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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S7 (R, S) / S7 (PT) (R) Examination December 2023 (2019 scheme)



Course Code: MCN401

Course Name: INDUSTRIAL SAFETY ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
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| 1 | With suitable examples differentiate between unsafe act and unsafe conditions referred to construction industry. | (3) |
| 2 | How do voluntary agencies supports safety measures in various organizations? | (3) |
| 3 | With suitable sketches mention the features of any two PPE for eye protection in industrial hazardous sites. | (3) |
| 4 | Explain the major objectives of work permit systems. | (3) |
| 5 | Explain any five critical reasons for high rate of accidents in construction industry. | (3) |
| 6 | As an engineering supervisor how do you ensure the overall safety during demolition operations? | (3) |
| 7 | Explain the key features of hearing conservation program in production industries. | (3) |
| 8 | Explain the safety guidelines to be followed for the lifting hooks used in heavy industrial mechanisms. | (3) |
| 9 | Explain the different causes of electric hazards. | (3) |
| 10 | Write short note on toxic gas release due to chemical and fire explosion. | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

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|----|--|-----|
| 11 | a) Explain Heinrich's domino theory for accident causation. Also mention any two modifications made on this basic concept. | (7) |
| | b) Explain the six distinguished functions of safety committee in an industry. | (7) |

OR

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|----|--|-----|
| 12 | a) With suitable examples explain how does safety management improve productivity of a firm. | (6) |
| | b) Explain the responsibilities of supervisors to ensure safety in an industrial organization. | (8) |

Module II

- 13 a) Explain the key functions of any three different types of respiratory protective equipments. (6)
b) Explain any ten important responsibilities of housekeeping head of an organization. (8)

OR

- 14 Write short notes on the following: (14)
i. Cold work permit
ii. Reactive measures for safety performance monitoring
iii. Five S (5S) concept in housekeeping.

Module III

- 15 Write short notes on the following: (14)
i. Cumulative Trauma Disorders due to ergonomic issues in work sites
ii. Hazards and risks during Underpinning works
iii. Safety measures during excavation works

OR

- 16 a) With suitable schematics, mention any eight specific safety precautions for scaffolding to ensure the safety of the workers. (9)
b) Explain the classification of residential buildings based on the National Building Code of India (5)

Module IV

- 17 a) Describe about the safety practices to be followed during arc welding process. (8)
b) Differentiate between manual and mechanised material handling with suitable examples. (6)

OR

- 18 a) An industrial plant is equipped with crane, conveyors, hoist etc. Explain the maintenance strategy to be followed for any of the material handling equipment to ensure safe working environment. (9)
b) With suitable schematics, explain the operation of any presence sensing device suitable as a safety guarding device for an industrial unit. (5)

Module V

- 19 a) Describe the relevance and procedure for HAZOP for safety assessment. (9)
b) Explain how does MSDS differ from a product label referred to material safety. (5)

OR

- 20 a) Describe about the classification of fires. Also explain any four types of fire extinguishers. (9)
b) Describe about any four hazardous properties of chemical materials. (5)
