Exam.Code:0910
Sub. Code: 6717

(26)

1059

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. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following briefly:-

a) Differentiate between downstream processing and upstream processing

b) At low pressures, the amount of the gas adsorbed is ____ proportional to the pressure

c) Give another name for gel permeation chromatography.

d) Give the principle of working of any one detector used in GC/HPLC

e) Cell lysis using a homogenizer is based on what method?

f) Give the role of TEMED in SDS-PAGE

g) You are given a mixture predominantly containing Lysozyme (pI =11) and Myoglobin (pI =7) and are asked to precipitate Myoglobin selectively. You have to choose between Ammonium chloride and Ammonium Sulphate as your salt for precipitating. Which salt would you choose? Under what pH conditions would you operate?

h) Rate of migration of DNA in agarose gel electrophoresis is primarily based on what factor?

i) What is an ultracentrifuge?

j) Give the principle of lyophilization. (10x1)

UNIT – I

II. a) Describe the handling characteristics of the fermentation broth.

b) Explain cell lysis using a bead mill

c) Explain aqueous 2 phase extraction (4,3,3)

III. a) Differentiate between centrifugation and filtration as separation methods

b) What do you understand by the term adsorption? What factors affect adsorption? (4,6)

P.T.O.

IV. Describe in detail the precipitation techniques used for concentration and clean up of proteins. (10)

UNIT – II

V. a) What are the major differences between dialysis and ultrafiltration?
b) Explain concentration polarisation in pressure driven processes. (4,6)

VI. a) Explain iso-electric focussing technique for separation of proteins.
b) Describe the experimental setup and procedure of capillary slectrophoresis (5,5)

VII. Detail the process of affinity chromatography. (10)

x-x-x