Cat. No: Basc 1104	Marks: 80
Title: Engineering Chemistry	Time : 3 hours

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I. State True / False or Fill up the blanks   (10x1=10)

1. Precipitation is the primary source of water.

2. The coal of highest rank is anthracite coal.

3. Bakelite is a thermoplastic polymer.

4. The reduction potential of an electrode can be increased by decreasing the concentration of the metal ions in contact with metal electrode.

5. $R_f = \dfrac{\text{The distance moved by the pure substance}}{\text{The distance moved by the solvent front}}$

6. Wood → Peat → Lignite → Bituminous coal → Anthracite coal are the Progressive transformation of wood to ....

7. .... Corrosion occurs when two dissimilar metals are electrically connected and exposed to an electrolyte , the metal higher in the Electrochemical series undergoes corrosion.

8. The process of reducing frictional resistance between moving /sliding surfaces, by the introduction of lubricant in between them, is called ....

9. Addition of Sodium hexa meta phosphate to prevent sludge and scale formation in boiler water is called ....

10. The phenomenon in which a metal or an alloy exhibit a much higher corrosion resistance than expected from its position in the galvanic series is called

………………

II. Answer any Ten of the following (10x3 = 30)

1. What are the advantages of Zeolite/ permutit process?

2. Distinguish between gross and net calorific value.

3. Distinguish between thermo plastic resin and thermosetting resin.

4. Why does natural rubber need compounding?

5. Give a brief account of the working of a concentration cell.

6. What are the important corrosion inhibitors? Give examples

7. Write a short note on partition chromatography.

8. Give a brief account of the classification of lubricants with examples.

9. Distinguish between (i) cloud point & pour point (ii) flash point & fire point.

10. Define reverse osmosis. What is the principle of reverse osmosis?

11. What is the principle of High Pressure Liquid Chromatography (HPLC)?

    What are the important uses?

12. Write a short note on Biogas production.

III. Answer any Six of the following (6x5=30)

1. Give a brief account of the various methods used for the disinfection of water.

2. Explain the flue gas analysis by using Orsat apparatus. What is its significance?

3. Describe the synthesis of gasoline by Fischer-Tropsch method and Bergius process .

4. Differentiate between addition polymerization and condensation polymerization with suitable examples.

5. What are the drawbacks of raw rubber and what are the advantages of Vulcanization?

6. Distingush between a reversible cell and an irreversible cell.

7. Explain the mechanism of wet corrosion.

8. Derive Beer- Lambert's law.

IV. Answer any One of the following.   **(10x1 =10)**

1. Derive Nernst's equation. What are the applications?

2. Explain the methods of controlling corrosion.