[BIP515A]

Model Question Paper-1 with effect from 2023-24 (CBCS 2022 Scheme)

USN | | | | | | | | | | |

Fifth Semester B.E Degree Examination

Engineering Economy

TIME: 03 Hours **Max. Marks: 100**

Note:
1. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
2. Use of Interest factor table is permitted.

<table>
<tr><th colspan="3">Module -1</th><th>*Bloom's Taxonomy Level</th><th>COs</th><th>Marks</th></tr>
<tr><td rowspan="2">Q.01</td><td>a</td><td>With a block diagram, explain the process of problem solving and decision making in Engineering Economics.</td><td>L1,2</td><td>CO1</td><td>10</td></tr>
<tr><td>b</td><td>What do you understand by CFD, Explain with a neat sketch, CFD from borrowers and lenders point of view?</td><td>L1,2</td><td>CO1</td><td>10</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="2">Q.02</td><td>a</td><td>Briefly discuss about tactics and strategy with suitable examples.</td><td>L1,2</td><td>CO1</td><td>10</td></tr>
<tr><td>b</td><td>A credit lending institution is offering a home loan of Rs 25, 00,000/- to Mr. Ram to buy a double bed room home. The rate of interest quoted is 9% compounded annually. The payback period is 14 years in equal instalments. Find the EMI and Annual instalments amount that Mr. Ram has to pay to the bank.</td><td>L1,2,3</td><td>CO1</td><td>10</td></tr>
<tr><td colspan="6">Module-2</td></tr>
<tr><td rowspan="2">Q. 03</td><td>a</td><td>Define present worth method of comparison and state the conditions for present worth (PWC).</td><td>L1,2</td><td>CO2</td><td>10</td></tr>
<tr><td>b</td><td>An Industrialist wants to by a NC machine for his factory. He has given three options from three suppliers. The initial cost, annual revenue and salvage values along with their lives are given in the table
<table>
<tr><th></th><th>Initial cost (Rs.)</th><th>Annual Revenue (Rs.)</th><th>Salvage Value (Rs.)</th><th>Life (years)</th></tr>
<tr><td>Machine 1</td><td>2.5 lakh</td><td>1 lakh</td><td>40,000/-</td><td>08</td></tr>
<tr><td>Machine 2</td><td>4.5 lakh</td><td>1.5 lakh</td><td>65,000/-</td><td>08</td></tr>
<tr><td>Machine 3</td><td>7 lakhs</td><td>2 lakhs</td><td>90,000/-</td><td>08</td></tr>
</table>
Apply present worth method and suggest which machines need to be selected by the industry and why?</td><td>L1,2,3</td><td>CO2</td><td>10</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="2">Q.04</td><td>a</td><td>Explain the situations for equivalent annual worth comparisons.</td><td>L1,2</td><td>CO2</td><td>10</td></tr>
<tr><td>b</td><td>A machine needed for 3 years can be purchased for 70,000 and sold at</td><td>L1,2,3</td><td>CO2</td><td>10</td></tr>
</table>

