

Industrial Chemistry, Examination November - 2014
B. Sc. Semester-III
Paper- IC-302: Fundamental of Chemical Engineering-I
Subject Code: 3796

Time: 2 Hours

Total Marks: 70

- Que.1 (A) Discuss Atom & Atomic number with example. 04
(B) What is the weight % of C in Acetone, phenol and Benzoic acid? 10
OR
- Que.1 (A) Give dimension and units of Area and Volume. 04
(B) How many atoms & moles are present in 58.5 gm NaCl and 11.5 gm Na. 10
- Que.2 (A) State and explain Avogadro's law. 04
(B) How are you prepared 200 ml 3M aqueous solution of NaOH & HCl? 10
OR
- Que.2 (A) How many grams of NH_4Cl are there in 5 mol? 04
(B) Define Absorption. Write a note on packed column absorber. 10
- Que.3 (A) Find out weight % of O in Acetic acid and Formaldehyde. 04
(B) An evaporator is fed with 15,000 kg/hr of a solution containing 10% NaCl, 15% NaOH and rest water. In operation water is evaporated and NaCl is precipitated as crystals. The thick liquor leaving the evaporator contains 45% NaOH, 2% NaCl and rest water. Calculate (1) kg/hr water evaporated (2) kg/hr salt precipitated and (3) kg/hr thick liquor obtained? 10
OR
- Que.3 (A) 4.56 gm of HCl dissolved in 250 ml distilled water. Find out its molarity. 04
(B) Write a short note on filter aid and filter medium. 10
- Que.4 (A) Define molecular weight with example. 04
(B) Calculate the net calorific value at 298 K of a sample of fuel oil having C/H ratio 9:33 (by weight) and containing sulphur to content of 1.3% by weight. (The G.C.V. of fuel = 41785 kJ/kg and latent heat of water vapour = 2442.5 kJ/kg) 10
OR
- Que.4 (A) Define Crystallization with example. 04
(B) Classify fuels with examples. 10
- Que.5 (A) What is Mixing? Explain with example. 04
(B) What is density and specific gravity? Explain several scales of specific gravity. 10
OR
- Que.5 (A) What is combustion? Explain with example. 04
(B) NaCl weighting 600 kg. is mixed with 200 kg. KCl. Find the composition of the mixture in weight % & mole%. 10