

**R09**

Code No: 58019

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year II Semester Examinations, May - 2016****PLANT LAYOUT AND MATERIAL HANDLING****(Mechanical Engineering)**

Time: 3 Hours

Max. Marks: 75

**Answer any Five Questions**  
**All Questions Carry Equal Marks**

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- 1.a) What are the different types of Plant layout? Explain Process layout with a suitable example, and discuss its advantages over Product layout. [9+6]
- b) Explain the design principles of Functional Layout. [9+6]
- 2.a) Discuss the differences between Product Layout and Process Layout.
- b) Explain the problems in the implementation and follow up of Functional layout. [8+7]
- 3.a) Develop a layout for the following problem, for which the layout and area requirements are shown in the Table given below :

Department	Area (in Sq.m)	Number of Unit Squares
1	100	30
2	75	20
3	55	15
4	100	30
5	75	20
6	100	30
7	100	30
<b>Total</b>	<b>605</b>	<b>175</b>

- b) Explain briefly the CORELAP algorithm. [9+6]
- 4.a) Define Fixed position layout. Distinguish between Group Layout and Fixed position Layout.
- b) Consider the problem of allocating a set of facilities to a set of locations, with the cost being a function of the distance and flow between the facilities, plus the costs associated with a facility being placed at a certain location. The objective is to assign each facility to a location such that the total cost is minimized – How do you solve this by Quadratic assignment model? [7+8]
- 5.a) Explain the terms *with respect to* Material handling: The Unit load Concept, In-process handling, Distribution.
- b) Explain the different types of Material Handling Equipment, and their applications. [7+8]
- 6.a) What are the four different methods for the selection of the equipment and design of Material handling systems? Explain.
- b) Distinguish between Path, Equipment, and Function oriented systems of material Handling, with two examples for each case. [8+7]

