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# Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



## VI SEMESTER B.TECH (I.P. ENGINEERING)

### **END SEMESTER EXAMINATIONS, MAY 2016**

SUBJECT: Plant Layout and Material Handling [MME 318]

### **REVISED CREDIT SYSTEM**

Time: 3 Hours

MAX. MARKS: 50

#### Instructions to Candidates:

- ✤ Answer ANY FIVE FULL the questions.
- Missing data may be suitable assumed.

1A.	What are the principal factors considered in location of Steel Industries in Bihar?	05
1B.	Explain the merits and demerits of process and product layout.	03
1C.	Write a note on fixed position layout.	02
2A.	Highlight the composite measure method of plant location model.	04
2B.	Explain how physical and chemical characteristics of material will affect the plant layout.	03
2C.	What are the provisions which makes layout flexible?	03
3A.	Highlight important considerations under service factor which affect the layout.	03
3B.	Explain different methods of balancing in material forming operations.	04
3C.	What do you mean by layout adaptability and layout versatility?	03
4A.	Explain different methods of evaluating alternate layout.	05
4B.	Define material handling. What are its objectives?	03
4C.	List the scope of material handling in the organization.	02
5A.	Briefly discuss the safety in material handling.	05
5B.	Draw the neat sketch and explain the following a) Jib Crane b) Pillar Crane	05

- **6A.** Briefly discuss any two basic principles of material handling.
- **6B.** Determine the number of trucks required to operate between the four **05** departments using following Matrix.

		А	В	С	D		
$W_{ij} =$	А	0	40	10	20		
	В	25	0	45	50		
	С	65	50	0	70		
	D	D 30 32 60		60	00		

		А	в	C	D
	А	0	42	14	22
$D_{ij}=$	В	-	0	30	20
	С	1	-	0	10
	D	-	-	-	0

The time required for the various activities of the fork lift truck is summarized as follow

- a) Travel per unit distance=0.5min
- b) Unloaded time=1min
- c) Loading time=5min
- d) Allowance=1min
- e) Number of working hour per day=8
- f) Efficiency of the truck=90%