Q.29 Give the characteristics and properties of insulating materials.
Q.30 Write short note on reverse osmosis.
Q.31 Write the conditions of refractories failure.
Q.32 Write a note on pressure regulator.
Q.33 Explain cryogenic and antifreeze refrigerants with two examples.
Q.34 Discuss the classification of refrigerants.
Q.35 What are the general method of manufacturing of refractories?

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 What are Zeolites? Describe Zeolite process for softening of water in detail with the help of neat diagram.
Q.37 Explain the construction and working of Forced draft cooling tower. Write its merits and demerits.
Q.38 Write short note on the following:
a) Temperature vs total heat graph during steam formation
b) Carbonate conditioning

Roll No. .....

6th Sem / Branch : Chemical, P&P, Chem Engg. (Spl. Paint Tech)
Sub.: Process Plant Utilities/Proc. Utilities

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 Function of Boiler is _____
a) The burn the fuel in a confined closed system with the supply of air
b) To generate steam at varying pressure
c) To generate steam at constant pressure
d) To produce flue gases by burning of fuel at a given pressure

Q.2 Which of the following salts is the main cause of permanent hardness of water
a) Magnesium sulphate
b) Magnesium bicarbonate
c) Magnesium carbonate
d) None of the above

Q.3 The ocean hold the following percentage of water in world
a) 76.5 b) 86.5
c) 71 d) 96.5

Q.4 An economizer in a boiler_____
a) Increases steam pressure
b) Increases steam flow
c) Decreases fuel consumption
d) Decreases steam pressure

Q.5 Unit to measure hardness is _____
a) mg/it b) ppm
c) degree clarke d) All of the above

Q.6 Which is a basic refractory
a) Fire clay b) Silica
c) Chrome magnesite d) None of the above

Q.7 Carbonate in water produce
a) Permanent hardness b) Temporary hardness
c) Acidity d) Alkalinity

Q.8 Softening of water mean
a) To make hard water
b) Removing impurities from water
c) Both (a) & (b)
d) Neither (a) or (b)

Q.9 Silica refractories are also known as _____ refractories.
a) Acid refractory b) Basic refractory
c) Neutral refractory d) Silica refractory

Q.10 Fire tube boilers are_____.
a) Internally fired
b) Externally fired
c) Both internally as well as externally fired
d) None

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define industrial water.
Q.12 Why refractories are used? (any one reason).
Q.13 Expand PPM_____.
Q.14 Define wet steam.
Q.15 Give one example of secondary refrigerants.
Q.16 Define permanent hardness of water.
Q.17 What are boilers?
Q.18 Define steam?
Q.19 Write one example of acid refractories?
Q.20 What is the purpose of using insulation?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Differentiate between sludge and scale.
Q.22 Explain the quality of wet steam.
Q.23 Differentiate between temporary and permanent hardness of water.
Q.24 Explain the problem of corrosion in boiler.
Q.25 Why super heater is used? Discuss its working in brief.
Q.26 Describe enthalpy-entropy diagram.
Q.27 Describe the working of natural draft cooling tower.
Q.28 Write the use of steam table in detail.