

**C-7782**

**Sub. Code**

**91013**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**First Semester**

**Fire & Industrial Safety**

**BASICS OF FIRE SAFETY**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. BLEVE stands for:
  - (a) Boiling Liquid Expanding Vapor Explosion
  - (b) Basic Liquid Explosion Velocity Equation
  - (c) Boiling Load Emergency Vapor Emission
  - (d) Basic Load Explosion Vapor Emission
  
2. What is the purpose of PPE in fire safety?
  - (a) Enhance productivity
  - (b) Reduce workplace hazards
  - (c) Improve ventilation
  - (d) All of the above
  
3. Safety goggles are mainly used to protect against:
  - (a) Slippery floors
  - (b) Falling objects
  - (c) Chemical splashes and debris
  - (d) Loud noise

4. Which fire extinguisher is suitable for electrical fires?
  - (a) Water
  - (b) CO<sub>2</sub>
  - (c) Foam
  - (d) DCP
5. A dry pipe sprinkler system is used in areas prone to:
  - (a) High humidity
  - (b) Extreme cold temperatures
  - (c) High pressure
  - (d) High traffic
6. The best way to prevent hand injuries in industries is:
  - (a) Wearing proper gloves
  - (b) Washing hands frequently
  - (c) Using lotion
  - (d) Keeping hands dry
7. Which type of detector responds to light energy?
  - (a) Smoke detector
  - (b) Heat detector
  - (c) Radiant energy detector
  - (d) None of the above
8. Why should irritants be removed immediately from the skin?
  - (a) Prevent allergic reactions
  - (b) Avoid chemical burns
  - (c) Minimize long-term damage
  - (d) All of the above
9. Self-Contained Breathing Apparatus (SCBA) is mainly used in:
  - (a) Low-noise environments
  - (b) Oxygen-deficient areas
  - (c) Areas with good ventilation
  - (d) Hot weather conditions
10. Which of the following is NOT a factor in fire safety for storage areas?
  - (a) Proper ventilation
  - (b) Using flammable materials for shelving
  - (c) Keeping combustibles away from heat sources
  - (d) Clearly labeling hazardous materials

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define BLEVE and explain its effects.

Or

- (b) Discuss the various fire-fighting methods.

12. (a) Explain the classification of fire extinguishers.

Or

- (b) Discuss the hazards and protective measures for head and eye safety.

13. (a) Describe the components of a water-based sprinkler system.

Or

- (b) Explain the importance of selecting appropriate gloves for different hazards.

14. (a) Discuss the classification and function of fire detection systems.

Or

- (b) Explain how chemical substances can cause skin hazards and their preventive measures.

15. (a) Describe the selection criteria for a self-contained breathing apparatus (SCBA).

Or

- (b) Discuss the safe procedures for loading and unloading flammable liquids.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail the stages of fire and how they influence firefighting strategies.

Or

- (b) Discuss the different ignition sources and how they can be controlled.

17. (a) Describe in detail the construction and working of a CO<sub>2</sub> fire extinguisher.

Or

- (b) Explain the different types of safety goggles and their applications.

18. (a) Discuss the different types of sprinkler systems and their applications.

Or

- (b) Explain the maintenance procedures for safety shoes and leg protection.

19. (a) Describe the power supply requirements for fire alarm systems.

Or

- (b) Discuss the different types of fire detectors and their working principles.

20. (a) Explain the hazards associated with oxygen deficiency and their mitigation.

Or

- (b) Discuss the proper storage and handling of flammable liquids in industries.