<table>
<tr><td></td><td></td><td>the end of the period for about 20,000. A comparable machine can be leased for 27737/- per year. If a firm expects a return of 20% on investments, should it buy or lease the machine when end-of-year payments are expected.</td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Module-3</td></tr>
<tr><td rowspan="2">Q. 05</td><td>a</td><td>Discuss in detail the various causes of depreciation.</td><td>L1,2</td><td>CO 3</td><td>10</td></tr>
<tr><td>b</td><td>The original assets of the company are Rs.5, 80,000/-. The life plant is 9 years. If the scrap value of the time is expected to be 80,000/-. Calculate the Depreciation at the end of each year by sum of the year method.</td><td>L1,2</td><td>CO 3</td><td>10</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="2">Q. 06</td><td>a</td><td>Give the complete procedure for computing depreciation charges by sinking fund method.</td><td>L1,2,3</td><td>CO 3</td><td>10</td></tr>
<tr><td>b</td><td>A Company has purchased equipment whose first cost is Rs 2, 00,000 with an estimated life of eight years. The estimated salvage value of the equipment is Rs 40,000 at the end of its lifetime. Determine the depreciation change and book value at the end of various years using sum of year’s digits method of depreciation.</td><td>L1,2,3</td><td>CO 3</td><td>10</td></tr>
<tr><td colspan="6">Module-4</td></tr>
<tr><td rowspan="2">Q. 07</td><td>a</td><td>Discuss in detail the various reasons for replacement.</td><td>L1,2</td><td>CO4</td><td>05</td></tr>
<tr><td>b</td><td>A machine costs Rs. 10000/-. Its operating costs and resale values are given below. Determine at what time it should be replaced.
<table>
<tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Operating costs</td><td>1000</td><td>1200</td><td>1400</td><td>1700</td><td>2000</td><td>2500</td><td>3000</td><td>3500</td></tr>
<tr><td>Resale value</td><td>6000</td><td>4000</td><td>3200</td><td>2600</td><td>2500</td><td>2400</td><td>2000</td><td>1600</td></tr>
</table></td><td>L1,2,3</td><td>CO4</td><td>15</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="2">Q. 08</td><td>a</td><td>Three years back, a machine was purchased at a cost of Rs. 3,00,000 to be useful for 10 years. Its salvage value at the end of its estimated life is Rs. 50,000. Its annual maintenance cost is Rs. 40,000. The market value of the present machine is Rs. 2,00,000. A new machine to cater to the need of the present machine is available at Rs. 2,50,000 to be useful for 7 years. Its annual maintenance cost is Rs. 14,000. The salvage value of the new machine is Rs. 20,000. Using an interest rate of 15%, find whether it is worth replacing the present machine with the new one.</td><td>L1,2,3</td><td>CO 4</td><td>10</td></tr>
<tr><td>b</td><td>A truck is priced at 60,000 and running costs are estimated at 6,000 for each of the first four years, increasing by ` 2,000 per year in the fifth and subsequent years. If the money is worth 10 per cent per year, when the truck should be replaced. Assume that the truck will eventually be sold for scrap at a negligible price.</td><td>L1,2,3</td><td>CO 4</td><td>10</td></tr>
<tr><td colspan="6">Module-5</td></tr>
<tr><td>Q. 09</td><td>a</td><td>Differentiate between Estimation and Costing.</td><td>L1,2</td><td>CO 5</td><td>10</td></tr>
</table>

	b	How do you determine selling price? Explain with a neat sketch	L1,2	CO 5	10
OR					
Q. 10	a	The TVS factory produces 50 mopeds in a day. This involves direct material cost Rs.40,000/- labour cost of Rs.35,000/- and selling price of Rs.10,000/-. The company expecting a profit of 15% of the selling price and estimated selling overhead has 30% factory cost. Calculate the selling price of each moped.	L1,2,3	CO 5	10
	b	Explain the following terms: i) Prime cost ii) Factory cost iii) Cost of Production iv) Total cost.	L1,2,3	CO 5	10

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Model Question Paper-2 with effect from 2023-24 (CBCS 2022 Scheme)

USN | | | | | | | | | | |

Fifth Semester B.E(I&PE) Degree Examination

Engineering Economy

TIME: 03 Hours **Max. Marks: 100**

Note:
1. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
2. Use of interest factor table is permitted.

		Module -1	*Bloom's Taxonomy Level	COs	Marks
Q.01	a	Explain the problem-solving process in decision making with suitable examples.	L1,2	CO1	10
	b	A person wants to gift a car to his daughter when she would turn 18 years, 6 years from now. He decides to put away money in her name during her next 6 birthdays. He wants to deposit Rs.25,000/- in the year to go on increasing it by Rs.5,000/- every year for next 6 years. If he estimates that a car would cost Rs.5lakhs when he wants to buy one, how much more money should be added to the maturity amount that he receives from the bank if it is assumed at 11.5% compounded annually.	L1,2,3	CO1	10
		OR			
Q.02	a	Find the effective rate of interest for an actual rate of interest of 10% when compounded (a) Yearly (b) Biannually (c) Quarterly (d) Monthly (e) Daily	L1,2	CO1	10
	b	Differentiate between intuition and Analysis.	L1,2,3	CO1	10
		Module-2			
Q. 03	a	How are assets with unequal lives compared? Explain the "Rule of 72" as applied to Present worth comparisons.	L1,2	CO2	10
	b	Two holiday cottages are under consideration. Compare the present worth of the cost of 24 year service, at an interest rate of 5% when either cottage has a realizable cottage value. | | Cottages 1 | Cottage 2 | | First cost | Rs.4,500 | Rs.10,000 | | Estimated life | 12 years | 24 years | | Annual maintenance cost | Rs.1,000 | Rs.720 |	L1,2,3	CO2	10
		OR			
Q.04	a	Explain with suitable examples: i) Present worth comparison method ii) Annual worth equivalent method.	L1,2	CO2	10

