Printed Pages : 1 **Roll No.** | | | | | | | | | | | **NCH014**

B. TECH.
THEORY EXAMINATION (SEM–VI) 2016-17
PROCESS INTEGRATION

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Define the following: **10 x 2 = 20**

(a) Target Temperature
(b) data extraction
(c) T-H diagram.
(d) Pinch match
(e) Grand composite curve
(f) Overlap
(g) Threshold problems.
(h) Pinch temperature
(i) correction factor
(j) MER

SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

(a) Discuss about the Composite curve and Grand composite curve? Give the difference?
(b) Write a short note on threshold approach temperature and optimum approach temperature for HENS.
(c) Explain the generalized rules for stream splitting on both sides of the pinch to satisfy MER requirements.
(d) Discuss the pinch design approach for minimum utility requirements.
(e) Explain about the Energy targeting and Shell targeting in Heat Exchanger Network?
(f) Describe the heuristic rules and stream splitting? List the heuristics for determining favorable sequence of distillation operation.
(g) Explain the concept of multi effect distillation as possibility of energy integration.
(h) Discuss approach used by Linhof and Hindmarsh for stream matching at pinch

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3. Explain the Design of Heat Exchange Net work with the help of grid diagram.

4. What is pinch point? Explain its importance in heat exchanger network giving step wise procedure to design heat exchanger network using pinch design approach.

5. Write short notes on the following heat integration of the equipments:

(i) Heat Pump
(ii) Heat Engine
(iii) Evaporator
(iv) Distillation column
(v) Refrigeration system