NAME_____ ROLLNO_____

2008 ANNA UNIVERSITY

B.E/B.TECH DEGREE EXAMINATIONS

ECONOMICS AND COST ANALYSIS

(MECHANICAL ENGINEERING)

NOV/DEC-2008

TIME-3HOUR
MARK-100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20)

1.What is elasticity of demand?

2.What is opportunity cost?

3.How much will a piece of property have to increase in value over the next 5 years ,if it is to earn 10 % per year on the purchase price?

4.Calculate the present worth of the following payments –Rs 5000 in year 3, in 10,000 in year 5.

5.What is annual equivalent method of comparing alternatives?

6.What is revenue dominated cash flow

7.Name the types of maintenance.

8.What are the types of replacement problem?

9.What is service utput method of depreciation?

10.Define inflation.

PART B (5 X 16= 80)

11 (a) (i)Bring out the scope of engineering economics with appropriate examples

(ii) A concern manufacturing a domestic appliance proposes to put up an improved model in market and the selling price for the same to be decided .The selling price will cover the overheads and ensure the proportion of profit on sales as before.The material in the new model will cost Rs 4000 and the direct wages would be Rs 2000.Following figures relate to the previous year:

Stock material on 1st April 2006 Rs 2,00,000

Stock material on 31 stMarch 2007 Rs 2,20,000

Purchase of raw material in this period Rs 5,20,000

Manufacturing wages Rs 1,60,000

Works overhead Rs 80,000

Administrative and sales overhead Rs 80,000

Sales during the year Rs 9,02,000

Suggest a selling price .Overhead absorption base on % of direct labour.

OR

(b) (i) Explain the process of material selection in new product development

(ii) From the following details ,calculate the break even point .What will be the selling price per unit if break even point to be brought to 900 units:

Variable cost per units Rs 750

Fixed expenses Rs 27,00,000

Selling price per unit Rs 1,000

12 (a)(i) What is uniform gradient conversion?Illustrate with an example.

(ii)What is value engineering ?With suitable example ,explain the various phases of value engineering job plan

OR

(b) A manufacturing company has extra capacity which can be used to produce gears that the company hasbeen buying for Rs 300 each.If the company makes the gears,it will incur material cost of Rs 90 per unit,labour cost of Rs 120 per unit and variable overhead cost of Rs 30 per unit .The annual fixed cost associated with the unused capacity is Rs 2,40,000.Demand over the next year is estimated at 4000 units.

(i)Should company make the gears or continue to buy?

(ii)Suppose the capacity coud be used by another department for the production of the same pump components that would cover its fixed and variable cost and contribute Rs 90,000 to profit.What would be more advantageous,gea production or pump components production?

13 (a) An engineer is considering two types of pressure sensors for a low pressure steam line.The costs are shown below.Which should be selected based on a present worth comparison at an interest rate of 16 % per year?

Type X Type Y

First cost Rs 76,000 Rs 1,29,000

Maintenance cost/year 12,000 9000

Salvage value 0 20,000

Life,years 2 4

OR

(b) A company that manufactures amplified transducers is trying to divide between the machines shown below.Compare them on the basis of annual worth using an interest rate of 15
5 pr year

Variable speed Dual speed
First cost,Rs 4,50,000 2,40,000

Annual operating cost Rs 3,10,000 3,50,000

Overhaul in years 2 and 4 ,Rs - 60,000

Overhaul in years 5 ,Rs 1,20,000 -

Salvage value ,Rs 1,00,000 80,000

Life ,years 8 6

14 (a) (i) What is defender challenger concept in replacement ?Illustrate with an example.

(ii)Explain the causes for replacement of assets ,in detail with examples

OR

(b) Initial cost of a machine is Rs 6,00,000, with other details as below:

Year 1 2 3 4 5

Resale value (Rs) 4,20,000 3,00,000 2,04,000 1,44,000 96,500

Cost of spares (Rs) 40,000 42,700 48,800 57,000 68,000

Cost of labour (Rs) 1,40,000 1,60,000 1,80,000 2,10,00 0 2,50,000

Determine the optimum period for replacement of the machine.

15 (a) (i) How to adjust inflation in evaluating public alternatives? Explain the procedure.

(ii)Find the depreciation annuity by annuity method after three years,when the initial cost of the machine is Rs 8,00,000 an salvage value at the end of three years is Rs 4,00,000.Rate of interest 10 %

OR

(b) (i) What is economic life of an asset?How to determine it ?Explain

(ii) The cost of a machine is Rs 1,60,000 and its scrap value is Rs 40,000 .Estimate life 5 years .Using sum of years digits method ,determine depreciation charges for each year.