

EX/ FTBE / T / 323 /2018

**B.FTBE.(3RDYEAR2NDSEM)EXAMINATION-2018,
PROJECT PLANNING LAYOUT & ECONOMICS**

Time: Three hours

Full Marks: 100

Use separate Answer Script for each Part

PART-I (50 Marks)

Different parts of the same question should be answered together.

Answer any One from (a) and (b), and also any One from (c) and (d) in this block.

1. (a) Describe the objective of providing depreciation in project costing.
(b) Describe the objective of providing compound interest in investment. (5)
(c) Describe the methods of generating Capitalized Cost for running a project.
(d) Describe the methods of calculation of Break Even Point. (10)

2. Answer any Two from (a), (b), and (c), and also any One from (d) and (e) in this block :

- (a) Differentiate with suitable examples between simple interest and compound interest.
(b) Differentiate between Appreciation and Annuity in project costing.
(c) Differentiate between Asset Value and Capital Cost. (5 * 2 = 10)
(d) Differentiate between Scrap Value and Salvage Value.
(e) Differentiate between Linear Programming and Differential Programming. (5*1=5)

[Turn over

3. Answer any Two from (a), (b), and (c) in this block (10 *2 = 20)

(a) Explain a method of calculation of Capitalized Costs of an equipment in terms of original cost and replacement value after n years of service life.

(b) Explain how would you determine the asset (or book) value of the equipment at the end of 6 years using, if the original value of a piece of equipment is Rs. 88 lakh, completely installed and ready for use, and its salvage value is estimated to be Rs. 8 lakh at the end of a service life to be 8 years.

(c) Explain the applications of statistical methods in project management.

BACHELOR OF ENGINEERING (F.T.B.E) EXAMINATION, 2018

(3rd Year -2nd Semester)**Project Planning Layout & Economics**

Time: 3 hrs.

Full Marks : 100

Part - II(Answer Q-1 and any two questions from the rests in this group; $20 + 15 \times 2 = 50$)

1. A food processing unit is producing 75,000 bottles of fruit juice (soft drink) of different varieties per month.

The details of expenditures of the company are given below:

<u>A. Non recurring expenditure</u>	<u>Amount (Rs.)</u>
(i) Plant & machineries etc.	18,80,000/-
<u>B. Land & Building with storage facilities etc. on rental basis</u>	20,000/-
<u>C. Recurring expenditure</u>	
(i) Cost of raw materials including bottles per month	2,20,000/-
(ii) Salaries and wages	50,000/-
(iii) Utility cost and other expenses	40,000/-
(iv) Other miscellaneous expenses	30,000/-

- Calculate the following :
- (a) return on investment (b) return on sales
(c) break even point and also
(d) Prepare the profit and loss account. Take the selling price of each bottle as Rs.100/- per bottle (20)

2. A new manufacturing unit has just been constructed and put into operation by your company. The basis of manufacturing process is a special computer for control (designated as OVT computer) as developed by your research division. The plant has now been in operation for couple of days and is performing according to expectation. A new computer (designated as NTR computer) has just become available in the market . The new computer can easily be installed at once in place of your present computer and will do the identical job as far less annual cash expense because of reduced maintenance and personnel costs. However, if the new computer is installed , your present computer is essentially worth less because you have no other use of it.

Following is pertinent economic information relative to the two computers.

	<u>OVT computer</u>	<u>NTR computer</u>
1. Capital investment	Rs.2.0 Cr.	Rs.1.0 Cr.
2. Estimated economic life	10 yrs.	10 yrs.
3. Salvage Value at the end of service life	0	0
4. Annual cash expenses	Rs. 25,00,000	Rs.5,00,000

What recommendations would you make relative to replacing the present computer (in use) with the new computer, taking income tax benefit completely into consideration , which factor will favour to take decision.

15

3. Answer any two: (7.5 X 2 =15)

- Cost estimation of products
- Calculation of Capital Investment in tabular form
- Discuss on the importance of flow diagram in process industries for the visualization of the manufacturing stages
- Optimum production rates in plant operation

4. An existing plant has been operating in such way that the large amount of heat is being lost in the waste gas. It has been proposed to save money by recovering the heat which is now being lost. Four different heat exchangers have been designed to recover the heat and all prices , costs and savings have been calculated for each of the following design. The results are presented in the following table :

Design	No.1	No.2	No.3	No.4
Total Installation Cost	Rs.5,00,000/-	Rs.8,00,000/-	Rs.10,00,000/-	Rs.11,00,000/-
Operating cost Rs. / yr.	Rs.6,000/-	Rs.6,000/-	Rs.6,000/-	Rs.6,000/-
Fixed charges , % of initial cost /yr.	20	20	20	20
Value of heat saved Rs./yr.	Rs.2,00,000/-	Rs.3,00,000/-	Rs.3,50,000/-	Rs.4,40,000/-

The company in charge of the plant demands at least 10% annual return based on the initial investment . Only one of the four designs can be accepted. Which of the four design should be recommended as the best one based on initial capital investment criteria and profit margin consideration. Justify your selection

(15)

5. A plant produces Refrigerator at the rate of P units per day. The variable cost per refrigerator has been found to be $Rs.3000 + 0.1 P^{1.2}$. The total daily fixed cost is Rs.105600 and all other expenses are constant at Rs.43950/- per day.Determine

- The daily profit at a production schedule giving the minimum cost per refrigerator
- The daily profit at a production schedule giving the maximum daily profit
- The [roduction schedule at the break even point

(15)