



10BT71

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020
Economics and Plant Design

Time: 3 hrs.

Max. Marks:100

- Note:1. Answer any FIVE full questions, selecting atleast TWO questions from each part.**
2. Interest Table may be provided.

PART – A

- 1 a. Explain Project design procedure. Why scale up in design is necessary? Discuss in detail. (10 Marks)
b. What is Hazop study? Explain with an example. (10 Marks)
- 2 a. An Entrepreneur plans to start up Bioprocess plant. Discuss the parameters to be considered. (10 Marks)
b. Explain with an example optimum economic design and optimum operation design. (10 Marks)
- 3 a. What are Fixed capital and Working capital costs? Give the breakdown of Fixed capital investment items for a process plant. (12 Marks)
b. Explain the following :
i) Material cost ii) Labour cost iii) General expenses. (08 Marks)
- 4 a. A fermenter costs Rs 1,50,000 and discount allowed is 30% of the market price to the distributors. The selling expense is 25% of the Factory cost. If the Material cost, Labour cost and Factory overhead charges are in the ratio 1 : 4 : 2 , what profit is made by the Factory, if cost of material is Rs 4000/-. Other overhead costs are neglected. (10 Marks)
b. Explain Plant overheads, with examples. (10 Marks)

PART – B

- 5 a. With a neat diagram, discuss cash flow for an Industrial operations. (08 Marks)
b. What is Cost Index? Explain its significance. (04 Marks)
c. Find selling price of 1 kg of fertilizer from given data. The total amount of fertilizer produced is 135kg. Labour cost is Rs 200/-, Material cost is Rs 160/- , Production cost is 35% of Prime cost. Administration and Selling cost are 20% of the Factory cost. Profit is 10% of the total Product cost. (08 Marks)
- 6 a. Define Depreciation. Discuss different types of Depreciation methods. (10 Marks)
b. A reactor of specific design is a major item in a biofirm. The initial cost reactor is Rs 4,80,000/- and the salvage value at the end of useful service life is estimated to be Rs 80,000/-. The total expense annually spent for plant is Rs 8,00,000/-. How many years of useful life should be estimate for the reactor if 12% of the total annual expenses for the plant are due to the cost for the reactor depreciation? Use straight line depreciation method. (10 Marks)

- 7 a. Explain the terms, Profitability Analysis. Discuss with an example. (08 Marks)
 b. Two machines, each with a service life of 5 years have the following cost comparison. If money is worth 8% p.a. which machine is more economical? (12 Marks)

	Machine A in Rs	Machine B in Rs
Installed cost	2,50,000	1,50,000
Maintenance cost (Rs/yr)	20,000	30,000
Overhauling at the end of 3 rd year	-	15,000
Salvage value	5000	-
Benefit from quality control as an end of uniform year in Rs/yr	5000	-

- 8 a. Write critical notes on Breakeven Analysis. (10 Marks)
 b. What are Financial Statements? Discuss in detail. (10 Marks)
