

[illegible]

**B.Tech.(Petroleum Refinery Engineering) (EL-I 2013 Batch) (Sem.-6)**

**Paper ID : [74041]**

**Max. Marks : 60**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

**1. Write briefly :**

- a. What are the advantages of having polymer membrane?
- b. Write short notes on gas chromatography.
- c. Explain fouling of membrane.
- d. Mention four types of adsorption isotherm.
- e. Mention 2 factors for selection of separation process.
- f. What is electrophoresis?
- g. What is osmotic pressure?
- h. What is ultra-filtration?
- i. Describe the cascade arrangement for membrane processing.
- j. Mention two application of ionic separation.

**SECTION-B**

2. Give few examples of polymer membrane. What are the advantages and disadvantages of having polymer membrane?
3. Explain the working principle of osmotic distillation and describe its various applications.
4. Explain the advantages and limitations of the various new separation techniques used in the chemical industries over conventional methods.
5. What are various application of chromatography in separation of enzymes and protein?
6. Derive freundlich equation.

**SECTION-C**

7.
  - a. Explain zone melting process.
  - b. Foam formation mechanism.
8. Write short notes on :
  - a. Zone electrophoresis.
  - b. Use of exchange reaction for separation.
9. Explain the following :
  - a. Ring over technology.
  - b. Molecular sieves.