

Registration No. :

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Total number of printed pages – 2

B. Tech  
BSCC 1208

Third Semester Regular Examination – 2014

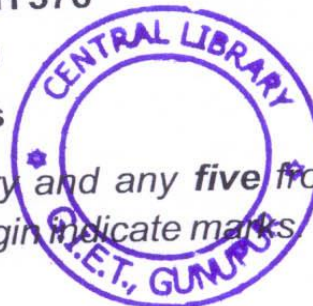
CHEMISTRY.- II

BRANCH(S) : CHEM, ENV, TEXTILE

QUESTION CODE : H 376

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 do you mean by Galvanic corrosion ?
  - (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 conditioning 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 do you mean by the carbonate hardness ?
2. (a) Calculate the G.C.V and N.C.V of coal sample having the following composition : 5  
C = 70% H<sub>2</sub> = 7% O<sub>2</sub> = 4% ,S = 3.5% N<sub>2</sub> = 4.1% and Ash = 6.4%
- (b) What do you mean by Nano tube ? Discuss preparation and properties of carbon nano Tube. 5
3. (a) Calculate the amount of lime required for softening 10,000L of water containing the following : 5  
Ca(HCO<sub>3</sub>)<sub>2</sub> = 2.43, MgCl<sub>2</sub> = 3.80, MgSO<sub>4</sub> = 2.44, Fe<sub>2</sub>O<sub>3</sub> = 3.67 and NaCl = 1.39mg/L.
- (b) Define Octane and Cetane numbers. What is their significance ? 5

P.T.O.

4. What do you mean by Sludge and Scale ? What are the disadvantages of these and how their formation can be prevented ? 10
5. (a) What do you mean by the corrosion ? Discuss various factor that affect the corrosion. 5  
(b) What do you mean by the Battery ? Discuss the it 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. (a) 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=1.4. 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. 5  
(b) What do you are the Unit of hardness ? Write down the relation between them. 5
8. Write short notes on : 2.5×4  
(a) Wet corrosion  
(b) Scale and sludge  
(c) Alkaline Battery  
(d) Condensation polymerization.