<table>
<tr><td></td><td>b</td><td>A refining company entered for raw material with an agreement to pay Rs 6,00,000 now and Rs 150,000 per year beginning at the end of 5th year. The contract was made for 10 years. At the end of 3rd year, because of unexpected profits, the company requested that it be allowed to make a lump-sum payment in advance for the rest of the contract. Both parties agreed than 7% compounded annually was a fair interest rate, what was the amount of the lump-sum?</td><td>L1,2,3</td><td>CO2</td><td>10</td></tr>
<tr><td colspan="6">Module-3</td></tr>
<tr><td rowspan="2">Q. 05</td><td>a</td><td>List and explain five methods of depreciations.</td><td>L1,2</td><td>CO3</td><td>10</td></tr>
<tr><td>b</td><td>The original assets of the company are Rs.5, 80,000/-. The life plant is 9years. If the scrap value of the time is expected to be 80,000/-. Calculate the Depreciation at the end of each year by sum of the year method.</td><td>L1,2,3</td><td>CO3</td><td>10</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="2">Q. 06</td><td>a</td><td>Define Depreciation. Explain various causes for depreciation.</td><td>L1,2,3</td><td>CO3</td><td>10</td></tr>
<tr><td>b</td><td>A Company purchases a lathe machine for Rs 500000 for operating it for 5 years at an interest rate of 5%. If salvage value is Rs 60000 after 5 years, determine:
i) Sinking fund amount
ii) Annual depreciation cost</td><td>L1,2,3</td><td>CO3</td><td>10</td></tr>
<tr><td colspan="6">Module-4</td></tr>
<tr><td rowspan="2">Q. 07</td><td>a</td><td>Discuss in detail the various reasons for replacement.</td><td>L1,2</td><td>CO4</td><td>10</td></tr>
<tr><td>b</td><td>The cost of a machine is Rs. 61000/- and its scrap value is Rs 1000/-. The operating costs from past experiences are as follows. When should the machine be replaced?
<table>
<tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Operating costs</td><td>1000</td><td>2500</td><td>4000</td><td>6000</td><td>9000</td><td>12000</td><td>16000</td><td>20000</td></tr>
</table></td><td>L1,2,3</td><td>CO4</td><td>10</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="2">Q. 08</td><td>a</td><td>Explain in detail replacements of assets considering and ignoring time value of money.</td><td>L1,2,3</td><td>CO4</td><td>08</td></tr>
<tr><td>b</td><td>The following mortality rates have been observed for a certain type of light bulbs.
<table>
<tr><td>Week</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>% failing by end of week</td><td>10</td><td>25</td><td>50</td><td>80</td><td>100</td></tr>
</table>
There are 1000 bulbs in use and it costs Rs.2/- to replace an individual bulb, which has burnt out. If all the bulbs were replaced simultaneously, it would cost 50 paise per bulb. It is proposed to replace all bulbs at fixed intervals, whether or not they have burnt out and to continue replacing burnt out bulbs as they fail. At what interval should all the bulbs be replaced?</td><td>L1,2,3</td><td>CO4</td><td>12</td></tr>
<tr><td colspan="6">Module-5</td></tr>
<tr><td rowspan="2">Q. 09</td><td>a</td><td>Explain the following terms: i) Prime cost ii) Factory cost iii) Office cost iv) Total cost v) Selling price.</td><td>L1,2</td><td>CO5</td><td>10</td></tr>
<tr><td>b</td><td>Two operators are engaged on forging machine for 25 jobs, each weighing 4 kg in a shift of 8 hrs. They are paid at the rate of Rs 100/hr and Rs. 80/hr per day. The forged material costs Rs 3.50 per kg. If the factory and administrative on costs put together are twice the labor</td><td>L1,2,3</td><td>CO5</td><td>10</td></tr>
</table>

		cost, find the cost of production per unit.			
		OR			
Q. 10	a	With a neat block diagram explain in detail the components that are to be considered to decide the selling price of a component.	L1,2	CO5	10
	b	A firm is producing 2000 pens per day. The direct material and 1abor cost are Rs.1800 and Rs.2200 respectively. The chargeable factory overheads are Rs.2900. If selling is to be done at 20% above the factory cost, what must be the selling cost of each pen if the company needs to make a profit of 22% of the selling price?	L1,2,3	CO5	10