[Time: Three Hours] **[Marks:80]**

Please check whether you have got the right question paper.

N.B: 1) All questions are compulsory.
2) Draw neat labelled diagrams wherever necessary.

Q.1 a) Explain U-Tube manometer and its modification. **(3)**
b) Define mass transfer. Elaborate on mass transfer in Laminar flow. **(3)**
c) Define crystal form with example. **(2)**
d) Classify Evaporator. **(2)**
e) Explain the term HETP. **(2)**
f) Write a note on Ferrous and its alloys. **(3)**
g) Give limitation of Mier's theory of Supersaturation. **(2)**
h) Elaborate bucket traps as an evaporator accessory. **(3)**

Q.2 a) Classify Pump. Explain any one reciprocating pump in detail. **(4)**
b) Discuss construction and working of Swenson Walker Crystallizer. **(4)**

OR

Explain design and working of Oslo Crystallizer.
c) Discuss Centrifugal molecular distillation still. **(4)**

Q.3 a) Classify flow meter. Elaborate orifice meter in detail. **(4)**

OR

Give the principle of variable area flow meter and explain Rotameter.
b) Discuss construction and working of Horizontal tube evaporator. **(4)**
c) Define refrigeration. Write in detail on refrigeration equipment. **(4)**

Q.4 a) What is fluid dynamics? Write a note on Reynolds number. . **(4)**
b) What is conduction and discuss Stefan Boltzmann Law. **(4)**

OR

Enlist mode of heat transfer and write a note on any one tubular heat exchanger.
c) Discuss nucleation step in crystallization. **(4)**

Q.5 a) Describe principle construction and working of centrifugal pump. **(4)**
b) Elaborate design and working of steam distillation. **(4)**

OR

Describe in detail construction and working Bubble Cap Plate column.
c) Discuss types of fire and its prevention. **(4)**

Q.6 a) Enlist types of conveyer and elaborate on Belt Conveyor. **(4)**
b) Define evaporation and explain factor influencing rate of evaporation. **(4)**
c) What is corrosion and discuss any two methods of prevention of corrosion. **(4)**

OR

Discuss mechanism and types of corrosion.

****