

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S7 (S,FE) (FT/WP/PT) Examinations May 2026 (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**

- | | | |
|----|---|-----|
| 1 | Differentiate between unsafe act and unsafe condition. | (3) |
| 2 | Define the terms:(i) Accident (ii) Dangerous occurrence (iii) Reportable Accident. | (3) |
| 3 | Write the objectives of work permit system. | (3) |
| 4 | How does frequency rate and incidence rate support safety analysis? | (3) |
| 5 | What are the advantages of good housekeeping? | (3) |
| 6 | List the various safety features of ladders. | (3) |
| 7 | Mention any 3 potential hazards associated with wire rope used for material handling. | (3) |
| 8 | As an engineering supervisor how do you ensure the overall safety during demolition operations? | (3) |
| 9 | Differentiate Hazard and Risk. | (3) |
| 10 | Why MSDS is mandatory for chemical process? | (3) |

PART B*Answer any one full question from each module, each carries 14 marks.***Module I**

- | | | |
|----|---|------|
| 11 | a) What are the various accident causation theories and explain any two in detail with relevant schematics? | (14) |
|----|---|------|

OR

- | | | |
|----|--|-----|
| 12 | a) Explain with illustration the different level of safety organization. | (8) |
| | b) Explain the six distinguished functions of safety committee in an industry. | (6) |

Module II

- | | | |
|----|---|-----|
| 13 | a) What are the safety precautions to be followed before entering a confined space? | (6) |
| | b) Discuss the different types of work permit. | (8) |

OR

- | | | |
|----|---|------|
| 14 | a) Explain in detail about 5S in industrial housekeeping. | (10) |
| | b) Write the objectives of work permit system. | (4) |

Module III

- 15 a) Write short note on: (i) Safety measures during excavation works. (9)
(ii) General safety precautions in tunnelling.
(iii) Hazards and risks during Underpinning works.
b) List and explain any four major ergonomic hazards associated with construction industries. (5)

OR

- 16 a) Discuss the safety and fire protection facilities required for a high rise building as per NBC. (14)

Module IV

- 17 a) With suitable sketches explain seven defects of wire ropes. (14)

OR

- 18 a) Explain the potential hazards associated with grinding operations. (7)
b) Describe about the safety practices to be followed during arc welding process. (7)

Module V

- 19 a) Describe about the classification of fires. Also explain any three types of fire extinguishers. (7)
b) What is the significance of Hazard and Operability Analysis? How do you conduct aHAZOP analysis? (7)

OR

- 20 a) Discuss about different types of chemical hazards with suitable examples (10)
b) Explain the hierarchy of control of chemical hazards. (4)
