

# CBCS SCHEME

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18PC732

## Seventh Semester B.E. Degree Examination, Feb./Mar.2022 Process Engineering & Plant Design

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. What is Process Engineering? Explain about process engineer's role in plant design. (06 Marks)  
b. Discuss about general considerations for a good plant design. (08 Marks)  
c. Write a note on practical considerations in design. (06 Marks)

OR

- 2 a. Write a note on engineering ethics to be considered for a design. (06 Marks)  
b. Explain about design database and its importance. (06 Marks)  
c. Describe about process creation, design and flow diagrams of a plant. (08 Marks)

### Module-2

- 3 a. Write a detailed note on flow sheet synthesis procedure and its development. (06 Marks)  
b. Discuss about Input/Output structure in a flow sheet. (06 Marks)  
c. Discuss about function diagram. (08 Marks)

OR

- 4 a. Write a note on process flow sheet and algorithmic flow sheet generation. (08 Marks)  
b. Discuss about software structure and its capabilities. (06 Marks)  
c. Explain about selection and use of software in process design. (06 Marks)

### Module-3

- 5 a. What is cost estimation? Explain about cash flow for industrial operations. (08 Marks)  
b. Discuss about factors affecting investment and production cost. (07 Marks)  
c. Write a note on capital investment. (05 Marks)

OR

- 6 a. Write a note on selection of materials for industrial equipments and its fabrication costs. (08 Marks)  
b. Discuss about factors contributing to corrosion. (05 Marks)  
c. Discuss about properties of materials of construction. (07 Marks)

### Module-4

- 7 a. What is optimization? Define optimization problems. (06 Marks)  
b. Write a note on selecting objective and objective function. (08 Marks)  
c. Discuss about suboptimization. (06 Marks)

OR

- 8 a. Discuss in detail about problems in programming optimization. (10 Marks)  
b. Explain about applications of graphical and analytical methods of optimization. (10 Marks)

### Module-5

- 9 a. Discuss about Newtonian and Non-Newtonian fluids under fluid transport system. (06 Marks)  
b. Write a note on frictional losses in pipelines. (06 Marks)  
c. Explain about piping system for fluid transport processes. (08 Marks)

OR

- 10 a. Discuss about compression and expansion of fluids in detail. (10 Marks)  
b. Write a note on storage and containment of fluids explaining design and equipments. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.