

- (h) Write down the advantages of microbial biotransformation.
- (i) What is specialized transduction ?
- (j) What is enzyme immobilization ? Write down different methods used for immobilization of enzymes.
- (k) What do you mean by antimicrobial spectrum ?

2. Answer the following questions : $5 \times 8 = 40$

A. Match the following : 5

- | | |
|--------------------|------------------------|
| Encapsulation | pBR 322 |
| Glucose oxidase | Leucopenia |
| Plasmid vector | Cornibacterium simplex |
| Dehydrogenation | Polymer carrier |
| Cytotoxic reaction | Cellophane |

B. Fill in the gaps : 5

- (a) Bacterial transformation was discovered by during his investigation of infection in mice.
- (b) is responsible for conversion of Prednisolone to cortisol.

- (c) The most commonly used microorganism in alcoholic fermentation is
- (d) is the most commonly used fusogen.
- (e) In test specific antibody gets coated on to the latex particle.

C. Briefly explain any *six* of the following questions : 5×6=30

- (a) Explain the different methods of standardization of antibiotics.
- (b) Differentiate between active and passive immunity.
- (c) Write down the procedure of protoplast fusion.
- (d) Briefly explain about bacterial transformation process.
- (e) Draw a complete typical flow sheet of fermentation process and explain it with different parameters.
- (f) Explain the procedure of encapsulation and adsorption.
- (g) Briefly explain about drug activation.

3. Long answer questions (any *three*) : $10 \times 3 = 30$

- (a) What is gene cloning ? Briefly explain about development of hybridoma techniques for monoclonal antibodies.
- (b) What are the different types of bioconversion reaction ? Explain briefly about hydroxylation, dehydrogenation, epoxidation, aromatization and isomerization reactions with special reference to steroids.
- (c) Briefly explain about different factors which affect the enzyme kinetics.
- (d) What do you mean by hypersensitivity reaction ? Write down preparation, standardization and storage of one bacterial vaccine and a viral vaccine.