Note: 1. Figures to right indicates marks.

2. All Questions are compulsory

Q.1 Answer the followings

A) What do you mean by RFLP? (1)

B) Draw a flow chart of downstream processing of fermentation. (2)

C) Comment of Microbial limit test. (2)

D) Write a short note on Northern blotting. (2)

E) Define electrophoresis and write a note on SDS-PAGE. (2)

F) Define biosensors and enlist its applications. (2)

G) Comment immobilization by cross linking. (2)

H) What do you mean by Phagocytosis? (2)

Q.2. Answer the followings.

A) Elaborate on production of amylase by fermentation technology. (4)

B) Explain the production of Human Insulin by rDNA technology. (4)

C) Define vaccines and give classification of vaccines. (3)

Q3 Answer the followings

A) Define Transgenic and Explain application of Transgenic Animals and Plants. (4)

OR

A) What is cDNA, explain the process to obtain it (4)

B) Define enzyme immobilization and explain Adsorption in detail with its applications. (4)

C) Write a short note on BCG vaccines. (3)

Q4 Answer the followings

A) Explain Clonal selection theory. (4)

OR

A) Explain structure of Antibody and types of antibody. (4)

B) Explain pH, Media Composition, aeration and antifoaming agent in fermentation. (4)

C) What is Tissue culture and writes its applications in Pharmaceuticals. (3)

Q.5 Answer the followings

A) Enlist Enzymes used in rDNA technology. Explain the role of restriction endonuclease in detail. (4)

OR

A) Explain any two types of vectors with their applications in r-DNA method. (4)

B) Comment on Diffusion bioassay and Turbidimetric assay. (4)

C) What is animal cell culture? Enlist the components of animal media composition. (3)

Q.6. Answer the followings

A) Explain the steps involved in hybridoma technology with diagram. (4)

OR

A) What is innate immunity? Explain in detail. (4)

B) What is gene expression? Explain the bacterial gene expression with diagram. (4)

C) Comment on type IV hypersensitivity. (3)

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