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Roll No. .....

1st Sem / Chemical

Subject : Introduction to Chemical Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 SI unit of diffusivity is (CO4)

a) m^2/s b) m^3/s

c) s/m^2 d) s/m^3

Q.2 Which of the following is a unit process (CO1)

a) Oxidation b) Extraction

c) Distillation d) Leaching

Q.3 For Turbulent flow, Reynolds number should be (CO2)

a) Less than 2100 b) More than 2100

c) Less than 4000 d) More than 4000

SECTION-D

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

Q.23 Explain in detail about various unit operations used in chemical industries by giving suitable example of each. (CO1)

Q.24 Discuss various properties of fluid in detail with their formula and units. (CO2)

Q.25 Write short note on any two of the following:

I) Modes of heat transfer. (CO3)

ii) Fick's Law of diffusion (CO4)

iii) Order and Molecularity of reaction (CO5)

Q.4 Thermal conductivity is highest in case of (CO3)

a) Liquids b) Solids

c) Gases d) Fluids

Q.5 Sum of powers of the concentration terms in the rate equation is called _____ of the reaction. (CO5)

a) Order b) molecularity

c) rate d) none of these

Q.6 Chemical formula of Urea is (CO5)

a) NH_2 b) NH_3

c) NH_2CONH_2 d) NH_3CONH_3

SECTION-B

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

Q.7 In unit_____ only physicalchange occurs. (Process/operation). (CO1)

Q.8 A fluid has no definite shape. (True/False) (CO2)

Q.9 Give full form of CSTR. (CO5)

Q.10 Heat conduction is governed by _____ Law. (Fourier's / Newton's) (CO3)

Q.11 Define diffusion. (CO4)

Q.12 Write name of the process used for manufacturing of urea. (CO5)

SECTION-C

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

Q.13 Discuss any four applications of Chemical Engineering. (CO1)

Q.14 Distinguish between batch process and continuous process. (any four) (CO1)

Q.15 Classify and define different types of flow. (CO2)

Q.16 State and explain Newton's Law of viscosity. (CO2)

Q.17 State & explain Stefan - Boltzman's Law. (CO3)

Q.18 Discuss about free and forced convection. (CO3)

Q.19 Define diffusivity and write its various units. (CO4)

Q.20 Classify different equipments used for drying and distillation. (CO4)

Q.21 Draw neat and clean flowsheet of Urea manufacturing. (CO5)

Q.22 Describe reversible and irreversible reactions. (CO5)