



**PRESIDENCY UNIVERSITY, BENGALURU**  
**SCHOOL OF ENGINEERING**

Max Marks: 30

Max Time: 55 Minutes

Weightage: 15 %

**Set A**

**TEST 3**

II Semester 2016-2017

Course: CHE A 103 Engineering Chemistry

19 April 2017

**Instructions:**

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

**Part A**

(4Q x 3 M= 12 Marks)

1. Explain any 3 components of a battery.
2. What is an indicator? Name any two types of indicator.
3. What is an alloy? Mention any two purpose of alloying.
4. What is annealing? Why is steel subjected to annealing treatment?

**Part B**

(2Q x 5 M= 10 Marks)

5. Give the construction and cell reactions of Lead-acid storage battery.
6. What is meant by volumetric analysis? Explain the different types of titrations with suitable example each.

**Part C**

(1Q x 8 M= 8Marks)

7. Explain the various steps involved in the extraction of iron with a neat labelled diagram and suitable reactions.



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**Set A**

**TEST 2**

II Semester 2016-2017

Course: CHE A 103 Engineering Chemistry

22 March 2017

**Instructions:**

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

**Part A**

(4Q x 3 M= 12 Marks)

1. What are conducting polymers? Give any two examples of conducting polymers.
2. Write any three characteristic properties of Fiber-reinforced composites.
3. Define unit cell. Write the characteristics of unit cell for the following crystal classes:
  - a) Cubic
  - b) Tetragonal.
4. What do you mean by Frenkel and Schottky defects in crystalline solid?

**Part B**

(3 Q x 4 M= 12 Marks)

5. Differentiate between amorphous and crystalline solids.
6. Calculate the number of atoms per unit cell in the following lattices:
  - a) Simple cubic
  - b) Face centered cubic
  - c) Body centered cubic
  - d) End centered cubic
7. Explain any two mesophases of thermotropic liquid crystal.

**Part C**

(1Q x 6 M= 6Marks)

8. State and derive Bragg's equation for the diffraction of X-rays by crystals.



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**Set A**

**TEST 1**

II Semester 2016-2017

Course: CHE A 103 Engineering Chemistry

22 February 2017

**Instructions:**

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

**Part A**

(4Q x 3 M= 12 Marks)

1. What is tacticity? How are polymers classified based on tacticity?
2. Name the copolymers formed by the reaction of the following monomers:
  - a. Ethylene glycol + Terephthalic acid
  - b. Butadiene + Acrylonitrile
  - c. Hexamethylene diamine + Adipic acid
3. Explain with the help of a flow chart, the procedures used in the processing of natural rubber.
4. State any two differences between thermo and thermosetting plastics with an example.

**Part B**

(2 Q x 5 M= 10 Marks)

5. Discuss the compounding of plastics. Mention the principle ingredients used in the compounding of plastics. What are their functions?
6. What is bakelite? How is it manufactured and mention any two uses.

**Part C**

(1Q x 8 M= 8Marks)

7. Describe the steps involved in addition polymerization proceeding by free radical mechanism with an example of polyethylene.