SILICON

Total Pages—5

B. Tech
HSSM 4201

3rd Semester B.Tech Examination, Nov. 2004

ENGINEERING ECONOMY AND COSTING

Full Marks : 70

Time : 3 hours

Answer **Q. No. 1** and any **five** from the remaining questions

The figures in the right-hand margin indicate marks

1. Answer the following questions : 2 × 10

(*i*) Define sinking fund and capital recovery factor.

(*ii*) How many years will it take for the balance left in a saving account to increase from Rs. 1,000 to Rs. 1,500 if the interest is received at a nominal rate of 6 per cent compounded semi-annually throughout the period ?

(*iii*) How would you determine cash flows of a firm from the firm's P/L account ?

(*iv*) What do you mean by 'amortization' of an asset ?

(*Turn Over*)

(*v*) State the causes of deterioration in the value of an asset.

(*vi*) Define the concepts of gross and net 'profitability index' used for evaluation of an investment proposal.

(*vii*) Classify costs according to their variability in respect of volume of production.

(*viii*) Distinguish between waste and scrap.

(*ix*) Define the concept of labour turnover.

(*x*) State any two important advantages of standard costing.

2. Let us assume that a firm purchased a machine 3 years ago for Rs. 50,000. Its useful life was 5 years with no salvage value. It is depreciated on a straight line basis. What would be the net cash flow from the sale of the machine if the firm wants to replace it assuming the sale price to be: (*i*) Rs. 60,000, (*ii*) Rs. 30,000, (*iii*) Rs. 20,000, and (*iv*) Rs. 10,000? The firm's normal tax rate is assumed to be 55% and the capital gains tax is 30%? 10

3. Assess the impact of the depreciation method (*i*) straight line method, (*ii*) double declining balance method and (*iii*) sum of the years' digit method—on the cash flow stream of the firm which has purchased a machine for Rs. 20,000 with economic life of 4 years with no salvage value. The gross cash proceeds and cash expenses are Rs. 13,000 and Rs. 3,000 respectively for 4 years. The tax rate is 55%. Calculate net cash flows for the firm for 4 years. 10

4. Project *X* involves an initial outlay of Rs. 32,400. Its working life is expected to be three years. The cash stream generated by it are expected to be as follows:

Year	*Cash inflow* (Rs.)
1	16,000
2	14,000
3	12,000

Calculate the Internal Rate of Return. Assuming the minimum required rate of return to be 14%. Would the project be selected? 7+3

5. Distinguish between cost accounting and costing. What are the types of costing that are used in industries? 5+5

6. What principles would guide you in selecting cost units in an undertaking? Mention the dangers that should be avoided. 5+5

7. (*a*) Company *X* has an overall P/V ratio of 60%. If the marginal cost of a certain product is assessed as Rs. 12, what will be its selling price?

(*b*) A factory produces two products, *A* and *B*. The cost of production and gross profit in respect of each for March, 2004 are given below:

	A *Per unit* Rs.	*B* *Per unit* Rs.
Direct material cost	100	350
Direct wages	200	100
Variable overhead	100	50
Fixed overhead	400	200
Cost of production	800	700
Gross Profit	200	300
Sales Price	1,000	1,000

Comment on the profitability of the products and state which product will give more profit during heavy demand. 5+5

(*Continued*)

8. What is essential difference between

(*a*) Budgetary control and Standard costing

(*b*) Standard and Estimating costing? 5+5