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Question Paper Code : 10956

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Fifth/Sixth/Seventh/Eighth Semester

Mechanical Engineering

CME 358 – INDUSTRIAL LAYOUT DESIGN AND SAFETY

(Common to : Mechanical Engineering (Sandwich))

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. State the principles of a good layout.
2. What is meant by material flow?
3. Write the mission of OSHA.
4. List the advantages of layout software.
5. Write the demerits of the discrete model used in layout design.
6. State the principles of materials handling.
7. Define “industrial safety” and state its primary objective.
8. Define industrial hygiene.
9. Define hazard.
10. List the type of personal protective equipment

PART B — ($5 \times 13 = 65$ marks)

11. (a) Discuss the factors to be considered when determining space requirements.

Or

- (b) Explain the principal factors that influence the layout design.

12. (a) Explicate the benefits of a good office layout and the consequences of a poor one.

Or

- (b) Explain ALDEP and CORELAP with suitable examples.
13. (a) With suitable sketches, discuss the important parameters that need to be considered in a multi-row layout model with an unequally sized department.

Or

- (b) Explain the various precautions to be taken by workers while moving materials manually.
14. (a) (i) Describe the role of the employee in safety. (7)
(ii) Describe the role of the employer in safety. (6)

Or

- (b) Describe the most important features of the international occupational safety and health consensus.
15. (a) (i) Discuss the important steps in job safety. (7)
(ii) Describe the safeguard techniques to prevent slips and falls. (6)

Or

- (b) Discuss about the safety rules to be followed while operating the forklift and tractor.

PART C — (1 × 15 = 15 marks)

16. (a) Kumar is an electrician in his sixties. In 2023, he fell about twenty feet from a ladder in an underground storage bunker. He spent eight weeks recovering from cracked and bruised ribs. Analyze the above case, and identify the causes, costs from both the employer and employee perspectives.

Or

- (b) Design a production facility layout using the BLOCPLAN algorithm.