CSE 421 (R-15)

Total No. of Questions :09] [Total No. of Pages : 03

IV/IV B.Tech. DEGREE EXAMINATIONS, NOV/DEC- 2019

Second Semester

COMPUTER SCIENCE ENGINEERING

INDUSTRIAL ECONOMICS

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **6X2=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) Mention types of market?
   b) What are the exceptions to the law of supply?
   c) Define elasticity of demand
   d) Brief on Discounted payback method
   e) Purpose and use of Sinking fund factor
   f) Give a brief on defender and challenger in replacement analysis.

UNIT-I

2. a) What is opportunity cost? How is it computed? What is its relationship to the usual meaning of cost? Explain in detail.
   b) What are the effects of changes in demand and supply? Electricity is a major input into the production of aluminum, and aluminium is a substitute in supply for steel. What is the effect of an increase in price of electricity on the steel market? Explain.

(OR)

3. a) Whar are the effects of changes in supply and demand on price and quantity? Explain.
   b) Suppose demand and supply have constant elasticity equal to 3. What happens to equilibrium price and quantity when the demand increases by 3% and the supply decreases by 3%.

P.T.O

UNIT-II

4. a) Mr.Nagarjuna Jefferson purchased an antique statue for 4,50,000. Ten years later, he sold this statue for Rs.7,50,000. If the statue is viewed as an investment, what annual rate did she earn? Explain.

   b) Explain the concept of Single payment compound amount factor and deduce the formula to find unknown future worth (F) based on present worth (P), and the total interset period 'n' years.

(OR)

5. a) Explain law of variable proportion and its stages with assumptions.

   b) XYZ company needs a machine for its manufacturing process. The cost of the new machine is 80,000. The expected life of the machine is 6 years and at the end of it the machine would have no salvage value. If the machine is installed,it is expected to increase cash inflows by Rs.30,000 per year. With this net preset value of the machine it is to be decided whether to accept or reject this investment. The minimum required rate of return of the company is 16% on all capital investments.

   Calculate net present value of the machine. Is it acceptable to purchase the machine?

UNIT-III

6. a) What are the advantages and disadvantages of Accounting rate of return method? Elaborate.

   b) Using an interest rate of 10%, choose the best machine using the benefit-cost ratio analysis.

	Machine X	Machine Y
Initial cost	$200	$700
Uniform annual benefit	95	120
End of Useful live salvage value	50	150
Useful life (years)	6	12

P.T.O

(OR)

7. Compare the following equipment on the basis of the equivalent uniform annual worth and find out the most economical one at the interest rate of 9.5% per year. Cash flow details of equipment are as follows:

Equipment-A:

Initial purchase cost=Rs.5000000

Annual operating cost=Rs. 60000 at the end of year '1' and increasing by Rs.3000 in the subsequent years till the end of useful life.

Annual income=Rs,770000, Cost of one time major repair=Rs.200000 at the end of year '8', Expected salvage value=Rs.1400000, Useful life=12 years

Equipment-B

Initial purchase cost=Rs.4600000

Annual operating cost=Rs.75000

Annual income=Rs.710000 for the first 5 years and increasing by Rs.5000 in the subsequent years till the end of useful life.

Cost of one time major repair=Rs.230000 at the end of year '6'

Expected salvage value=Rs.1200000, Useful life=12 years.

UNIT-IV

8. a) A fixed asset is purchased on 1 January 2011. Information relating to the asset is as follows:

Cost of acquisition	$110,000
Residual value estimated at the time of acquisition	$10,000
Residual value revised estimate on 1 January 2012	Nill
Useful life estimated at the time of acquisition	10 years
Useful Life revised estimate on 1 January 2013	8 years

Calculate depreciation expense for the years ended 31 December 2011, 2012, 2013 & 2014.

b) Explain types of maintenance.

(OR)

9. a) Explain simple probabilistic model for items which fail completely with an example.

b) Elaborate on Buy, Rent and Lease options.

