



USN

--	--	--	--	--	--	--	--	--	--

10BT71

Seventh Semester B.E. Degree Examination, June/July 2019
Economics and Plant Design

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Explain a Bioprocess, with an example. (10 Marks)
b. Explain the factors influencing choosing the plant site. (10 Marks)
- 2 a. Discuss in detail, Optimum economic design and Optimum operation design. (10 Marks)
b. Discuss the design considerations in detail. (10 Marks)
- 3 a. Give detailed procedure for Cost estimation. (10 Marks)
b. Explain different methods of Solid Waste disposal. (10 Marks)
- 4 a. Illustrate with graph cumulative cash flow cycle for Industrial Operation. (10 Marks)
b. A market price of a sterilizer is 50,000/- and discount allowed is 20% of the market price to the distributors. The selling expense cost is 25% of the factory cost. If the material cost, labour cost and the factory overhead charges are in the ratio of 1:4:2, what profit is made by the factory on each sterilizer. If the material cost is Rs 4000/-? Other overhead cost is neglected. (10 Marks)

PART – B

- 5 a. Explain the factors affecting investment and production cost. (10 Marks)
b. Two machines, each with a service life of 5 yrs have the following cost comparison. If the money is worth 8% p.a which machine is more economical? (10 Marks)

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

- 6 a. Define Depreciation. Explain different types of depreciation. (10 Marks)
b. A Biochemical reactor, manufactured by a firm has initial cost of completely installed is 4,80,000/- and the salvage value at the end of the useful life is estimated to be 80,000/-. The total expense annually for the plant is 8,00,000/-. How many years of useful life should be estimated for the reactor if 12% of the total annual expenses for the plant are due to the cost of reactor depreciation? Use straight line depreciation method. (10 Marks)

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.

- 7 a. Explain Profitability Analysis. Discuss various methods of Profitability Analysis. (10 Marks)
 b. A Project '2' is expected to have a cash flow for 5 years as below. After all expenses and taxes, the initial fixed capital investment is Rs 10,00,000/- and working capital is taken as 15% of the fixed capital investment.

(10 Marks)

Time (in yrs)	Cash flow (Rs)
0	-
0-1	2,00,000
1-2	2,70,000
2-3	3,30,000
3-4	4,00,000
4-5	4,75,000

Find the rate of return on original investment using straight line depreciation method.

- 8 a. Write a critical note on Break Even Analysis. (10 Marks)
 b. A company has three alternative investments which are being considered because all the three investments are for the same type of unit and yields the same service. Only one of the investment can be selected. If the company expects 15% on original investment, which of the alternative is best among them. (10 Marks)

Item	I	II	III
Initial cost	1,00,000	1,70,000	2,10,000
Operating cost	10,000	10,000	15,000
Annual cash flow	30,000	52,000	59,000
Annual expenditure	15,000	28,000	21,000
