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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2011

COMMON TO MECHANICAL, MANUFACTURING, INDUSTRIAL, PRINTING, MINING, MATERIAL SCIENCE

II SEMESTER

CY 182 – CHEMISTRY II

(REGULATIONS 2004)

Time: 3 Hrs Max Mark: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. Define cetane number.
2. How is water gas superior to producer gas?
3. Define Aniline point.
4. Write a note on thermal spalling.
5. Define priming and foaming problems in boilers.
6. How is caustic embrittlement controlled by adding sodium sulphate to boiler-feed water?
7. In thermal analysis, discuss the shape of freezing curve when a pure substance in a fused or liquid state is cooled slowly.
8. Give the condensed phase rule and explain the terms involved.
9. Mention the principle of gravimetric estimation of nickel.
10. Write briefly about the estimation of magnesium by complexometric titration.

Part – B (5 x 16 = 80 Marks)

11.a(i) Describe the manufacture of metallurgical coke by Otto Hoffman's oven method. (8 Marks)

a(ii) With a neat diagram explain the analysis of flue gas by Orsat apparatus and mention its significance.(8 Marks)

12.a(i) Write a short note on any one natural and one artificial abrasive.(8 Marks)

a(ii) Give the preparation, properties and uses of high Alumina bricks.(8 Marks)

Or

12.b(i) Write a short note on Graphite as solid lubricant.(8 Marks)

b(ii) Give the preparation, properties and uses of Magnesite bricks.(8 Marks)

13.a(i) Explain the desalination of water by reverse osmosis method.(8 Marks)

a(ii) Describe ion-exchange process for demineralization of water.(8 Marks)

Or

13.b(i) Write short notes on calgon conditioning. (8 Marks)

b(ii) Discuss the mechanism of drying of an oil paint. (8 Marks)

14.a(i) With the help of a neat phase diagram describe lead-silver eutectic system.(8 Marks)

a(ii) Draw a neat labelled phase diagram of Zn-Mg system and explain compound formation with congruent melting point.(8 Marks)

Or

14.b(i) How is metal powder prepared? Describe any two applications of powder metallurgy.(8 Marks)

b(ii) What is sintering in powder metallurgy.(8 Marks)

15.a(i) Discuss in detail the principle and working of atomic absorption spectrometry with a neat block diagram.(8 Marks)

a(ii) Explain the principle and determination of iron by dichrometry and copper by iodometry.(8 Marks)

Or

15.b(i) How is the amount of zinc estimated in complexometric titrations using EDTA?(8 Marks)

b(ii) Give the gravimetric estimation of iron as ferric oxide.(8 Marks)

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