Roll No. .....

1985

B. E. 1st Semester

Examination – December, 2011

CHEMISTRY

Paper : CH-101-E

Time : Three hours] *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Derive an expression for the entropy change of an ideal gas when the temperature changes from T_1 to T_2 and volume changes from V_1 to V_2. 10

(b) What is chemical potential ? Derive an expression for it. 10

2. (a) State phase rule and explain the terms involved in it. 10

(b) Discuss the phase rule of lead-silver system having simple eutectic formation. 10

3. (a) Differentiate between scale and sludge. 5

(b) Define hardness of water. How is it expressed ? Give various units of hardness. 5

(c) Discuss the EDTA method of determining hardness of water. 10

4. (a) What are ion-exchangers ? How is water demineralized using these exchangers ? 10

(b) What is saline water ? Explain the process of reverse osmosis for desalination of water. 10

5. What are the factors affecting corrosion ? How is it prevented ? 20

6. (a) What is Grease ? How is it prepared ? Discuss its classification. 10

(b) Define Lubrication. Discuss its mechanism. 10

7. Give preparation, properties and uses of following : 20

(a) PVC

(b) PVA

(c) Phenol formaldehyde resin

(d) Urea formaldehyde resin

8. (a) Discuss the principle, method & applications of TGA. 10

(b) Describe flame photometry. Give its applications and drawbacks. 10
