No. of Printed Pages : 4
Roll No. .....

220554

5th Sem. / Chemical, Chemical (Pulp & Paper)
Subject : Process Plant Utilities

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Hardness of water is conventionally expressed in terms of equivalent amount of _____. (CO2)

a) H_2CO_3 b) $MgCO_3$

c) $CaCO_3$ d) Na_2CO_3

Q.2 What is value of 1 ppm in mg/L? (CO1)

a) 0 b) 1

c) 100 d) 1000

Q.3 Wet steam contains: (CO3)

a) Only vapor

b) Only liquid water

c) Both liquid water & Vapor

d) Only supherheated vapor

Q.4 Impurities in water (CO1)

a) Physical b) Chemical

c) Biological d) All of above

Q.5 Water containing the dissolved salt of calcium and magnesium is called (CO1)

a) Rain water b) Hard water

c) Soft water d) River water

Q.6 Which of the following is classified as a primary refrigerant? (CO4)

a) Glycol solution b) Carbon dioxide

c) Brine d) Water

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Give an example of a primary refrigerant. (CO4)

Q.8 What is the dryness fraction of steam? (CO3)

Q.9 Name one use of inert gas in industrial applications. (CO4)

Q.10 What is the molecular formula of lime? (CO2)

Q.11 Define enthalpy. (CO3)

Q.12 Which gas is commonly used as an instrumental air supply? (CO4)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Explain the significance of mollier chart. (CO3)

Q.14 Differentiate between hot and cold thermal insulation with examples. (CO4)

Q.15 Explain the effects of insulation materials on piping and valves. (CO4)

Q.16 What are the uses of compressed air in industrial settings? (CO3)

Q.17 Explain the difference between blower air and fan air. (CO3)

Q.18 List the properties of an ideal refrigerant. (CO4)

Q.19 Define priming and foaming in boilers. (CO1)

Q.20 What is caustic embrittlement? How it can be avoided? (CO1)

Q.21 What is scaling? Write any four reasons for scale formation. (CO1)

Q.22 Explain the selection of refrigerants. (CO4)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 What are refrigerants? Describe the important thermodynamic, physical and safe working properties of refrigerants in detail. (CO4)

Q.24 Describe about the complete ion exchange process with its type and diagram. (CO2)

Q25 Write short note on the following:

a) EDTA (CO2)

b) Lime Soda Process. (CO2)