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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 - 2019

Economics for Engineers

Time: 3 hrs *Max. Marks: 100*

Note: *Answer FIVE full questions, selecting ONE full question from each unit.*

UNIT - I

1 a. "The focus on scarce resources welds engineering to economics". Defend this statement. 6

b. Distinguish clearly between the Intuition and Analysis. 6

c. Illustrate the "Effective interest rates". 8

2 a. Develop an expression for "Compound-amount factor (single payment)". 8

b. With interest at 6% what is the worth on December 31, 1994 of a series of year end-payments of Rs. 3000 made from the years 2000 through 2004. 6

c. A person takes a loan of Rs. 20,000 from a bank at interest of 10% P.A. Determine the future amount if; 6

i) Interest is compounded annually ii) Interest is compounded monthly

UNIT - II

3 a. Explain the "72 rule". 6

b. Discuss about the "Study-period methods". 6

c. The following alternatives are available to accomplish an objective of 12 years duration : 8

	Plan A	Plant B
Life cycle (yrs)	6	4
First cost (Rs)	2000	10,000
Annual Cost (Rs)	3200	500

Compare the present worth of the alternatives using an interest rate of 7%.

4 a. Elaborate "Payback comparison method" 6

b. The purchase of truck with an operator's platform on a telescoping hydraulic boom will reduce labor costs for sign instantaneous by Rs. 15,000 per year. The price of the boom truck is Rs. 1,00,000 and its operating costs will exceed those of present equipment by Rs. 250 per month. The resale (salvage) value is expected to be Rs. 18,000 in 8 years. Should the boom truck be purchased when the current available interest rate is 7%? Conclude the decision by EAW? 8

c. What is an Economic life? Explain. 6

Contd…2

UNIT - III

5 a. "MARR is a device designed to make the best possible use of the limited resource" Justify this statement. 6

b. Compare the two investment proposals given below, if the firm's in MARR is 15%.

Investment Proposals	Initial Cost (Rs.)	Annual Return (Rs.)
Proposal 1	4,00,000	1,00,000
Proposal 2	6,25,000	1,60,000

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Life of both the proposals is 10 years. Compare using on IRR.

6 a. Outline the declining balance method 6

b. The marginal assets of company are Rs. 6,80,000. The life of the plant is 9 years. If the scrap value at the time is expected to be 1,80,000. Determine the depreciation at the end of each year by sum of the year digit method. 8

c. Discuss about the various types of taxes. 6

UNIT - IV

7 a. Define dependent alternative. Explain it. 8

b. "Replacement studies are usually made as equivalent annual-cost calculations" Why? 6

c. Illustrate "Replacement due to inadequacy". 6

8 a. Summarize the consequences of Inflation. 6

b. "There are many reasons why leasing may be more attractive than purchasing", List those reasons. 6

c. What are the different methods of raising capital? 8

UNIT - V

9 a. Show the different elements of product cost. 6

b. Write the method of "Estimating the selling price" of a product. 8

c. Determine the setting price of a gear wheel from the following data :

No. of gear wheels produced 200 Labour cost Rs. 2,500

Material cost Rs. 3,800 Factory overheads 40% of direct cost

Administrative and selling overheads 25% of factory cost Profit 40% of the total cost

6

10 a. Draw the conclusion on the "Need of Estimating and costing" 6

b. Name the "sources of fixed cost" and "Sources of variable cost". 6

c. An airline is evaluating its feeder routes. These routes connect smaller cities to major terminals. The routes are seldom very profitable themselves but they feed passengers into the major frights which yield better returns. One feeder route has a maximum of capacity of 1000 passengers per month. The contribution from the fare of each passenger is 75% of the Rs. 120 ticket price. Fixed costs per month are Rs. 81,000. Determine the break-even point and net profit when the effective income takes rate of 40%. 8

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