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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Industrial and Production Engineering

Semester End Examination; May / June - 2018

Economics for Engineers

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.*
ii) Use of Interest tables are permitted.

UNIT - I

1 a. What are the general questions that might encounter in engineering decision making? 5

b. Discuss the role played by intuition and analysis in decision making. 8

c. Sketch and explain the problem solving process. 7

2 a. What will be the amount accumulated by ends of these present investment?
i) Rs. 6750/- in 20 years at 4% compounded semi-annually 6
ii) Rs. 11000/- in 10 years at 12% compounded quarterly

b. A continuous flow of funds is Rs. 3,300/- per year is deposited into a sinking fund. What amount will be accumulated at the end of 5 years, if the interest rate is 12% compounded monthly and compounded quarterly? 8

c. Briefly explain Cash flow diagrams. 6

UNIT - II

3 a. List the conditions of PW comparisons and explain any two. 7

b. How do you compare assets having unequal lives? Explain. 5

c. Two types of trucks are available for transportation. The details are:

Particulars	Truck A	Truck B
First Cost	Rs.10,00,000	Rs.15,00,000
Estimated annual maintenance Cost	Rs. 20,000	Rs. 15,000
Estimated life	5 years	10 years
Estimated salvage value	Rs. 2,00,000	Rs. 5,00,000

8

Both the trucks deliver the same amount of work. Assuming an interest rate of 7%, which truck is to be preferred on PW basis? Use CFD for your analysis.

4 a. Explain: i) Ownership life ii) Accounting life. 4

b. Briefly explain the situations of EAW comparions. 6

c. A company invests in of the two mutually exclusive alternatives. The cycle of both the alternatives is estimated to be 5 years with the following investments, annual returns and salvage values:

Details	A	B
Investments (Rs)	1,50,000	1,75,000
Annual equal returns (Rs.)	60,000	70,000
Salvage Value (Rs.)	15,000	35,000

10

Determine the best alternative on the basis of EAW method by assuming an interest rate of 25%.

Contd…2

UNIT - III

5 a. Bring out the misconceptions of IRR. 5

b. List the various methods of depreciation and explain any one. 7

c. A furnace was purchased for Rs. 40,000/- and Rs. 10,000/- more were spent on erection and commissioning. The estimated residual value after 10 years was Rs. 12,000/-. Find; 8

i) Depreciaitohn fund after 5 years using fixed percentage method
ii) Depreciation fund after 8 years using diminihsing balance method
iii) Book value at the end of 3rd year using diminihsing balance method

6 a. Explain MARR. 5

b. Explain the Causes of depreciation. 7

c. A machine is purchased for Rs. 60,000/- and its estimated salvage value is Rs. 20,000/- after 10 years of life. Compute the following: 8

i) Depreciation fund after 5 years using straight line method
ii) Depreciation charge for eight years using declining balance method
iii) Rate of depreciation under double declining balance method
iv) Book value after 3 years under declining balance method

UNIT - IV

7 a. Explain dependent and independent alternatives. 5

b. List and explain the types of Capital. 7

c. What are the reasons for replacement? Explain. 8

8 a. How do you classify alternatives? Explain. 5

b. The maintenance cost and resale value per year of a machine whose purchase price is Rs. 7,000/- is given below: 8

Year	1	2	3	4	5	6	7	8
Maintenance cost (Rs.)	900	1200	1600	2100	2800	3700	4700	5900
Resale Value (Rs.)	4000	2000	1200	600	500	400	400	400

When should be the machine replaced?

c. Explain the various sources of finance. 7

UNIT - V

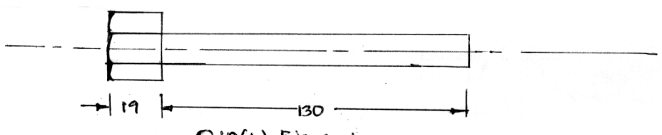
9 a. Briefly explain the methods of allocation of overheads. 6

b. A factory is producing 150 electric bulbs a day and involves direct material cost of Rs. 250, direct labour, cost of Rs. 200 and factory overheads of Rs. 225. Assuming a profit of 10% of the selling price and a selling on cost (overhead) 30% of the factory cost, calculate the selling price of the electric bulb. 8

c. Derive an expression for B.E. Point. 6

10 a. With a block diagram, explain the components of Total cost. 6

b. Calculate the cost of 3000 units of M24 MS hexagonal headed bolts having a thickness of the head of the bolt as 19 mm, length 130 mm density 7.8 gm/cc and cost per kg is Rs. 18 as shown in the Fig. Q10(b). 7



Q10(b) Figure 1

c. Explain with a neat sketch the B.E. chart. 7

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