PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech., Winter2017-18 Examination

Semester: I   Date: 26/12/2017
Subject Code: 03218102   Time: 2:00 PM to 4:30PM
Subject Name: Facilities Planning and Design   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1	A) Define Group Technology and list its benefits.	**(05)**
	B) Describe various computer integrated material handling systems.	**(05)**
	C) Distinguish process layout and product layout.	**(05)**
Q.2	**Answer the following questions**. (Attempt any three) (Each five mark)	**(15)**
	A) Write steps for Line of Balance.	
	B) Discuss principles of good plant layout.	
	C) Discuss space requirements for employee services in brief.	
	D) Classify material handling equipments.	
Q.3	A) There are five existing facilities which are to be served by single new facility. The details of the existing facilities are shown in following table.	**(07)**

Existing Facilities	1	2	3	4	5
Coordinates	(5, 10)	(20, 5)	(15, 20)	(30, 25)	(25, 5)
No. of Trips of loads/ year	100	300	200	300	100

Find the optimum location of the new facility based on gravity location concept.

B) Design a plant layout using atleast one complete iteration of CORELAP algorithm **(08)**
   i)   Number of departments in the layout=7
   ii)   Areas of department

Departments	1	2	3	4	5	6	7	Total
Area (sq. m)	12,000	8,000	6,000	12,000	8,000	12,000	12,000	70,000

   iii) Relationship Chart

1	-	-	-	-	-	-	-
2	E	-	-	-	-	-	-
3	O	U	-	-	-	-	-
4	I	E	U	-	-	-	-
5	O	I	U	I	-	-	-
6	U	I	O	U	A	-	-
7	U	U	U	U	I	E	-
To	1	2	3	4	5	6	7

   iv) Minimum Departments Preference value (MDP) = I = 4
   v)   Sweep width = 2

OR

	B) Describe ALDEP algorithm to design plant layout.							**(08)**
Q.4	A) Describe activity relationship analysis with example.							**(07)**
	OR							
	A) Describe Euclidean Distance model of facility location.							**(07)**

B) Group the part-machine matrix for machine cell formation using Rank Order Clustering algorithm

			Parts					
			1	2	3	4	5	6
Machines		A	-	1	-	1	-	-
		B	1	-	1	-	1	1
		C	-	1	1	1	-	1
		D	1	-	-	-	1	1
		E	-	-	-	1	1	-

(08)