Q.26 What are dreg washers? Why they are used in paper industry?
Q.27 Discuss the construction of the cyclone evaporator in brief?
Q.28 What is green liquor clarifier? Discuss its significance?
Q.29 Define and discuss the causticizing efficiency in brief?
Q.30 Explain the slacking process for green liquor in brief?
Q.31 What are the objectives of cooking liquor regeneration.
Q.32 Explain the different factors affecting the viscosity of black liquor in brief.
Q.33 Why sulphur oxides are generally not emitted from the lime kiln, discuss in brief?
Q.34 Discuss the different challenges in the Kraft chemical recovery in brief?
Q.35 Explain the start up procedure of a multiple effect evaporator?

SECTION-D

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

Q.36 Describe major unit operations involved during the total cycle of causticizing process in detail with the help of a neat flow diagram?
Q.37 Discuss the construction and working of plate-type falling film evaporator with the help of a neat diagram in detail?
Q.38 What is the lime mud? Explain the process of lime mud burning in the lime kiln in detail with the help of a neat diagram?

No. of Printed Pages : 4 180655/120655/030655
Roll No. .....

5th Sem / P & P
Subject:- Chemical Recovery

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The composition of black liquor depends on which of the following?
a) composition of white liquor
b) amount of white liquor
c) type of wood species
d) all of these

Q.2 The spent liquor from the kraft process used in the paper industry is known as?
a) White liquor b) black liquor
c) green liquor d) red liquor

Q.3 Dregs washers used in the paper industry are typically?
a) plate and frame filters
b) leaf filters
c) rotary drum filters
d) hepa filters

Q.4 Which of the following medium is generally used for providing the energy to evaporate water from the black liquor?

a) steam b) methane
c) LPG d) petrol

Q.5 What is the full form of M.E.E?
a) Multiple Energy Evaporator
b) Multiple Effect Evaporator
c) Multiple Economy Evaporator
d) Multiple Environment Evaporator

Q.6 Slaker is a reactor used in causticizing process where green liquor is mixed with?
a) sodium hydroxide b) lime
c) sodium carbonate d) alum

Q.7 The black liquor of the paper industry contains which of the following compounds
a) lignin b) formic acid
c) acetic acid d) all of these

Q.8 The wash filtrate resulting from lime mud washing is known as?
a) heavy wash b) light wash
c) strong wash d) weak wash

Q.9 Which one of the following is a main component of dregs?
a) Li_2CO_3 b) H_2CO_3
c) Na_2CO_3 d) K_2CO_3

Q.10 Which of the following term represent the ratio of NaOH to active alkali?
a) proactive alkali b) causticity
c) effective alkali d) basicity

SECTION-B

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

Q.11 What is the purpose of lime kiln?
Q.12 Define the slaking?
Q.13 What is the chemical formula of lime?
Q.14 What is the steam economy?
Q.15 Write an example of indirect contact evaporator used in the chemical recovery?
Q.16 Which type of cooking chemicals is separated from the spent liquor solids in the recovery boiler?
Q.17 What is the smelt?
Q.18 What is the reduction efficiency?
Q.19 Write the balanced chemical equation representing causticizing reaction?
Q.20 Define the sulphidity?

SECTION-C

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

Q.21 Describe the need and importance of evaporators in the chemical recovery?
Q.22 Discuss the significance of black liquor incineration in brief?
Q.23 What are oxidizers? Why they are used in the treatment of black liquor?
Q.24 Describe the any two physical properties of black liquor in brief.
Q.25 How can you remove the entrained alkali in the lime mud, discuss in brief?