# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIO TECHNOLOGY

THIRD SEMESTER – NOVEMBER 2009

**BT 3953 - PHARMACEUTICAL BIOTECHNOLOGY**

Date & Time: 12/11/2009 / 9:00 - 12:00 Dept. No. Max. : 100 Marks

**PART A (20 marks)**

**Answer all the questions**

**I Choose the best answer (5×1=5marks)**

1. Several hundred subjects are used for a comparative study of the drug in trials of
   (a) Phase I (b) Phase II (c)Phase III (d) Phase IV
2. Ergosterol is produced by
   (a) *Pseudomonas* sp. (b) *E. coli* (c) *Bacillus* sp. (d) *Aspergillus* sp.
3. Lectin microaarays can be used to study
   (a) glycosylation (b) posttranscriptional modification
   (c) transgene expression (d) protein synthesis
4. Which one of the following is a complement fixation inhibitor?
   (a) CD 90 (b) FK506 (c) Tumour necrosis factor (d) Decay accelerating factor
5. In drug discovery, the term 'hits' refers to
   (a) Compounds that bind specifically to the target
   (b) Compounds that do not bind to the target
   (c) Illegal drugs
   (d) Drugs that bring good profit

**II State whether true or false, if false give reasons (5×1=5marks)**

6. Insugen was produced by Biocon.
7. NaOH is a good 'cleaning in place' agent.
8. Capsaicin is a plant terpenoid.
9. The herpes simplex virus thymidine kinase gene can be used as a suicide gene in gene therapy.
10. Generic drugs need an investigational new drug application to be filed for approval.

**III Complete the following (5×1=5marks)**

11. _____ is recombinant DNase produced by Genentech.
12. Clinical development of rituximab was conducted by seven staff from the organization called _____
13. Acyclovir is used to treat _____ infected cells.
14. Most of the immune response to pig xenografts is against the _____ epitope.
15. The screening of thousands of compounds to identify 'hits' is referred to as _____ screening.

**IV Answer the following, each within 50 words (5×1=5marks)**

16. Name the drug regulatory organization in India.
17. Define irrational drug design.
18. How is the sterilization of therapeutic proteins achieved?
19. Why are pigs preferred nowadays as a source of xenografts?
20. Enlist two dietary sources of flavonoids.

**PART B (5×8=40marks)**

**Answer any five of the following, each in about 250 words**

21. Define the following terms:
    (i) Pharming
    (ii) Epogen
    (iii) Lobbying
    (iv) Golden rice
22. Explain preclinical development in vaccine production.
23. Describe the following:
    (i) Water for injection (3)
    (ii) Coumarins (2)
    (iii) Reasons for the use of xenotransplantation (3)
24. Write notes on halometabolites and steroids.
25. Explain the strategies that can be employed for prevention of xenograft rejection.
26. Discuss the following:
    (i) Role of the United States Food and Drug Administration in drug production (5)
    (ii) Designer drugs (3)
27. How are monoclonal antibodies used in cancer diagnosis and therapy.
28. Write a note on molecular modelling.

**PART C (2×20=40marks)**

**Answer any two of the following, each in about 1200 words**

29 (A) Discuss the following:
    (i) Metabolic engineering for pharmaceuticals giving two examples
    (ii) Drug discovery process
    (iii) Rational drug design

**OR**

29 (B) Give an account of the different gene delivery strategies and mechanisms used for gene therapy. Add a note on gene therapy for cardiovascular disorders and infectious diseases.

30 (A) Write notes on:
    (i) Clinical development of rituximab
    (ii) Protein engineering for biosensors

**OR**

30 (B) Explain the following:
    (i) Use of bioconversion for drug production
    (ii) Prostaglandins

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