

Sem - III
Ph. Eng

Ph. March 2015

QP Code : 13427

(3 Hours)

[Total Marks : 70]

N.B.: (1) All questions are compulsory.
(2) Begin new question on a new page.

1. (a) Classify manometers and discuss on manometers used to measure small pressure differences. 3
(b) Discuss the difference in mass transfer between turbulent and laminar flow. 3
(c) Explain in brief how caking of crystals can be prevented. 2
(d) Scale formation has to be minimized in evaporators. Justify. 2
(e) Draw a neat and labelled diagram of a simple distillation assembly. 2
(f) Classify materials of construction and write a note on stainless steel. 3
2. (a) Classify pumps and give advantages and disadvantages of reciprocating pumps. 4
(b) Explain the term 'magma' and discuss the working of Circulating Magma Crystallizer. 4

OR

(b) Explain the construction and working of Osle crystalliser.
(c) Discuss preparation of absolute alcohol using azeotropic distillation. 3
3. (a) Write a note on Pitot tube. 4

OR

(a) Classify flow meters and discuss the principle of pressure differential flowmeter.
(b) Explain entrainment separators as evaporator accessories. 3
(c) Discuss in detail the vapour compression cycle in refrigeration. 4
4. (a) Define compressibility of fluids and write a note on Bernoulli's theorem. 4
(b) Write a short note on plate heat exchanger. 4

OR

(b) Write a note on any one temperature measurement device.
(c) Define "Crystal Form" and explain the stage of "Crystal Growth". 3

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5. (a) Write a note on centrifugal pumps. 3
(b) Explain HETP and discuss packed columns in detail. 4
- OR**
- (b) Explain principle and working of fractional distillation column.
(c) Discuss fire hazards and any two types of fire extinguishers. 4
6. (a) Define conveying and describe screw conveyors in detail. 3
(b) Write a note on multiple effect evaporator. 4
(c) Enlist types of corrosion and explain any two methods to prevent corrosion. 4
- OR**
- (c) Explain any two types of corrosion in detail.
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