R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, April - 2018
PLANT LAYOUT AND MATERIAL HANDLING
(Mechanical Engineering)

Time: 3 hours   **Max. Marks: 75**

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.
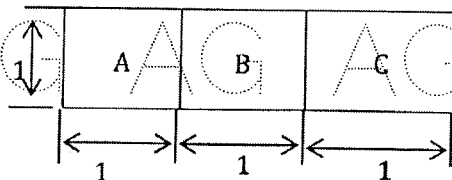
PART - A

(25 Marks)

1.a) What are the advantages of process layout? [2]
   b) Enumerate various horizontal type layouts. [3]
   c) Write the advantages of CRAFT [2]
   d) Define quadratic approach method [3]
   e) Why Material characteristics are required for design of material handling equipment? [2]
   f) What type of material handling equipment required In Fixed position layout? [3]
   g) What are the methods to control the AGVs? [2]
   h) What are the various material handling costs? [3]
   i) Enlist the benefits of Ergonomics in material handling. [2]
   j) Write the name of few types of equipment for which safe guarding is required. [3]

PART - B

(50 Marks)

2. What is plant layout? Enlist the differences between fixed layout and fixed position layout. [10]

OR

3. Enumerate the differences between Process layout & Product layout. [10]

4. What is CORELAP? Write the procedural steps of CORELAP for Layout design. [10]

OR

5. Find an improved layout for the initial layout given by Figure by using CRAFT pair wise exchange technique. The interdepartmental flows are also furnished along with the interdepartmental cost matrix. [10]

a) Cost Matrix

From \ To	A	B	C
A		1	1
B	1		1
C	1	1	

b) Flow Matrix

From \ To	A	B	C
A		1	2
B	1		3
C	3	3	

c) Distance Matrix

From \ To	A	B	C
A		1	2
B	1		1
C	2	1	

6. Write about the role of efficient Material Handling systems in the productivity. [10]

OR

7. Describe various Material Handling principles. [10]

8. Define a conveyor? Write about any two types of conveyors with neat sketches. [10]

OR

9. Describe an AGV. What are the various types of AGVs? Write about various methods to control AGVs? [10]

10. Enlist the various precautions to be taken to get safety in handling. [10]

OR

11. Describe about various steps to be implemented to achieve Ergonomics of Material Handling equipment. [10]

--ooOoo--