

Total number of printed pages – 7 B. Tech
HSSM 4201 / PH. 3.10

Third Semester Examination – 2007

ENGINEERING ECONOMICS AND COSTING

Full Marks – 70

Time : 3 Hours

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 following questions : 2×10
 - (a) What do you mean by 'semi-annual compounding' ?
 - (b) What is flat rates of interest ?

P.T.O.

(c) State two limitations of net present worth method.

(d) What is project indivisibility?

(e) What is secondary cost of a project?

(f) What do you mean by 'economic service life'?

(g) What is depletion?

(h) What is margin of safety?

(i) What is material cost variance?

(j) State the objective of process costing.

2. (a) Mr. Patnaik has ten more years of service. He is planning for his retired life. He would like to deposit Rs. 8,500 at the end of first year and there after he wants to deposit

the amount with an annual decrease of Rs. 500 for the next 9 years with an interest rate of 15%. Find the total amount at the end of the 10th year of the above series. 5

(b) Explain the conditions for present worth comparison and discuss net present worth. 5

3. ABC Ltd. purchased a pump and motor for Rs. 1,925 installed. But it was found that the pump had been improperly selected and the power bill for operating the pump would be Rs. 900 per year. A new pump, which is suitable for the requirement, is available for Rs. 2,450 installed, with a guarantee that the power cost will not

exceed Rs. 500 annually. Assume an 8 years study period with zero salvage for both pump sets at the end of the period. The firm uses a minimum alternative rate of return of 12%. Should the pump be replaced ? 10

4. You are required to select one project from two mutually exclusive alternatives. Take imaginary figures regarding their cost, uniform annual benefit, useful life in years and interest rate. Discuss the process of selection based on the future worth method of comparison. 10

5. Konark Ltd. purchased a second hand machine on 1st January, 2004 for Rs. 3,70,000 and *and* immediately spent Rs. 20,000 on its repairs and Rs. 10,000 for installation. On 1st July, 2005 it

purchased another machine for Rs. 1,00,000. On 1st July, 2006 it sold off the first machine for Rs. 2,50,000 and bought another for Rs. 3,00,000. Depreciation was provided on the machine @ 10% on original cost annually on 31st December. With effect on 1st January, 2007 the company changed the method of providing depreciation and adopted written down value method and the rate of depreciation 15% p.a. Calculate depreciation for four years. 10

6. The following figures are available for the records of Utkal Ltd. as at 31st March :

	2006	2007
	Rs. (in lakhs)	Rs. (in lakhs)
Sales	150	200
Profit	30	50

Calculate :

5×2

- (a) the P/V ratio and total fixed cost
- (b) the break-even level of sales.

7. Orissa Ltd. follows standard costing. It manufactures two products. Standard hours for manufacturing two products M and N are 15 hours per unit and 20 hours per unit respectively. Both the products require identical kind of labour and the standard wages rates per hour is Rs. 5. In the year 2007, 10,000 units of M and 15,000 units of N were manufactured. The total of labour hours actually worked were 4,50,000 and the actual wage bill came to Rs. 23,00,000. This include 12,000 hours paid for @ Rs. 7 per hour and 9,400 hours paid for @ Rs. 7.50 per hour, the balance having been paid at Rs. 5 per hour. You are required to compute the labour variances.

10

8. Write short notes on :

5×2

- (a) Cost reduction
- (b) Relevant cost.