**C-7783**

**Sub. Code**

**91015**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**First Semester**

**Fire & Industrial Safety**

**HUMAN RESOURCE MANAGEMENT**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What is the primary objective of Human Resource Development (HRD)?
  - (a) Reducing operational costs
  - (b) enhancing employee skills and performance
  - (c) Increasing profit margins
  - (d) Managing recruitment processes
  
2. Which of the following is an external influence on employee behavior?
  - (a) Employee motivation
  - (b) Learning and development
  - (c) Organizational goals
  - (d) Economic conditions

3. In the HRD framework, which step comes before designing HRD programs?
  - (a) Evaluating HRD programs
  - (b) Assessing HRD needs
  - (c) Employee selection
  - (d) Performance appraisal
  
4. Which training method is most suitable for developing interpersonal skills?
  - (a) Brainstorming
  - (b) Transactional Analysis
  - (c) Case Studies
  - (d) Computer-Based Training
  
5. Which of the following is a qualitative method of evaluating HRD programs?
  - (a) Cost-benefit analysis
  - (b) ROI calculations
  - (c) Employee feedback surveys
  - (d) Productivity measurement
  
6. Career management includes:
  - (a) Only promotions
  - (b) Job evaluation and succession planning
  - (c) Reducing employee engagement
  - (d) Increasing job dissatisfaction

7. What is a major challenge in employee counselling programs?
- (a) Legal compliance issues
  - (b) High employee turnover
  - (c) Employees refusing participation
  - (d) Budget constraints
8. What is the purpose of an employee wellness program?
- (a) To reduce vacation days
  - (b) To increase company revenue
  - (c) To promote employee health and productivity
  - (d) To track employee attendance
9. Which of the following is a key HRD challenge in global organizations?
- (a) Decreasing cultural diversity
  - (b) Managing expatriate employee development
  - (c) Eliminating workforce training programs
  - (d) Increasing local workforce employment
10. HR performance benchmarking is used for:
- (a) Setting employee salaries
  - (b) Comparing HR metrics with industry standards
  - (c) Terminating employees
  - (d) Reducing HR budgets

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the challenges faced by HRD professionals in organizations.

Or

- (b) Explain the role of motivation as an internal influence in HRD.

12. (a) Compare and contrast training and development interventions.

Or

- (b) Describe the role of T-Groups in employee training.

13. (a) How does career management impact employee performance?

Or

- (b) Discuss the importance of Realistic Job Review (RJR) in HRD.

14. (a) Explain the issues involved in employee counselling.

Or

- (b) Discuss the role of management development programs in HR.

15. (a) What are the HRD strategies for workforce retention?

Or

- (b) How does globalization influence HRD program design?

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Examine the evolution of HRD and its relevance today.

Or

- (b) Discuss the learning strategies used in HRD and their effectiveness.

17. (a) Explain how HRD interventions can improve organizational performance.

Or

- (b) Discuss the pros and cons of case study-based learning in HRD.

18. (a) Evaluate different models used to assess HRD program impact.

Or

- (b) Analyze the significance of socialization in career development.

19. (a) Explain the importance of employee health promotion programs.

Or

- (b) How can organizations develop HR strategies for long-term success?

20. (a) Discuss the role of expatriate and repatriate support programs.

Or

- (b) Analyze the impact of HR benchmarking on business growth.
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C-7784

Sub. Code

91023

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Fire & Industrial Safety**

**ELECTRICAL AND CHEMICAL SAFETY**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The dangerous physical effect caused by electric contact is
  - (a) Shock
  - (b) Insulation
  - (c) PPEs
  - (d) MCB
2. A sudden violent release of energy causing destruction is
  - (a) Blast
  - (b) Flammable
  - (c) Biohazard
  - (d) Inductor
3. A small fiery particle released during welding or short circuit is
  - (a) Spark
  - (b) Green
  - (c) GHS
  - (d) Voltage
4. Connecting exposed metal parts to the ground to prevent shocks is
  - (a) Earthing
  - (b) Current
  - (c) Fuses
  - (d) Risk control

5. A device used to break a circuit when excess current flows is
- (a) Fuses                      (b) Explosives  
(c) PPEs                      (d) Insulation
6. Providing a safe path for stray electric current to the ground is
- (a) Grounding                (b) Corona effect  
(c) Green                      (d) HAZCHEM
7. The international system for classifying and labelling chemicals is
- (a) GHS                      (b) Biohazard  
(c) Risk control              (d) MCB
8. Materials or devices capable of causing sudden violent reactions are
- (a) Explosives  
(b) Spark  
(c) Green  
(d) Voltage
9. The method of reducing hazards to an acceptable level is
- (a) Risk control  
(b) Earthing  
(c) Flammable  
(d) Inductor
10. Equipment used to protect workers from hazards is
- (a) PPEs                      (b) Current  
(c) Grounding              (d) Blast

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Analyze the potential damage caused by excessive current in an electrical system.

