Exam.Code:0910
Sub. Code: 6717

1079

B.E. (Biotechnology) Sixth Semester

BIO-614: Down Stream Processing

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following briefly:-

a) Very briefly mention the need of downstream processing.

b) Which unit operations can be applied for separation of bio molecules on the basis of ionic charge; solubility?

c) Give the function and example of filter aids.

d) What is the difference between salting in and salting out?

e) How can you remove viruses and inorganic salts from your sample?

f) What are ampholytes?

g) Give the significance of small particle size of the stationery phase in high performance liquid chromatography.

h) What is bound and unbound moisture?

i) When is aqueous two phase extraction preferred over extraction using organic solvents?

j) Name the different rotors used in a centrifuge. (10x1)

UNIT – I

II. a) Describe the characteristics of a fermentation broth to be considered for isolation and purification of a protein.

b) Write a note on the use of non-ionic polymers in protein precipitation. (5,5)

III. a) Explain the operation of any one batch filtration equipment.

b) What is the need and application of distillation? Explain giving examples.

c) Detail any one mechanical method of cell lysis. (3,3,4)

IV. a) Elaborate on the process of adsorption in the isolation of a product from fermentation broth. Also explain the various factors which affect adsorption.

b) Differentiate clearly between density gradient and differential centrifugation. (7,3)

P.T.O.

UNIT – II

V. a) What is immobilized metal ion affinity chromatography? Describe its practice using suitable examples.

b) Give an account of the applications of gel filtration chromatography. (7,3)

VI. a) Describe immunoelectrophoresis.

b) What are the functions of various components of SDS PAGE? (5,5)

VII. a) Explain the drying curve.

b) Explain the principle and process of crystallization. (5,5)

x-x-x