Section-D

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

Q.23 Derive an expression for LMTD in case of co-current flow with assumptions. (CO1)

Q.24 Explain the construction and working of shell and tube heat condenser with its neat and clean diagram. (CO2)

Q25 Draw a neat sketch of long tube evaporator and explain briefly its construction and working. (CO4)

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220552

5th Sem.
Branch : Chemical
Subject : Heat Transfer Operations-II

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 Duhring's Rule is most applicable in (CO3)

a) Estimating solid melting points

b) Estimating solvent vapor pressure

c) Estimating boiling points of saltwater solutions

d) Estimating boiling points of hydrocarbons

Q.2 What is the boiling point of a liquid? (CO3)

a) The point where a liquid turns to solid

b) The temperature where vapor pressure equals atmospheric pressure

c) The point where vapor pressure in zero

d) The freezing point of a liquid

Q.3 In air-cooled condensers, the coolant is (CO3)

a) Water b) Steam

c) Air d) Oil

Q.4 Which of the following is an individual heat-transfer coefficient? (CO2)

a) Film coefficient b) Overall coefficient

c) Fouling coefficient d) Surface coefficient

Q.5 The efficiency of a fin is defined as (CO2)

a) The ratio of actual heat transfer to the maximum possible heat transfer

b) The effectiveness of a fin in increasing heat transfer

c) The ratio of fin surface area to total heat exchanger area

d) The temperature drop across the fin

Q.6 In a 1-1 shell and tube heat exchanger, how many shell passes are there? (CO1)

a) One b) Two

c) Three d) Four

Section-B

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

Q.7 What is heat exchanger? (CO1)

Q.8 The flow arrangement where fluids move in the same direction is called_____ flow. (CO1)

Q.9 Define fouling factor? (CO2)

Q.10 Define efficiency of a fin. (CO2)

Q.11 Which phase change occurs in condensation? (CO3)

Q.12 What is the main purpose of a steam drum in a water-tube boiler? (CO3)

Section-C

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

Q.13 Explain in brief multiple-effect evaporation system? (CO4)

Q.14 State and explain some examples of evaporation operation. (CO4)

Q.15 Describe the construction and working of a Cochran boiler. (CO3)

Q.16 Classify different types of boilers in detail? (CO3)

Q.17 Explain film wise condensation. (CO3)

Q.18 What is a condenser and what is its primary function? (CO3)

Q.19 Differentiate between the individual heat-transfer coefficient and the overall heat-transfer coefficient? (CO2)

Q.20 Explain in brief common causes of fouling in heat exchangers. (CO2)

Q.21 What is LMTD. Why it is used? (CO1)

Q.22 Draw a neat diagram of 1-2 Shell and Tube Heat Exchanger. (CO1)