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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Second Semester

Chemical Engineering

CY 1154 — CHEMISTRY — II

(Common to Polymer Technology/Textile Technology (Fashion Technology))

(Regulations 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define the term 'Bond Energy'.

2. What are van der Waals forces? Explain.

3. Write down the repeating unit of polyester chain.

4. Give an example for (a) Co-polymerisation (b) Co-ordination polymerisation.

5. What is Pilling–Bedworth rule?

6. Write a note on water line corrosion.

7. Expand and explain 'PPM' as applied in water studies.

8. Write down the Dulong's formula to determine calorific value.

9. Write down the principle by which water gas is produced from coal.

10. What is meant by anti knocking characteristics, in engine fuel?

PART B — (5 × 16 = 80 marks)

11. (i) How are grading of coal samples done? Explain in terms of composition and heating values. (8)

(ii) Describe with a neat sketch the fluidized bed method of cracking to augment petrol. (8)

12. (a) (i) Describe various chemical bondings with suitable examples. (8)

(ii) Explain CFT as applied to octahedral and tetrahedral complexes. (8)

Or

(b) (i) Give an account of application of co-ordination complexes in industries. (8)

(ii) Explain metallic bond in terms of Band Theory. (8)

13. (a) (i) How would you classify polymers based on sources and applications? (8)

(ii) Describe the mechanism of addition polymerisation. (8)

Or

(b) (i) Discuss the preparation, properties and uses of Polyethylene and Teflon. (4 + 4)

(ii) Write a note on Bakelite writing necessary equations. (8)

14. (a) (i) What are the factors influencing chemical and electrochemical corrosions? (8)

(ii) Give an account of cathodic protection and sacrificial anode. (8)

Or

(b) (i) Write down the stepwise mechanism of drying of oils. (8)

(ii) What are the fire retardant and water repellant paints? (8)

15. (a) (i) Discuss any three methods of internal conditioning of water giving necessary equations. (8)

(ii) What are the problems one would face when hard water is used in boiler industries? (8)

Or

(b) (i) What is meant by desalination? Explain two methods. (8)

(ii) What are the various methods by which disinfection of domestic water is carried out? Explain. (8)
