Registration No. :

Third Semester Back Examination – 2014

CHEMISTRY - II

BRANCH (S) : CHEM, ENV, TEXTILE

QUESTION CODE : L 309

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions :   2×10

    (a) What do you mean by the octane number ?

    (b) What do you mean by synthetic petrol ?

    (c) What is the main constituent of LPG ?

    (d) What do you mean by the scale and sludge ?

    (e) Why the pH of the solution is maintained to 9 -10, during the estimation of Hardness by EDTA method ?

    (f) What are repeating unit of nylon-6 and nylon- 66 ?

    (g) Why carbonate condinitioning is not suitable for High pressure boiler ?

    (h) What do you mean by the the Nano material ?

    (i) Write down the cell reaction of alkaline battery.

    (j) What is the difference between Galvanizing and Tinning ?

2. (a) A coal has the following composition by weight : C = 90%; O = 3.0%; S = 0.5%; N = 0.5%. Net calorific value of coal was found to be 8,490.5 kcal/kg. Calculate the percentage of hydrogen and higher calorific value of coal.   5

    (b) What do you mean by Nano tube ? Discuss preparation and properties of carbon nano Tube.   5

P.T.O.

3. (a) Calculate the amount of lime required for softening 10,000 L of water containing the following : 5

$Ca(HCO_3)_2$ = 2.43, $MgCl_2$ = 3.80, $MgSO4$ = 2.44, Fe_2O_3 = 3.67 and $NaCl$ = 1.39 mg/L.

(b) Define Octane and Cetane numbers. What is their significance ? 5

4. What do you maen by cracking ? Discuss Thermal cracking with mechanism. What is advantage of catalytic cracking over thermal cracking ? 10

5. (a) Draw a neat diagram and explain the process of softening of hard water by zeolite process. 5

(b) What do you mean by the Battery ? Discuss its characteristic properties. 5

6. (a) What do you mean by addition polymerization and condensation polymerization process ? Explain with example. 5

(b) Draw a neat diagram and explain briefly the cold Lime-Soda process. 5

7. The percentage of composition of a sample of bituminous coal was found to be as under

C = 75.4, H = 4.5, O = 12.5, N = 3.1, S = 1.40 The rest being ash. Calculate the minimum weight of air necessary for complete combustion of 1 kg of coal and percentage of dry product of combustion by weight. 10

8. Write short notes on : 2.5×4

(a) Wet corrosion

(b) Scale and sludge

(c) Alkaline Battery

(d) Condensation polymerization.