Scheme – I

Sample Question Paper

Program Name : Diploma in Chemical Engineering

Program Code : CH

Semester : Second

22231

Course Title : Fundamentals of Chemical Engineering

Max. Marks : 70 **Time: 3 Hrs.**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any Five of the following **2 M x 5** **10 Marks**

a. Give classification of Chemical Industry based on application.
b. Describe importance of scale up in process industry.
c. Enlist different types of accidents.
d. Draw hazards symbols for toxic and corrosive materials.
e. Define Normality of solution.
f. Write down the formula to calculate specific gravity of solution.
g. Define pH of solution. What is scale for it.

Q.2 Attempt Any Three of the following **4 M x 3** **12 Marks**

a. Differentiate batch reactor and continuous reactor (Any Four Points).
b. State the importance of emergency exit route and assembly point.
c. Write the formula for mole % and volume %.
d. Write principle of Conductivity meter and Abbe's refractometer.

Q.3 Attempt Any Three of the following **4 M x 3** **12 Marks**

a. Describe Dalton's law and Amagat's law with atleast one example.
b. An aqueous solution of sodium chloride is prepared by dissolving 10 kg of sodium chloride in50 kg of water. Find (a) Weight % (b) Mole % composition of solution.
c. Describe application of pH measurement in industry. How pH affect the electrical conductivity.
d. Describe importance of size reduction in Chemical industry.

Q.4 Attempt Any Three of the following **4 M x 3** **12 Marks**

a. Explain laws of thermodynamics.
b. Explain the importance of safety in Chemical industry.
c. Explain different kinds of safety measures in petrochemical industry.
d. The combustion of 2.68 kg of a sample of coal yield 3.48 m^3 of carbon dioxide gas measured at NTP. Find the carbon content of the sample.

e. Enlist different unit operations. Explain any one in details.

Q.5 **Attempt Any two of the following** **6 M x 2** **12 Marks**

a. Explain the mechanism of corrosion in dry medium with suitable example.

b. Explain the principle of following.
1] Sedimentation 2] Filtration 3] Leaching 4] Adsorption

c. Explain following unit processes with suitable example.
1] Sulphonation 2] Nitration 3] Esterification

Q.6 **Attempt Any two of the following** **6 M x 2** **12 Marks**

a. Explain Abbe's Refractometer.

b. Classify Unit operations and Unit processes. (Min. 5 points)

c. Draw neat sketch of Electro dialysis.

Scheme – I

Sample Test Paper -I

Program Name : Diploma in Chemical Engineering

Program Code : CH

Semester : Second

22231

Course Title : Fundamentals of Chemical Engineering

Max. Marks : 20 **Time : 1 Hour**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **08 Marks**

a) Describe importance of scale up in chemical process industry.

b) Enlist different types of accidents.

c) Draw hazards symbols for toxic and corrosive material.

d) Enlist different types of reactor.

e) What are different safety equipment used in laboratory.

f) Draw neat sketch of CSTR.

Q.2 Attempt any THREE. **12 Marks**

a) Describe evolution of chemical engineering in India.

b) Explain design procedure of reactor.

c) Give example of Speciality and basic chemicals (Atleast two)

d) Write short note on emergency exit route and assembly.

e) Write short note on measures on burn, accident in chemical plant.

f) Describe in details types of accidents.

Scheme – I

Sample Test Paper - II

Program Name : **Diploma in Chemical Engineering**

Program Code : **CH**

Semester : **Second**

22231

Course Title : **Fundamentals of Chemical Engineering**

Max. Marks : **20** **Time: 1 Hour**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **08 Marks**

a) Define Normality, Molality.

b) State Daltons law and Amagats law.

c) Define pH. Write scale.

d) Enlist different unit operation and unit processes.

e) Draw neat sketch of Distillation column.

f) What is effect of temperature on solubility?

Q.2 Attempt any THREE. **12Marks**

a) Write formula for expression of Weight % and mole %.

b) Describe importance of size reduction in chemical engineering.

c) Draw neat sketch of Electro dialysis.

d) Describe in detail industrial importance of drying.

e) Write short note on Esterification.

f) Explain in detail dry bulb and wet bulb temperature.