cascade direct contact evaporator with a neat diagram.

Q.6   Write short notes (Any Two).

a)   Cyclone direct contact evaporator.

b)   Start up and Shut down procedure in Multiple Effect Evaporator.

c)   Slaker.

Q.7   Calculate Amount of Water evaporated in Evaporator for the following data Weak Black Liquor Flow Rate=789 kg/hr Weak Black Liquor Solid concentration=18%. Strong Black Liquor Solid concentration=51%.

5th Sem. / Chemical Engg. (Pulp of Paper Tech.)

Subject : Chemical Recovery

Time : 3 Hrs.   M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts.   (15x2=30)

Q.1   a)   Expand °Be.

b)   State SI unit of Thermal Conductivity.

c)   Calculate 725 kg of NaOH as such into as Na_2O.

d)   Define Smelt.

e)   Write Causticizing Reaction.

f)   Give Solid Concentration Range of Heavy Black Liquor.

g)   What is White Liquor?

h)   Write chemical Formula of Soda Ash.

i)   Expand BPR.

j)   Define Sulphidity.

k) Name type of Evaporators.

l) What is function of Drag washer.

m) Define Black oxidation.

n) Define Black liquor.

o) Write function of Economizer.

p) Write composition of Black liquor.

q) State SI Unit of Density.

r) Define specific gravity.

SECTION-B

Note: Short answer type questions. Attempt any ten parts   10x4=40

Q.2 i) Define Solid fraction.

ii) Define Causticity and Reduction Efficiency.

iii) Write objectives of Black Liquor Recovery.

iv) Define Steam Economy and Causticizing efficiency.

v) Write short note on Superheater.

vi) Explain Boiling Point Rise and specific gravity of Black Liquor.

vii) Name main constituents of Green Liquor.

viii) Write short note on Black Liquor oxidation.

ix) Write slaking and calcination reaction.

x) Define Pulp yield and Pulp consistency.

xi) Write function of Slaker.

xii) State Solid Concentration Range of Weak, Strong and Heavy Black Liquor.

xiii) Give molecular Weight and equivalent weight of Salt Cake and Slaked Lime.

xiv) What is Black Liquor.

xv) Write short note on Lime Mud Handling.

SECTION-C

Note: Long answer type questions. Attempt any three questions.   3x10=30

Q.3 Write short notes on:

a) Feeding Arrangement in Multiple Effect Evaporators.

b) Lime Kiln.

Q.4 Describing construction and working principle of Babcock and Wilcox Recovery furnace with neat diagram.

Q.5 Explain construction and working principle of