



ID NO.	
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PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 40 %

Max Marks: 80

Max Time: 2 hrs.

08 May 2018, Tuesday

ENDTERM FINAL EXAMINATION MAY 2018

Even Semester 2017-18

Course: **CHE 101 Engineering Chemistry**

II Sem. Chemistry cycle

Instructions:

- (i) Read the question properly and answer accordingly.
 - (ii) Question paper consists of 3 parts.
 - (iii) Scientific and Non-programmable calculators are permitted
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Part A

(6 Q x 4 M = 24 Marks)

1. How do the following factors affect the rate of corrosion
 - a. Electrode potential difference
 - b. Anodic and cathodic area effect
2. Define a phase. How many number of phases are present in in the following systems
 - a. A mixture of $N_{2(g)}$ and $O_{2(g)}$
 - b. A mixture of benzene and water
 - c. Sulphur system
 - d. A system containing $H_2O_{(l)}$ and $H_2O_{(g)}$
3. Distinguish between amorphous and crystalline solids.
4. Give reason(s) for the following
 - a. A fuel with a low non-combustible matter content is a good fuel
 - b. The net calorific value of a fuel is less than the gross calorific value
5. Define the term Lubrication. Mention any four purposes of lubrication.
6. What is galvanic corrosion? Give two examples

Part B

(5 Q x 8 M = 40 Marks)

7. Explain the constituents of Portland cement. Why Gypsum is mixed with cement during grinding and packing?
8. What is electroplating? Mention its purpose. Describe the electroplating of Chromium
9. State Bragg's law of X-ray diffraction. Prove that $2d\sin\theta=n\lambda$
10. Explain the different types and uses of coal. Describe the complete process of the carbonization of coal by Bee-hive oven method.
11. Describe the manufacturing process of steel by electric arc furnace method with the heat treatment.

Part C

(1Q x 16 M = 16 Marks)

12.

- (a) What is phase rule? Denote the terms in the phase rule
- (b) Explain the phase rule for one-component system using water system as example

OR

- (a) What are thermotropic liquid crystals?
- (b) Explain the different types (mesophases) of thermotropic liquid crystals.
- (c) Mention ant three applications of liquid crystals.



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Wednesday 28 March 2018

TEST – 2

SET A

Even Semester 2017-18 Course: **CHE 101 ENGINEERING CHEMISTRY** II Sem (Chem. cycle)

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted

Part A

(4 Q x 3 M = 12 Marks)

1. What are called Fiber reinforced plastics. Mention their applications.
2. Write the flow chart for the processing of Latex
3. Differentiate between charging and discharging in batteries
4. Give the functions of any three additives used in the compounding of plastics

Part B

(2 Q x 6 M = 12 Marks)

5. Describe the synthesis of araldite. Mention its uses
6. Explain the construction and cell reactions of lead acid battery.

Part C

(2Q x 8 M = 16 Marks)

7. What are thermosetting plastics? Explain the synthesis of Bakelite mentioning its properties and uses.
8. Define fuel-cell. Mention the advantages of fuel cells over conventional batteries. Give the cell representation and cell reactions of Hydrogen-Oxygen fuel cell.



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Max Time: 1 hr.

20 Feb Tuesday 2018

TEST – 1

Even Semester 2017-18 Course: **CHE 101 Engineering Chemistry** II Sem (Chemistry cycle)

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted

Part A

(2Q x 6 M = 12 Marks)

1. What are zeolites? Where does it find application?
2. Name any two coagulants used in the removal of suspended impurities in water.
3. Define degree of polymerization
4. What is boiler corrosion? Mention any two reasons.
5. Write the monomers of the following polymers
(a) PVC (b) Nylon-6, 6
6. What is gravimetric analysis? List the types.

Part B

(2 Q x 6M = 12 Marks)

7. What is precipitation titration? Explain argentometric method of titrations with reactions.
8. (a) What is potable water? Mention any two specifications.
(b) Explain briefly the different stages used in removal of suspended impurities in the domestic water treatment

Part C

(2Q x 8M = 16Marks)

9. Explain the free radical mechanism of addition polymerization
10. Calculate the temporary, permanent and total hardness (in degree clarke) of a water sample containing: $\text{Ca}(\text{HCO}_3)_2 = 10.1 \text{ mg/L}$, $\text{Mg}(\text{HCO}_3)_2 = 9.3 \text{ mg/L}$, $\text{CaSO}_4 = 15.6 \text{ mg/L}$, $\text{MgSO}_4 = 14.0 \text{ mg/L}$, $\text{MgCl}_2 = 6.75 \text{ mg/L}$, $\text{NaCl} = 7.5 \text{ mg/L}$. (atomic weights Ca=40; Mg=24; S=32; O=16; H=1; Cl=35.5).