Or

- (b) Compare the features of global standards for electrical safety in industrial environments.

12. (a) State the minimum safe distance required between electrical Installations and obstruction.

Or

- (b) Explain the causes and effects of transient spikes in electrical power systems.

13. (a) Evaluate the role of physical barriers in preventing accidental contact with live parts.

Or

- (b) Describe how devices detect and prevent harmful leakage of electrical current to the ground.

14. (a) Interpret the classification of biological agents that pose health risks in the workplace.

Or

- (b) Justify the need for regular monitoring of workers' health in chemical handling areas.

15. (a) Explain the safety measures required for transporting hazardous chemicals.

Or

- (b) Interpret the alphanumeric code used for identifying hazardous materials during emergencies.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Derive the relationship between electrical power, voltage, and current with an industrial example.

Or

- (b) Analyze how electrical resistance affects the efficiency of power transmission systems.

17. (a) Explain the impact of electromagnetic forces on equipment operation in high-voltage environments.

Or

- (b) Evaluate the hazards and control measures for static charge accumulation in industrial plants.

18. (a) Assess the importance of proper grounding methods for electrical equipment safety.

Or

- (b) Compare the operation of various types of circuit breakers in industrial safety systems.

19. (a) Discuss prevention and control strategies for physical hazards in chemical processing areas.

Or

- (b) Examine the toxicological characteristics of hazardous chemicals and their implications.

20. (a) Design a systematic method for tracking hazardous chemicals in an industrial facility.

Or

- (b) Formulate safe handling and segregation protocols for the storage of hazardous chemicals.

**C-7785**

**Sub. Code**

**91025**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Fire & Industrial Safety**

**WAREHOUSE MANAGEMENT**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. A large building used for storing products before distribution is called
  - (a) Planning
  - (b) Warehouse
  - (c) Inventory
  - (d) Truck
  
2. A substance that may require special handling and storage due to its properties is
  - (a) Chemical
  - (b) Congestion
  - (c) Resource
  - (d) Location
  
3. The act of placing goods in a designated area for future use is known as
  - (a) Storage
  - (b) Goods
  - (c) Cost
  - (d) Demand

4. The use of technology and machines to operate warehouse functions is called
  - (a) Automation
  - (b) Manual
  - (c) RFID
  - (d) Forklift
  
5. Tasks done by human effort rather than automated systems are termed
  - (a) Manual
  - (b) Planning
  - (c) Distribution
  - (d) Holding time
  
6. The record of all goods and materials available in a warehouse is
  - (a) Inventory
  - (b) Conveyor
  - (c) Supply chain
  - (d) Cost
  
7. The need for a specific product or material at a given time is called
  - (a) Demand
  - (b) Truck
  - (c) Location
  - (d) Resource
  
8. The process of organizing activities to achieve specific goals is
  - (a) Planning
  - (b) RFID
  - (c) Storage
  - (d) Automation
  
9. Materials, manpower, or facilities available for warehouse operations are
  - (a) Resource
  - (b) Goods
  - (c) Conveyor
  - (d) Distribution
  
10. The maximum period products can be stored without losing quality is
  - (a) Holding time
  - (b) Warehouse
  - (c) Congestion
  - (d) Cost

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define the purpose and importance of warehouses in industrial operations.

Or

- (b) Explain the fundamental concept of warehouse management.

12. (a) Describe the core activities involved in effective inventory management.

Or

- (b) Analyze how warehouses contribute to efficiency in supply chain management.

13. (a) Differentiate between dependent and independent demand systems in inventory control.

Or

- (b) Identify the common uncertainties faced in warehouse systems and their impacts.

14. (a) Summarize the ABC method of inventory classification.

Or

- (b) Apply the ABC approach to managing inventory in a manufacturing setting.

15. (a) State the key principles governing material handling systems in warehouses.

