



Name :

Roll No. :

Invigilator's Signature :

CS/M.Pharm / SEM-2 / MPT-209 / 2010

2010

PHARMACEUTICAL BIOTECHNOLOGY

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 × 1 = 10

- i) The technique used for gene transfer involving liposomes is
- a) Particle bombardment technique
 - b) Microinjection technique
 - c) Macroinjection technique
 - d) Lipofection technique.
- ii) The lymphokine that has a therapeutic role in treating renal cell carcinoma is
- a) α -interferon
 - b) β -interferon
 - c) γ -interferon
 - d) none of these.
- iii) Baffled stirred tank fermenter is used for production of
- a) Antibiotics
 - b) Alcohol
 - c) both (a) & (b)
 - d) none of these.



- iv) PCR is exclusively used for
- a) DNA identification b) DNA repair
- c) DNA amplification d) DNA recombination.
- v) Hybridomas are employed for
- a) production of somatic cells
- b) killing cancer cell
- c) synthesis of antibiotics
- d) synthesis of monoclonal antibodies.
- vi) Cloning vectors with the transcription and translation signals are called
- a) Plasmid vector b) Expression vector
- c) pBR 322 d) pUC.
- vii) Soya bean casein digest media is utilized for the growth of
- a) aerobic bacteria b) anaerobic bacteria
- c) fungi d) protozoa.
- viii) The Kenow fragment is a part of the enzyme
- a) *E.coli* DNA polymerase-I
- b) T₄ DNA ligase
- c) T_{aq} Polymerase
- d) none of these.



- ix) In a continuous culture of cells or micro-organisms are maintained in
- a) exponential phase b) growth phase
c) stationary phase d) all of these.
- x) Anticodons are present in
- a) *m* RNA b) *r* RNA
c) *t* RNA d) all of these.
- xi) In case of a turbidostat, the parameter monitored is
- a) turbidity of the medium
b) p^H of the medium
c) temperature of the medium
d) none of these.
- xii) Which of the following is not an oncogene ?
- a) BRCA 1 b) p^{53}
c) $p^{16 INK4A}$ d) HMS1.

GROUP – B

(Short Answer Type Questions)

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

2. What are the advantages of using retroviruses as a vector for gene therapy over other vectors.
3. Write a short note on penicillin amidase.
4. Briefly discuss the validation process of steam sterilization.
5. What is a turbidostat ? What are the factors to be considered for maintaining a continuous fermentation process ?
6. Write a short note on Gel electrophoresis.



GROUP – C

(Long Answer Type Questions)

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

7. a) Describe briefly the production of monoclonal antibodies.
- b) Enumerate the diagnostic and therapeutic applications of monoclonal antibodies with examples. $5 + 10$
8. Write a brief note on PCR amplified oligonucleotide directed mutagenesis with neat diagram. Describe in brief how protease sensitivity and metal cofactor requirements can be modified by protein engineering.
9. What is the protocol for sterility testing of parenteral preparation and ophthalmic products ? Describe with neat labelled diagram the composition of the air handling unit required for area of preparation of parenteral products. $8 + 7$
10. a) Explain gene expression & regulation of gene expression.
- b) Discuss in brief about lac operon and trp operon.
- c) What do you understand by mutation and mutants ?
- d) What is stringency control ? $1 + 2 + 4 + 4 + 2 + 2$
11. Write the characteristics of fermentation processes with recombinant microbial strains.

