Reg. No. : | | | | | | | | | | | | |

J 3167

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Second Semester

Automobile Engineering

CY 1153 — CHEMISTRY — II

(Regulation 2004)

(Common to B.E. Aeronautical Engineering, Mechanical Engineering, Mechatronics Engineering and Production Engineering)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is meant by catalytic cracking? State two advantages of Fischer-Tropsch process?

2. What is natural gas? Name the different types of natural gas. State their uses.

3. What are soft abrasives? Give examples.

4. What is prime requisite of a material to be used as refractory? Name two high temperature refractories.

5. What are the influencing factors of corrosion?

6. Define the term caustic embrittlement.

7. Define the terms component, degree of freedom and triple point with reference to phase rule.

8. What is sintering?

9. What are the glass wares used for gravimetric analysis?

10. State the principle of EDTA titration.

PART B — (5 × 16 = 80 marks)

11. (a) What is flue gas? How is it analyzed using Orsat apparatus?

Or

(b) Explain briefly the ultimate analysis of coal.

12. (a) Discuss the classification of lubricants with suitable example. How does lubricant function?

Or

(b) Discuss the characteristics of polyamide, poly carbonate, poly urethanes and thermo Cole.

13. (a) Discuss the principles of electro chemical corrosion. Distinguish between chemical and electro chemical corrosion.

Or

(b) What are internal and external treatment with reference to boiler feed water? Describe ion exchange process of softening of water.

14. (a) What is the significance of phase rule? Discuss its limitation and applications. Identify the number of phases and components involved in Ag-Pd system.

Or

(b) (i) Discuss the uses, advantages and limitations of powder metallurgy. (10)

(ii) Write notes on pulverization and atomization. (6)

15. (a) Explain in detail how Fe is estimated by dichrometry and iodometry. (16)

Or

(b) (i) Discuss the principle and instrumentation of atomic absorption spectroscopy. (8)

(ii) How will you estimate nickel quantitatively by atomic absorption spectroscopy? Explain. (8)

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