



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.PHARM (OLD)/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 :

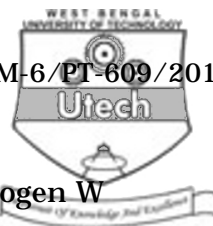
$10 \times 1 = 10$

- i) Which of the following reactions on prototype IgG will give two  $F_{ab}$  and one  $F_c$  fragments ?
  - a) Pepsin digestion
  - b) Papain digestion
  - c) Mercaptoethanol reduction
  - d) None of these.
- ii) Which of the following statements is not true ?
  - a) A single antibody has two pairs of identical heavy and light chains of polypeptides
  - b) These polypeptide chains are duly joined by disulphide bonds
  - c) Antibodies normally serve as surface receptors located on certain immunologically active cells
  - d) They impart cell-mediated immunity.

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- viii) Epitopes are associated with
- antibody
  - immunogen W
  - haptens
  - none of these.
- ix) The most abundant class of antibody that comprises 80% of serum is
- IgE
  - IgG
  - IgM
  - none of these.
- x) IgG molecules can be digested with immobilized
- amylase
  - lipase
  - papain
  - all of these.
- xi) The enzyme involved in the steps from mRNA to cDNA is
- DNA dependent RNA polymerase
  - RNA dependent RNA polymerase
  - Reverse transcriptase
  - cDNA synthetase.

### GROUP - B

#### ( Short Answer Type Questions )

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

- Write a short note on Lattice entrapment of enzymes.
- Write on the formation of human insulin by recombinant technology & its application.
- What are the main factors for designing fermentation process ?
- "All immunogens are antigens but all antigens are not immunogens." Explain with reasons.
- What is immunization ? Differentiate between active and passive immunizations.  $1 + 4$
- Write on Plasmids as vectors of cloning.



**GROUP - C**

**( Long Answer Type Questions )**

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

8. Describe a standard method of an antibody. Name the different types of antibodies and outline their unique features.  $7 \frac{1}{2} + 7 \frac{1}{2}$
9. What are the different types of traditional vaccines ? Give examples. How are bacterial harvests processed to get different bacterial vaccines ?  $3 + 12$
10. What do you mean by Bio-transformation ? What are the different types of bio-transformation reactions ? Give 4 examples indicating the related micro-organisms. Give a brief account on bio-transformation of steroids.  $2 + 1 + 4 + 8$
11. What do you mean by enzyme immobilization ? What are the techniques employed in the enzyme immobilization ? What are the steps involved in enzyme immobilization on porous glass as an inorganic support ? What are the advantages of enzyme immobilization ?  $2 + 5 + 5 + 3$
12. What are the steps involved in production of monoclonal antibodies ? What are the advantages and limitations of monoclonal antibodies ?  $7 + 4 + 4$
13. Describe the fermentive production of tetracycline with appropriate diagram.  $15$

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