

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth semester B.Tech degree examinations, September 2020

Course Code: ME476**Course Name: Material Handling & Facilities Planning**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any three full questions, each carries 10 marks.*

Marks

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| 1 | a) Define layout planning. | (2) |
| | b) List the objectives of plant layout. Using suitable figures show four key types of plant layout. | (8) |
| 2 | a) Define systematic layout planning. | (2) |
| | b) Describe systematic layout planning procedure using suitable example. | (8) |
| 3 | a) List four computer aided facility layout techniques. | (2) |
| | b) Describe CRAFT procedure. List out its advantages and limitations. | (8) |
| 4 | a) Define plant utilities. | (2) |
| | b) Summarise few general employee services that need to be considered in layout design in a food processing plant. Also comment on the essential plant utilities required in that plant. | (8) |

PART B*Answer any three full questions, each carries 10 marks.*

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| 5 | a) State the objectives of industrial safety. | (2) |
| | b) Explain some of the key causes of industrial accidents. List few methods to prevent or reduce its severity. | (8) |
| 6 | a) List out main types of industrial pollution. | (2) |
| | b) Give an account of the environmental impact due to the operations of thermal plants in India. Cite recent policies, practices or regulations devised to address problems due to industrial pollution. | (8) |
| 7 | a) Define material handling system. | (2) |
| | b) Explain the key material handling principles. | (8) |
| 8 | a) List any four types of cranes. | (2) |
| | b) Explain conveyor system with suitable sketches and examples. List the industries where they are typically used? | (8) |

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) List the key factors influencing the selection of material handling system in a plant. (2)
- b) Explain function-oriented material handling system. (8)
- 10 a) List the equipment related factors relevant for efficient material handling operations in a plant. (2)
- b) Justify the selection of a material handling system and equipment for a coal mining plant. (8)
- 11 a) List typical material handling actions done by a plant and the corresponding material handling equipment used. (2)
- b) Explain path oriented and function-oriented material handling equipment. (8)
- 12 a) List the material handling cost components. (2)
- b) Discuss various ways to reduce material handling cost. (8)
- 13 a) What is preventive maintenance? (2)
- b) Analyze the maintenance activities for cranes and hoists. (8)
- 14 a) Define ergonomics. (2)
- b) In a supermarket sized 50x50 m, unit handling loads are less than 50 kg, space utilization is up to the height of 4 m. The material handlers undertake lifting, carrying and pushing types of tasks for storage and movement of various goods. Determine the different material handling equipment needed by material handlers to reduce ergonomic risks. (8)
