F.E. / SEM-II / A.C.-II

28/11/14

QP Code :11836

(OLD COURSE)
(2 Hours) **[Total Marks: 75]**

N.B. :(1) Question no. **1** is **compulsory.**
(2) Attempt any **four** questions from the remaining **six.**
(3) **Figures** to the **right** indicate **full** marks.
(4) Atomic weights **H=1, C=12, N=14, O=16, Na=23, Mg=24, S=32, Cl=35.5, Ca=40**

1. Answer any **five** questions from the following:— **15**
   (a) 1 gm of coal sample was used for determination of nitrogen by Kjeldahl's method. The ammonia evolved was passed into 50 ml of 0.1N H_2SO_4. The excess acid required 40ml of 0.1N NaOH for neutrilization, Calculate the percentage of nitrogen.
   (b) Give the composition, properties and uses of tinman's solder.
   (c) Write are the characteristics properties of a good paint.
   (d) Write the classification of composite materials.
   (e) Write a short note on green fuel.
   (f) What is catalysis? Explain different types of catalysis with one example each.

2. (a) Explain refining of petroleum. **6**
   (b) Define corrosion. Explain interanular corrosion with appropriate diagram and examples. **5**
   (c) Explain the effect of the following alloying elements on steel **4**
   (i) Cr (ii) Ni (iii) Mo (iv) W

3. (a) Calculate the weight and volume required for complete combustion of 1 kg of coal containing C= 60%, H= 5%, O=7%, N= 3% and remaining being ash.(M.W of air =28.949) **6**
   (b) Define cracking. Discuss fluid bed catalytic cracking. **5**
   (c) Explain the following factors affecting the rate of corrosion **4**
   (i) pH of medium
   (ii) position of metal in galvanic series.

4. (a) Explain the production of alcohol from molasses. **6**
   (b) Write a short note on fibre reinforced composites. **5**
   (c) Calculate the percentage atom economy of the following reaction **4**
   $C_6H_6+4.5O_2 \xrightarrow{V_2O_5} C_4H_2O_3+2CO_2+2H_2O$