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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: VI**

Branch: Industrial Engineering and Management **Duration: 3 hrs.**

Course Code: 22IM6HSFPD **Max Marks: 100**

Course: Facilities planning and Design

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	List any four theories of plant location and contrast any two of them. List the advantages and disadvantages of them.	CO1	PO1	**10**
	b)	Define the term Material Handling. Elaborate on principles of Material Handling.	CO1	PO1	**10**
		UNIT - II			
2	a)	Explain the factors for consideration in space planning for a plant layout.	CO1	PO1	**10**
	b)	Discuss the Area allocation procedure in detail.	CO1	PO1	**10**
		OR			
3	a)	Explain the importance and utility of Systematic Layout Planning with an illustration.	CO1	PO1	**10**
	b)	Discuss the salient features of any two of the following layout procedures. a) Nadler's Ideal System Approach b) Immer's Basic steps c) Apple's plant layout procedure.	CO1	PO1	**10**
		UNIT - III			
4	a)	Provide an overview of ALDEP and CRAFT with their relative advantages and limitations.	CO1 CO2	PO1 PO5	**12**
	b)	Make a comparison of Pair wise Exchange method and Graph-based method of making facility layout.	CO1 CO2	PO1 PO5	**08**
		OR			
5	a)	Explain the working of CORELAP and its input requirements.	CO1	PO1	**10**

		b)	What are the core concepts of Simulated Annealing and Genetic Algorithm when applied to Facilities Layout design? Explain with an example for each.	*CO1*	*PO1*	**10**
			UNIT - IV			
	6	a)	Give the mathematical formulation for single location MINISUM and MINIMAX location models.	*CO4*	*PO1* *PO2* *PO5*	**10**
		b)	A new location for a manufacturing facility is being considered. The facility has frequent relationships with its five major suppliers and since the supplied material is bulky and transportation costs are high the closeness to the five suppliers has been determined as the major factor for the facility location. The current co-ordinates of the suppliers are S1= (1,1). S2= (5,2), S3= (2,8), S4= (4,4) and S5=(8,6). The cost per unit distance travelled is the same for each supplier, but the number of trips per day between the facility and each of its suppliers are 5,6,2,4 and 8. Find the best location for new facility	*CO2*	*PO1* *PO5*	**10**
			UNIT - V			
	7	a)	Discuss the following briefly. i)MCDM ii)MADM	*CO4*	*PO1* *PO2* *PO5*	**10**
		b)	Discuss the steps involved in analytical Hierarchy process with an example	*CO4*	*PO1* *PO2* *PO5*	**10**

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