Total No. of Questions – [3]

Total No. of Printed Pages: [3]

G.R. No.	

PAPER CODE	U323-265F (CESG)

May 2023 (ENDSEM) EXAM

T.Y. (All Branches) (AY 2022-23 SEMESTER - II)

COURSE NAME: INDUSTRIAL ENGINEERING (OPEN ELCTIVE)

COURSE CODE: IOEUA32205F

(PATTERN 2020)

Time: [1Hr] [Max. Marks: 30]

(*) Instructions to candidates:

1) **Use of scientific calculator is allowed**
2) **Use suitable data where ever required**
3) **All questions are compulsory**

<table>
<tr><th>Question No.</th><th>Question Description</th><th>Max. Marks</th><th>CO mapped</th><th>BT Level</th></tr>
<tr><td>Q.1</td><td>a) Explain the factors with justification that influence the location for the cement industry.</td><td>[4]</td><td>[4]</td><td>[1]</td></tr>
<tr><td></td><td>b) A defence contractor is evaluating its machine shops current process layout. The table below shows the current layout and the table shows the trip matrix for the facility. Health and safety regulations require departments E and F to remain at their current positions.
<table><tr><td>E</td><td>B</td><td>F</td></tr><tr><td>A</td><td>C</td><td>D</td></tr></table>Current Layout
<table><tr><td>From/To</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr><tr><td>A</td><td>--</td><td>8</td><td>3</td><td></td><td>9</td><td>5</td></tr><tr><td>B</td><td>--</td><td>--</td><td></td><td>3</td><td></td><td></td></tr><tr><td>C</td><td>--</td><td>--</td><td>--</td><td></td><td>8</td><td>9</td></tr><tr><td>D</td><td>--</td><td>--</td><td>--</td><td>--</td><td></td><td>3</td></tr><tr><td>E</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>3</td></tr><tr><td>F</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td></tr></table>Trips between departments
Improve the layout based on trial and error method and also Calculate using load distance score?</td><td>[6]</td><td>[4]</td><td>[3]</td></tr>
<tr><td></td><td>OR</td><td></td><td></td><td></td></tr>
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	c) A company is planning to undertake the production of medical testing equipment has to decide on the location of the plant. Three location are to be considered namely Pune ,Ahemadnagar,and Miraj.The fixed cost of three locations are estimated to be 300lakhs,500laks,and 250lakhs respectively .The variable costs are Rs. 3000,Rs.2000,Rs.3500 per unit respectively. The average sales price of the equipment is Rs. 7000 per unit . Calculate i) The range of annual production/sales volume for which location is most suitable. ii)Select the best locations, if the sales volume is of 18,000 per unit .	**[6]**	[4]	[3]
Q.2	**a)** Describe Contrast forecasting and predicting. Give an example for each.	**[4]**	[5]	[1]
	b) The following Data relates the cost of production and sales prices of 1986-1994. Established the coefficient of correlation between cost and prices. Year | 1986 | 1987 | 1988 | 1989 | 1990 Costs | 203 | 216 | 223 | 239 | 248 Prices | 242 | 225 | 250 | 277 | 271 Year | 1991 | 1992 | 1993 | 1994 Costs | 253 | 279 | 301 | 311 Prices | 255 | 270 | 318 | 350	**[6]**	[5]	[3]
	OR			
	c) The demand for the particular product is given for the last 8 periods. Compute the exponentially smooth forecast for the period taking $\alpha = 0.1$ and 0.3 which of the forecast is better Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 Demand | 10 | 18 | 29 | 15 | 30 | 12 | 16 | 8	**[6]**	[5]	[3]
Q.3	**a)** Explain Various Selective control techniques of Inventory.	**[4]**	[6]	[2]
	b) A pharma company has a demand for 10,00,000 bottles. Each empty bottle cost the company Rs.1. Empty bottles are supplied by M/s Vishwa Glass Ltd. The R.O.L. system of stock replenishment is followed. Ordering cost is Rs. 12.5/order and inventory cost is Rs. 25 percent of cost per bottle. The demand is constant throughout the year. The lead time is 15 days. Determine i)Economic order quantity	**[6]**	[6]	[3]

	ii) Lead time consumption iii)Re-order level iv) Average inventory			
	OR			
	c) An analysis of the company reveals the following information.	**[6]**	[6]	[3]

Cost Elements	Variable cost(%)	Fixed cost
Direct material	32.8	---
Direct labour	28.4	-----
Factory overheads	12.6	1,89,900
Distributions overheads	4.1	58,400
General administrative overheads	1.1	66,700
Budgeted sales		18,50,000

Determine
i)Break-even sales volume.
ii)The profit at the budgeted sales volume.
iii)The profit if the actual sales a) drop by 10 percent b) increase by 5 percent from budgeted sales.

Note: [BT level- 1: Remember 2: Understand 3: Apply 4: Analyze 5: Evaluate 6: Create]