentative production of Beer.

GROUP – C

(Long Answer Type Questions)

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

7. Microbial transformation has great advantage over chemical transformation. Explain. What are the different types of Bio-transformation reactions ? Give some examples of steroid biotransformation. 6 + 5 + 4

8. Discuss the various steps involved in the commericial production of any *two* of the following antibiotics. $7\frac{1}{2} + 7\frac{1}{2}$

   a) Benzyl Penicillin

   b) Streptomycin

   c) Tetracycline.

9. a) What are the monoclonal antibodies ?

   b) What is the purpose 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

10. Write an account on gene cloning by Polymerase Chain Reaction. How is immunological tolerance developed ?

    10 + 5

11. Describe the method of manufacturing and quality control of a killed bacterial vaccine with proper example. $7\frac{1}{2} + 7\frac{1}{2}$