Q.30 What is lime mud washing process.

Q.31 Explain the working of drag washer.

Q.32 What are the reaction involved in incineration of black liquor.

Q.33 Differentiate direct contact evaporator and cyclone evaporator.

Q.34 Define slaking.

Q.35 Explain thermal conductivity of black liquor.

SECTION-D

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

Q.36 Give the classification of evaporator. Explain with neat sketch various feeding arrangement of black liquor in evaporator.

Q.37 Calculate the water evaporated from black liquor for following data

a) Solid concentration of black liquor = 17%

b) Solid concentration of heavy black liquor = 60%

c) Feed rate of weak black liquor = 725 kg/hr

Q.38 Write short notes on any two of the following

1) Lime kiln
2) Lime mud washing process
3) Startup and shut down procedure of multiple effect evaporators
4) Physical characteristics of soda and sulfate black liquor

Roll No. .....

5th Sem / Branch : P & P
Sub.: Chemical Recovery

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 What is the unit of density?

a) Kg/m^3 b) KgXm
c) m/kg d) M^3

Q.2 Choose the full form of ^0TW.

a) Degree twaddle b) Degree type
c) Degree tensile d) None

Q.3 Which chemical is recovered in chemical recovery of pulp & paper industry?

a) Na_2s b) NaoH
c) Na_2co_3 d) None

Q.4 Select the formula of slaked lime.

a) $(CaoH)_2$ b) $Ca(oH)_2$
c) CaoH d) $Caco_3$

Q.5 What is the temp of limestone in limekiln for calcinations?

a) 700 °c b) 800 °c
c) 900 °c d) 1000 °c

Q.6 Cascade is type pf

a) Boiler b) Condenser

c) Evaporator d) None

Q.7 Which compound is responsible for odour in black liquor

a) Sodium hydroxide b) Sodium sulfide

c) Methyl mercaptan d) None

Q.8 Choose the formula of %age causticity

a) Na_2s x 100/AA b) NaoH x 100 / AA

c) Na_2co_3 x 100/AA d) AA X 100/NaoH

Q.9 What is the unit of specific heat of black liquor?

a) kg ^{0}c b) J ^{0}c

c) Kg/J ^{0}c d) J/kg ^{0}c

Q.10 What is Baume used for to measure?

a) Specific gravity of B/L

b) Temp. of B/L

c) PH of B/L

d) None

SECTION-B

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

Q.11 Write any one Chemical Compound of Black Liquor.

Q.12 Mention any one Function of recovery furnace

Q.13 Name any one black liquor oxidizer.

Q.14 What is active alkali.

Q.15 Write the purpose of lime Kiln.

Q.16 Why incineration of black liquor is carried out?

Q.17 Name any one inorganic content.

Q.18 What is the function of economizer?

Q.19 Expand BPR.

Q.20 Where $caco_3$ is used.

SECTION-C

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

Q.21 Write a note on chemical composition of black liquor.

Q.22 Briefly describe odour from black liquor.

Q.23 Define black liquor recovery.

Q.24 Define reduction efficiency.

Q.25 Draw neat sketch of recovery furnace of pulp and paper industry.

Q.26 What are various feeding arrangement of black liquor in evaporator.

Q.27 What is the effect of concentration of black liquor on evaporator?

Q.28 Write a note on construction details of recovery furnace.

Q.29 Define caustizing of green liquor.