SECTION-D

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

Q.23 Explain the construction, working, advantages of vapour absorption refrigeration cycle with the help of neat diagram. (CO3)

Q.24 Explain the construction, working, advantages and disadvantages of continuous stirred tank reactor along with neat diagram. (CO4)

Q.25 Write short notes on any four of following:

a) Path function (CO1)

b) Third law of thermodynamics (CO3)

c) Entropy (CO1)

d) Elementary Reaction (CO4)

e) Heat pump (Co3)

f) Molecularity (CO4)

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Roll No. .....

3rd Sem. / Chemical Engineering

Subject : Chemical Thermodynamics and Reaction Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 A system which consist of single phase is called (CO1)

a) Heterogeneous system

b) Homogeneous system

c) Open system

d) Closed system

Q.2 Which of the following is a path function ? (CO1)

a) Temperature b) Pressure

c) Work d) Entropy

Q.3 Equation C_p-C_v=R is true for (Co2)

a) Real gas b) Ideal gas

c) Ideal gas well as real d) Not true for any gas

Q.4 Half life period of first order reaction is (CO4)

a) 0.693 *K b) K/0.693

c) 69.3/K d) 0.693/K

Q.5 Which of the following methods are used for determining order of reaction ? (CO4)

a) Integral method b) Differential method

c) Half-life-method d) All of the above

Q.6 Which of the following is the unit of rate of reaction ? (CO4)

a) Moles/(volume*sec)

b) (Moles*volume)/Sec

c) (Moles*sec)/volume

d) (Volume*sec)/moles

SECTION-B

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

Q.7 Define Isolated system. (CO1)

Q.8 Name any two state functions. (CO1)

Q.9 Define efficiency of heat pump. (CO3)

Q.10 Define enthalpy. (CO1)

Q.11 What are elementary reactions? (CO4)

Q.12 Name any two factors which affect chemical equilibrium of reaction. (Co4)

SECTION-C

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

Q.13 Differenciate between intensive properties and extensive properties. (CO1)

Q.14 State first law of thermodynamics for closed system. (CO2)

Q.15 Describe isothermal and adiabatic process. (CO2)

Q.16 Calculate the work done for ideal gas undergoing reversible adiabatic process. (CO2)

Q.17 Explain zeroth law of thermodynamics with the help of diagram. (CO1)

Q.18 Differenciate between endothermic and exothermic reaction. (CO4)

Q.19 Discuss the affect of concentration and pressure on the chemical equilibrium of a reaction. (CO4)

Q.20 What is refrigeration? Discuss coefficient of performance of refrigeration system. (CO3)

Q.21 Discuss the initial rate method to determine the order of reaction. (CO4)

Q.22 Discuss the Arrhenius theory of activation energy. (CO4)