ROLL NO.	
ID NO.	

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 40 | Max Time: 120 Mins | Weightage: 40 %

ENDTERM FINAL EXAMINATION

I Semester AY 2017-18 | Course: **CHE101 ENGINEERING CHEMISTRY** | 28 DEC 2017

Instructions:

i. Write legibly

ii. Scientific and non programmable calculators are permitted

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Part A

[5 Q x 2 M= 10 Marks]

1. What are refractory materials? What are their importance in industry?

2. What is annealing? Why is steel subjected to annealing treatment?

3. Define octane number.

4. Why does corrosion of water filled steel tanks occur below the water line?

5. What are liquid crystals? Mention the different mesophases of thermotropic liquid crystals.

Part B

[4 Q x 5 M= 20 Marks]

6. State Bragg's law. Derive Bragg's equation for diffraction of X-rays by crystals

7. Describe the construction and working of Leclanche cell. How does alkaline battery differ from Leclanche cell?

8. Discuss the electroless plating of Nickel

9. Explain fractional distillation of petroleum with neat labelled diagram.

Part C

[1 Q x 10 M= 10 Marks]

10. a) State the Phase rule and express it mathematically.

b) Draw and label the phase diagram for water system. Explain the significance of areas, curves and triple point.

OR

11. a) Name the raw materials used in the manufacture of Portland cement

b) Explain the stages involved in the manufacture of Portland cement with chemical reaction

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Max Marks: 20 | Max Time: 60 Mins | Weightage: 20 %

TEST 2

I Semester AY 2017-2018 | Course: **CHE 101 Engineering Chemistry** | 27 OCT 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

(3Q x 2 M= 6 Marks)

1. Define tacticity. How are polymers classified based on tacticity?
2. What are called compounding of plastics? Name the additives used in this process.
3. Write a flow chart for the processing of latex to obtain crude rubber.

Part B

(2Q x 4 M= 8 Marks)

4. Differentiate between thermo and thermosetting plastics.
5. Explain the synthesis of Nylon-6,6 with a chemical equation. Give any two applications.

Part C

(1Q x 6M= 6 Marks)

6. Describe the steps involved in the free radical mechanism polymerization mechanism

(or)

Cationic polymerization mechanism.

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Max Marks: 40 Max Time: 60 Mins Weightage: 20 %

TEST 1

I Semester 2017-2018 Course: **CHE 101 Engineering Chemistry** 16 SEPT 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

(6 Q x 3 M= 18 Marks)

1. State the law of Chemical equivalence.
2. How do end-point and equivalence point differ each other?
3. List the advantages of instrumental methods of analysis over volumetric analysis.
4. Name the buffer solution added in EDTA titration for determination of hardness of water. Why is it added?
5. What is caustic embrittlement in boiler? How it can be avoided?
6. Mention any 3 internal method of treatment for boiler feed water.

Part B

(2Q x 6 M= 12 Marks)

7. Describe the procedure involved in the Zeolite process for the treatment of water. What are the advantages and the disadvantages of the process.
8. Define desalination. Explain briefly the reverse osmosis method for the desalination of brackish water.

Part C

(1 Q x 10 M= 10 Marks)

9. A sample of water obtained from a bore well in Pattancheru near Hyderabad gave the following analysis for salts: $CuSO_4$ = 30.4 mg/l; $Mg(HCO_3)_2$: 25.5 mg/L ; $MgSO_4$: 14.7 mg/L ; $MgCl_2$: 19.8 mg/L ; $CaSO_4$: 30.5 mg/L ; $Ca(HCO_3)_2$: 42.2 mg/L; NaCl =11.7 mg/l. Find out the total hardness of water in ppm and °F units, giving temporary and permanent hardness assuming the atomic masses of Fe=56, Ca=40, Mg=24,Na=23, S=32, C=12, O=16, H=1.