UNIT-I

1. Describe the fermentative production of streptomycin.  12

   OR

2. Write notes on:
   a) Semi synthetic Penicillin’s  6
   b) Human growth hormone  6

UNIT-II

3. Describe the different types of cultures used in plant tissue culture.  12

   OR

4. Write the principle of plant tissue culture. Describe the properties of Agro bacterium Ti Plasmid and its use as a vector.  12

UNIT-III

5. Write the principle, maintenance, media and applications of animal cell cultures.  12

   OR

6. Describe the production of:
   a) Cytokines  6
   b) Interferons  6
UNIT-IV

7. Describe transformed human cell lines and their applications. 12

OR

8. What are Stem cells? Differentiate between embryonic stem cells and adult stem cells. Write their applications. 12

UNIT-V


OR

10. What is Scale up? Describe the principle and factors to be considered in the Scale up of a fermentation process. 12

[01/IS/208]