**MODEL QUESTION PAPER**

**EN 14 104 ENGINEERING CHEMISTRY**

Time 3 hours Maximum marks 100

Answer all questions.

1. State and explain 18 electron rule with any two examples
2. Explain the role of any two bulk metal ions in biological system
3. Write a short note about tensile strength and resilience of polymers.
4. Briefly explain octane number and cetane number.
5. Explain concentration cell .
6. Describe single electrode potential and Helmholtz electrical double layer.
7. Write about differential aeration corrosion and galvanic corrosion.
8. Explain the determination of alkalinity of water. (5X8 = 40marks)
9. (a) Describe the classification of organo- metallic complexes based on the nature of metal-carbon bonds (8 marks)

(b) Write a note on the design of a green synthesis (7 marks)

OR

1. Explain the structure and functions of hemoglobin (7 marks)
2. Write a note on mononuclear and polynuclear carbonyls with two examples for each

(8 marks)

1. (a) What is meant by Tg of polymers? What are the factors affecting Tg (8 Marks)

(b) Explain flash and fire point of lubricants. How is it determined by using Pensky Marten’s apparatus (7 Marks)

OR

(a) Explain the classification of lubricants (7 Marks)

(b) What is meant by calorific value of a fuel? How is it determined by using Bomb calorimeter

(8 Marks)

11. (a) Explain determination of pH using glass electrode with a neat sketch (7 Marks)

(b) Write a detailed note on

(i) solar cells

(ii ) H2-O2 fuel cell (8 Marks) (8 marks)

OR

1. What are secondary cells? Explain lead acid and Ni-Cd storage cells ( 8 Marks)
2. Explain how EMF is determined by Poggendorf’s method (7 Marks)

12. (a) Explain how nature of the metal affects corrosion (8 Marks)

(b) How hardness is determined by using EDTA method (7 Marks)

OR

1. What are the constituents of paints. Explain their functions (8 Marks)
2. Explain water softening by lime soda process (7 Marks)