1ST SEM. /CIVIL/ELECTRICAL/ETE/MECH/CSE/META/MINING/DRILLING/ARCH/IT/ ELECTRICAL[PT]/EEE/ 2021(W) OLD

BST – 102 Engineering Chemistry

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right-hand margin indicates marks.

1. Answer **All** questions. 2 x 10

   a. Define 'calorific value' of fuel. Mention its unit.

   b. Which method of concentration is generally used for sulphide ores?

   c. Calculate the equivalent weights of C_2H_5COOH and $Ca(OH)_2$.

   d. What do you mean by unsaturated hydrocarbons? Which is the second member of alkyne family?

   e. What is pathway of pollutant?

   f. What are co-polymers? Give an example of co-polymer.

   g. What is an amalgam? Give an example of it.

   h. Write the conjugate acid and conjugate base of HS^-.

   i. Define Faraday's 2nd law of electrolysis.

   j. Define hardness of water. What is the unit used to express hardness of water?

2. Answer **Any Six** Questions. 5X6

   a. Define corrosion. Explain the mechanism of rusting of iron.

   b. Define lubricants. Classify lubricants into different types with suitable examples.

   c. Write down the composition and uses of producer gas and water gas.

   d. Write a short note on 'depletion of ozone layer' with its consequences.

   e. Define and explain Aufbau principle. Write down the electronic configuration of copper.

   f. Define normality of a solution.
   How many grams of K_2CO_3 are required to prepare 2.5 liters of its decinormal solution?

   g. Give IUPAC names/structural formulae of the following compounds.

3 (a) Define the terms 'minerals' and 'ores'. 04

(b) Explain smelting process in metallurgical operation. 06

4 (a) Define air pollution. 02

(b) Write down the controlling measures of air pollution. 08

5 (a) Define salt. 02

(b) Classify salts into different types with examples. 08

6 (a) Define P^H of a solution. Calculate the P^H value of 10^{-4} M H_2SO_4 solution. 05

(b) Explain the of co-ordinate bond formation in ammonium ion (NH_4^+). 05

7 (a) Write down the composition and uses of Brass and Bronze. 06

(b) Explain the failures of Rutherford's atomic model. 04