1 Answer the following: (any two) 18
   (a) Explain southern blot technique and give its importance.
   (b) How protein – protein interaction is determined by two hybrid analysis?
   (c) Describe DNA mobility shift as a tool for studying microbial physiology.

2 Answer the following: (any two) 18
   (a) Discuss. Explain two component signaling system.
   (b) Discuss biochemistry and physiology of adaptation of extreme thermophilies.
   (c) Discuss biochemistry and physiology of adaptation of extreme halophiles.

3 Answer the following: (any two) 18
   (a) Describe methods for C-terminal sequencing of protein.
   (b) How secondary structure of protein is determined?
   (c) Discuss mechanism of acid base catalysis.
4 Write notes on the following: (any two)

(a) Discuss competitive, non competitive and uncompetitive inhibition of enzyme.

(b) Lineweaver Burk plot v/s Hans Plot.

(c) Derive Michaelis – Menten Equation.