

**Code No: 128DT****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year II Semester Examinations, May - 2019****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) | Explain the definition of plant layout.                              | [2] |
| b)   | Describe about a good layout   | [3] |
| c)   | Identify features of CRAFT.  | [2] |
| d)   | Identify steps involved in ALDEP.                                    | [3] |
| e)   | Describe material handling significance.                             | [2] |
| f)   | How do you explain about the importance of Material Handling System? | [3] |
| g)   | Explain the usage of cranes and hoists in material handling.         | [2] |
| h)   | Compare between wheel conveyor and screw conveyor.                   | [3] |
| i)   | Explain ergonomic principle  | [2] |
| j)   | Illustrate about the design Cranes                                   | [3] |

**PART - B****(50 Marks)**

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|-----------|--|-------|
| 2.a)      | Discuss the main objectives of layout.                                       |       |
| b)        | Describe the applications of process and product layouts.                    | [5+5] |
| <b>OR</b> |  |       |
| 3.        | Explain the steps in selecting the plant site.                               | [10]  |
|           |  |       |
| 4.a)      | Explain the overview of the group layout.                                    |       |
| b)        | Explain the features of fixed position layout.                               | [5+5] |
| <b>OR</b> |  |       |
| 5.a)      | Explain CORELAP procedure by considering a suitable example.                 |       |
| b)        | List the application of quadratic Assignment model.                          | [5+5] |
| 6.        | Discuss the Material Handling principles.                                    | [10]  |
| <b>OR</b> |  |       |
| 7.a)      | What do you think about the advantages of Material Handling?                 |       |
| b)        | Illustrate about the functions involved in Material Handling System.         | [5+5] |
|           |  |       |
| 8.a)      | Explain the working principle of conveying equipment.                        |       |
| b)        | Explain the usage of industrial tractor in material handling.                | [5+5] |
| <b>OR</b> |  |       |
| 9.        | Describe the operation of a belt conveyor with a neat sketch and advantages. | [10]  |
|           |  |       |
| 10.a)     | List out elements of a material handling ergonomics program.                 |       |
| b)        | List out methods to minimize cost of material handling.                      | [5+5] |
| <b>OR</b> |  |       |
| 11.       | Explain the maintenance of material handling equipment.                      | [10]  |