Registration No. :

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B. Tech.

HSSM 3204 (N) / HSSM 4201 (O)

Third Semester Examination – 2010

ENGINEERING ECONOMICS AND COSTING

(New and Old Course)

Full Marks – 70

Time : 3 Hours

(Students are required to give their answer any one Course according to the Syllabus)

(NEW COURSE)

Answer Question No. 1 which is compulsory and any five from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the followings : 2×10

    (a) Explain the concept of externalities citing examples.

    (b) Explain economy on the basis of Government control.

    (c) Explain the three basic problems of an economy.

    (d) What do you mean by time value of money ?

    (e) What is Margin of Safety ? How do you compute MOS when P/V ratio and desired net profit is known ?

    (f) Why should there be a central bank when commercial banks are available in a country ?

    (g) Distinguish a public project from a private project.

    (h) Explain the concepts such as "bandwagon effect", "Snob effect" and "Giffen paradox".

    (i) Define depreciation. What are the accepted methods of charging depreciation?

    (j) Define IRR. How is it different from NPV ?

2. The cost equation for Sweet Sugars Ltd is $C_1 = 75Q_1 - 8Q^2 + Q^3_1 - 85$. It sells in a perfectly competitive market. The sugar industry's demand and supply curves are $Q = 360 - 2P$ and $Q = 10 + 3P$ respectively. Here, P and Q are the price and quantity demanded/supplied and C_1 and Q_1 are the total cost and quantity supplied by the firm. Find out the : 10

   (a) Equilibrium price and quantity of sugar

   (b) Profit maximizing output of Sweet Sugars

   (c) Profit made by Sweet Sugars in the short run

3. Distinguish between : (Any *two*) 5×2

   (a) Planned Economy and Unplanned Economy

   (b) Price Elasticity of Demand and Income elasticity of Demand

   (c) Derived Demand and Autonomous Demand

   (d) Perfect competition and Monopoly

   (e) Increasing Returns to scale and Diminishing Returns to scale

4. The following extracts of costing information relate to commodity X for the year ending 31.12.2003. 10

	Rs.
Purchases of raw-materials	6,000
Direct wages	5,000
Factory rent, rates and insurance	2,000
Carriage inwards	100
Stock (1.1.2003)	
Raw-materials	1,000
Finished products – 200 tons	800
Stock (31.12.2003)	
Raw-materials	1,100
Finished products – 200 tons	
Cost of factory supervision	400
Sale of finished products	15,000

Advertising and selling cost is 40 paise per ton sold. 3,000 tons of the commodities were sold during the year. Prepare a Cost Sheet.

5. The following are the estimates for the year 2004-05 relating to a manufacturing concern : 10

Sales Unit	25,000
Fixed cost	1,20,000
Sales Value	4,00,000
Variable cost	Rs.8 per unit

You are required to :

(a) Find out P/V Ratio, Break-even Point and Margin of Safety.

(b) Calculate the revised P/V Ratio, Break-even Point and Margin of Safety in each of the following cases :

   (i) Increase of 10% in Variable Cost.

   (ii) Decrease of 10% in Selling Price.

   (iii) Increase of Sales volume by 5000 units.

   (iv) Increase in Fixed Cost by Rs.15,000.

6. Draw a Break-even diagram with imaginary figures and explain details of the BEP, MOS, Angle of incidence and their relevance. 10

7. Define a Commercial Bank. Discuss the functions of a commercial bank.

   10

8. A company wants to buy a machine. It has received two offers. The details are as under : 10

	Offer-1	Offer-2
Initial cost	Rs.6,00,000	Rs.8,00,000
Life span	4 years	4 years
Salvage value	Rs.1,00,000	Rs.1,00,000
Annual maintenance cost	Rs.50,000	Nil

At 10% interest rate, which offer should be selected. Use Future Worth Method.

Other relevant information are :

F/P, I, n = 1.464   F/A, I, n = 6.105

P/F, I, n = 0.6830   A/F, I, n = 0.1638

P/A, I, n = 3.7908   A/P, I, n = 0.2638

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(OLD COURSE)

*Answer Question No. **1** which is compulsory and any **five** from the rest.*

The figures in the right-hand margin indicate marks.

1. Answer the followings: 2×10

    (a) What do you mean by time value of money?

    (b) Distinguish between Nominal Interest Rate and Effective Interest Rate.

    (c) How is Net present worth different from IRR?

    (d) How do you compute Breakeven point when contribution per unit is not known?

    (e) When do you go for benefit/cost analysis?

    (f) What is cost effectiveness analysis?

    (g) What do you mean by conversion cost?

    (h) What do you mean by Margin of Safety?

    (i) Distinguish between Fixed Cost and Variable Cost.

    (j) What do you mean by cost reduction?

2. What is Break even sales? Discuss the merits and demerits of break even analysis. 10

3. A company wants to set up a reserve which will help the company to have an annual equivalent amount of Rs.10,00,000 for the next 20 years towards its employees welfare measures. The reserve is assumed to grow at the rate of 15% annually. Find the single payment that must be made now as the reserve amount. (Given (P/A, 15%,20) = 6.2593). 10

4. What is Process costing ? Discuss the main features of Process Costing and also explain how abnormal gain is treated. 10

5. Two mutually exclusive projects are being considered for investment. Project M requires an initial outlay of Rs.30,00,000 with net receipts estimated as Rs. 9,00,000 per year for the next 5 years. The initial outlay for the project N is Rs.60,00,000 and net receipts have been estimated at Rs.15,00,000 per year for the next seven years. There is no salvage value associated with either of the projects. Using the benefit cost ratio, which project would you select ? Assume an interest rate of 10%. 10

6. Why should sensitivity analysis be considered in Engineering Economics ? Distinguish between single parameter sensitivity and multiple parameter sensitivity. 10

7. What are the causes for declining value of assets ? Discuss two basic methods of computing depreciation charges with examples. 10

8. From the following particular, calculate material variances: 10

Quantity of material purchases : 3000 units

Value of material purchase : Rs. 12,000

Standard Quantity of materials : 30 units

Requested per ton of out put.

Standard rate of material : Rs. 3.50

Opening stock of material : Nil

Closing stock of material : 500 units

Output during the period : 80 tons

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