

Note: 1. Figures to right indicates marks.

2. All Questions are compulsory.

- Q.1 Answer the following
- a Define vector. 1
 - b Explain effect of pH and oxygen parameters in fermentation. 2
 - c Explain microbial limit tests for detection of *S. aureus* in raw materials. 2
 - d Discuss the applications of site directed mutagenesis. 2
 - e Comment on any one method of surface immobilization. 2
 - f Define Inflammation and explain its role in defense mechanism. 2
 - g Enlist the various components of animal cell culture media. 2
 - h Define restriction enzymes and explain two examples with the name of the bacteria and sequence involved in the same. 2
- Q.2 Write short notes on
- a RFLP. 4
 - b C- DNA library. 4
 - c Down stream processing. 3
- Q.3
- a Explain the various molecular mechanisms involved in gene therapy and its limitations. 4
 - b Write any two methods of entrapment immobilization with its applications. 4
 - c Elaborate production of dextran using a flow sheet. 3
- OR**
- Write a note on design of fermentor. 3
- Q.4
- a Discuss the production of Rabies vaccine. 4
 - b Explain the role of animal tissue culture. 4
 - c Write a note on ELISA. 3
- OR**
- Write a note on complement fixation test. 3
- Q.5
- a Explain the technique of diffusion bioassay with its advantages and applications. 4
 - b Describe any one method of DNA sequencing using a suitable diagram. 4
 - c Write a method of production plant tissue culture micropropagation and its applications. 3
- OR**
- Write a note on stem cell culture.
- Q.6
- a Discuss specific defense mechanism. 4
 - b Define autoimmunity and discuss the mechanism involved in autoimmunity with suitable examples. 4
- OR**
- b Distinguish between Type I and Type II Hypersensitivity. 4
 - c Discuss various applications of Hybridoma technology. 3
