

Time: 3 Hours

Marks: 70

- Q.No.1 Answer the following
- A) What do you mean by transgenesis? 1
  - B) Draw a flow chart of downstream processing of fermentation. 2
  - C) Comment of Diffusion assay. 2
  - D) Write a short note on DNA fingerprinting along with applications. 2
  - E) Define electrophoresis and write a note on SDS-PAGE. 2
  - F) Define biosensors and enlist its applications. 2
  - G) Explain the following terms in relation with host microbe relationship.
    - i) Parasitism 2
    - ii) Commensalism. 2
  - H) Comment on enzyme used in blood sugar level assessment. 2
- Q.No.2 Answer the following.
- A) Elaborate on production of penicillin by fermentation 4
  - B) technology. 4
  - C) Define immobilization, and comment on any two methods of immobilization. 3
  - What do you mean by anti-sera, give detailed production of anti-tetanus sera. 3
- Q.No.3 A) What is cDNA, explain the process to make this library. 4
- OR
- What is gene therapy, explain its approaches and methods
- B) Define enzyme immobilization and explain Adsorption in detail with its applications. 4
  - C) Give the outline of general method of preparation of BCG vaccine. 3
- Q.No.4 Answer the followings
- A) Explain Clonal selection theory. 4
  - OR
  - Explain structure of Antibody and types of antibody.
  - B) Write a note on different types of fermenters. 4
  - C) What is cell culture, give the application of animal cell culture in pharmaceuticals 3

- Q.No.5 Answer the following
- A) Explain any two types of vectors with their applications in r-DNA method. 4  
OR  
Draw diagram of plasmid. Explain the applications of various vectors. 4
  - B) Comment on: 1. Diffusion bioassay 2. End point assay. 3
  - C) Comment on stem cell culture technique with its applications. 3
- Q.No.6 Answer the followings
- A) Explain the steps involved in hybridoma technology with diagram. 4  
OR  
Explain production and applications of monoclonal antibodies. 4
  - B) What is gene expression. Explain the bacterial gene expression with diagram. 3
  - C) Comment on RIA technique in detail. 3