

Day : Thursday  
Date : 22/11/2018

Time: 11.00 AM TO 02.00 PM  
Max. Marks: 60.

W-2018-3159

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Answer to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Assume suitable data, if necessary.

**SECTION-I**

- Q.1** What is the significance of hierarchy of chemical process design? **[10]**  
**OR**

Describe the various steps involved in process design.

- Q.2** Write notes on: **[10]**  
a) Synthesis tree  
b) Types of reactor systems.  
**OR**

Write notes on:

- a) Reaction path
- b) Batch process

- Q.3** Describe various separation systems used in Chemical process industries. **[10]**  
**OR**

Explain the significance of distillation column sequencing with suitable example.

**SECTION-II**

- Q.4** Write notes on: **[10]**  
a) Pinch design  
b) Heat content diagram  
**OR**

What is the importance of networks for maximum energy recovery and how it is beneficial?

- Q.5** Elaborate the safety considerations in site selection and plant layout of a chemical plant. **[10]**  
**OR**

Write notes on:

- a) Industrial lighting and ventilation
- b) Chemical hazard classification

- Q.6** How scales up methods are adopted in CPI? **[10]**  
**OR**

Give the need of plant simulation in CPI with example.