OR

(p) Dialysis 4

(q) Ultracentrifugation. 4

(r) Biological membrane. 4

5. (a) What is electrophoresis ? Describe its principle. 4

(b) Describe PAGE in brief. 4

(c) What is 2-D electrophorasis ? 4

OR

(p) Mention isoelectric focussing. 4

(q) What is western blotting ? Give its applications. 4

(r) Discuss Northern blotting. 4

6. Describe the following techniques in brief.

(a) ESR 4

(b) NMR 4

(c) UV spectroscopy 4

Second Semester B. Sc. (Part – I) Examination

2S – BIOCHEMISTRY

(Biophysical and Biochemical Techniques)

P. Pages : 5

Time : Three Hours] [Max. Marks : 80

Note : All questions are compulsory and carry equal marks except Q.No.**1** which carries **8** marks.

1. (A) Fill in the blanks.

(i) pH value of an alkaline solution is ——— than 7.

(ii) Dialysis in used for removing ——— from proteins.

(iii) The optical density is directly proportional to concentration of ——— in solution.

(iv) In any chromatographic technique ——— no. phases are required. 2

(B) Choose the correct alternative to complete the sentence.

(i) Phenomenon of osmosis in opposite to that of

(a) Diffusion (b) Effusion

(c) Affusion (d) Coagulation.

(ii) Adsorption is applied in purifications of

(a) Vitamins (b) Hormones

(c) Enzymes (d) Coenzymes

(iii) Spraying reagent (locating reagent) used in amino acid separation by paper chromatography is

(a) Potassium permanganet (b) Silver nitrate

(c) Ninhydrin (d) Ammonia.

(iv) The osmotic pressure of a solution relating to solute molecules depends on the

(a) Size (b) Shape

(c) Number (d) Volume. 2

(C) Answer in **one** sentance.

(i) What is buffer system ?

(ii) What is active transport ?

(iii) Define electrophoresis ?

(iv) What is Beer's law ? 4

2. Discuss the following :—

(a) Free energy change. 4

(b) Standard free energy. 4

(c) Redox Potential. 4

OR

(p) Relation between standard redox potential and free energy change. 4

(q) Determination of $\triangle G$ of reaction. 4

(r) Second law of thermodynamics with its applications. 4

3. Describe the paper chromatographic techniques in detail.

OR

Describe the thin layer chromatography in detail. 12

4. Write about following :—

(a) Weak acids and strong base. 4

(b) Water as biological solvent. 4

(c) Physiological buffers. 4

OR

(p) Flame photometry 4

(q) Mass spectroscopy 4

(r) Fluorometry 4

7. What are radiations ? Discuss in detail about Biological hazards of radiations.

OR

Describe various immunological techniques in detail. 12

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