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IV/IV B.Tech. (Regular) DEGREE EXAMINATIONS, APRIL- 2019

Second Semester

COMPUTER SCIENCE ENGINEERING

INDUSTRIAL ECONOMICS

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **6X2=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. a) Explain law of demad
   b) Mention aims of value engineering
   c) Define elasticity of demand
   d) Define Compound interest
   e) What is a Replacement Cost
   f) What is meant by future worth analysis

UNIT-I

2. a) Explain the difference between science, Engineering, Technology & Economics.
   b) A machine can reduce annual cost by $30,000. The cost of the machine is 200,000 and the useful life is 15 years with zero residual value.

(OR)

3. a) From the following data, calculate break-even point and net sales value at this point:

Direct material cost per unit	Rs. 10
Direct labor cost per unit	Rs. 5
Fixed overhead	Rs.50,000
Variable overheads @60% on direct labor	
Selling price per unit	Rs.25
Trade discount	4%

If sales are 10% and 25% above the break even volume, determine the net profits.

b) Give a brief on marginal cost, sunk cost and opportunity cost.

UNIT-II

4. a) The difference between SI and CI compounded annually on a certain sum of money for 2 years at 8% per annum is Rs.12.80. Find the principal.

b) What is value engineering? Explain the points that are to be applied when an activity or function decide to do the value engineering.

(OR)

5. a) Company ABC is considering an investment of Rs100,000. The useful life of the project is 10 years. The cut off period is 3 years. The board of directors has identi fied two alternatives A and B. The expected annual cash flows are as follows, Find payback period for A and B.

Cost or Cash Flow	Alternative A	Alternative B
Initial cost	100,000	100,000
Cash flow year 1	35,000	35,000
Cash flow year 2	28,000	35,000
Cash flow year 3	32,000	35,000
Cash flow year 4	40,000	35,000

b) Nagarjuna Infrastructure just issued 3 million Rs100-par bonds payable carrying 7% coupon rate and maturing in 12 years. The bond indenture requires Nagarjuna Infrastructures to set up a sinking up to a pay off the bond at the maturity date. Semi-annual payments are to be made to the fund which is expected to earn 5% per annum. Find the amount of required periodic contributions.

UNIT-III

6. There are two alternatives for purchasing a concrete mixer. Both the alternatives have same useful life. The cash flow details of alternatives are as follows;
Alternative-I : Initial purchase cost=Rs.3,00,000, Annual operating and maintenance cost=Rs.20,000, Expected slavage value=Rs.1,25,000, Useful life=5 years.

P.T.O

Alternative-2: Initial purchase cost=Rs.2,00,000, Annual operating and maintenance cost=Rs.35,000, Expected salvage value=Rs.70,000, Useful life=5 years.

Draw the cash flow diagrams using present worth method, find out which alternative should be selected, if the rate of interest is 10% per year.

(OR)

7. a) Give a brief on Annual equivalent method and rate of return method.

   b) The XYZ manufacturing company has the following different alternative investment proposals. Using accounting rate of return method, select the best investment proposal for the company.

	Proposal A	Proposal B	Proposal C
Expected annual incremental income	50,000	70,000	90,000
Initial investment	2,50,000	2,80,000	4,75,000
Expected accounting rate of return	20%	23%	16%

UNIT-IV

8. a) Define depreciation. How to calculate depreciation in small business? Explain double declining.balance method. Using this method find the following:

   On 1st April 2014, a company has purchased an equipment for Rs.200,000. This is expected to have 5 useful life years. The salvage value is Rs.14,000. Company considers depreciation expense for the nearest whole month. Calculate the depreciation expenses for its useful life years.

   b) Give the reasons for replacement of equipment. Explain the guidelines for replacement analysis.

(OR)

9. a) Explain Sum of the years' digits depreciation method. Using the following information related to a fixed asset, calculate depreciation over the useful life of the asset using the sum of the years' digits method.

Cost	$100,00	Residual value	$10,000
Useful Life	3 Years		

   b) Give a brief on hire purchasing. Explain its advantages and disadvantages with examples.