Or

- (b) Evaluate the factors influencing performance in material handling systems.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Justify the need for establishing warehouse in large-scale supply operations.

Or

- (b) Analyze major operational issues encountered in warehousing and propose solutions.

17. (a) Classify different types of inventory with suitable examples from industry.

Or

- (b) Evaluate the significance of work-in-progress inventory in manufacturing efficiency.

18. (a) Explain the process and benefits of distribution resource planning in supply chains.

Or

- (b) Discuss the core concepts and scope of a warehouse handling system.

19. (a) Compare the operational flow of a single echelon network with multi-echelon networks.

Or

- (b) Assess various distribution approaches used in inventory control methods.

20. (a) Evaluate how handling time affects the overall efficiency of a material handling system.

Or

- (b) Analyze the impact of vehicle path time on productivity in warehouse operations.

**C-7786**

**Sub. Code**

**91033**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Third Semester**

**Fire & Industrial Safety**

**CONSTRUCTION SAFETY**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. Which of the following human factors contributes most to construction accidents?
  - (a) Fatigue
  - (b) Advanced technology
  - (c) Weather conditions
  - (d) Increased wages
  
2. What is the primary purpose of construction regulations?
  - (a) To increase project duration
  - (b) To ensure worker safety and compliance
  - (c) To minimize profit margins
  - (d) To restrict new construction projects

3. Which of the following is a major risk when working in confined spaces on a construction site?
  - (a) Excessive sunlight exposure
  - (b) Limited oxygen supply
  - (c) Overcrowding of workers
  - (d) High wind speeds
  
4. Which safety measure is crucial before performing blasting operations?
  - (a) Ignoring nearby structures
  - (b) Conducting pre-blast and post-blast inspections
  - (c) Relying solely on experience
  - (d) Using explosives without prior planning
  
5. What is a key requirement for safe access to scaffolding at height?
  - (a) Using ladders without securing them
  - (b) Ensuring proper guardrails and access points
  - (c) Allowing unrestricted public access
  - (d) Ignoring OSHA height regulations
  
6. Which of the following is a major component of a fall arrest system?
  - (a) Safety harness and lanyard
  - (b) Construction helmet
  - (c) High-visibility vest
  - (d) Rubber gloves

7. What is the most important factor when selecting a tower crane for a construction project?
  - (a) Weightlifting capacity and stability
  - (b) Color and design of the crane
  - (c) Brand popularity
  - (d) Speed of crane assembly
  
8. How often should mobile cranes be inspected according to safety regulations?
  - (a) Only after an accident
  - (b) Before each use and regularly scheduled intervals
  - (c) Once every five years
  - (d) Only when a malfunction occurs
  
9. What is the first step in safe demolition planning?
  - (a) Conducting a pre-survey inspection
  - (b) Rushing to demolish quickly
  - (c) Ignoring hazardous materials present
  - (d) Working without safety supervision
  
10. What is one of the biggest health hazards associated with demolition work?
  - (a) Asbestos and dust exposure
  - (b) Increased energy consumption
  - (c) Increased labor wages
  - (d) Lack of job opportunities

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the role of contractual clauses in ensuring safety.

Or

- (b) Discuss the importance of pre-construction meetings.

12. (a) Describe the hazards of working on contaminated sites.

Or

- (b) Explain the safety measures for road works.

13. (a) Discuss the importance of safe use of ladders.

Or

- (b) Analyze the role of safety monitoring systems in fall prevention.

14. (a) Explain the safety measures for using welding machines.

Or

- (b) Discuss the importance of inspecting portable electrical tools.

15. (a) Describe the safety precautions for using explosives in demolition.

Or

- (b) Analyze the fire hazards associated with demolition work.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze the impact of human factors on construction accidents.

Or

- (b) Evaluate the role of quality assurance in construction safety.

17. (a) Critically assess the hazards of falsework erection.

Or

- (b) Design a safety plan for power plant construction.

18. (a) Examine the importance of safe access and egress in construction.

Or

- (b) Propose a fall protection plan for fragile roofs.

19. (a) Analyze the safety measures for using concrete pumps.

Or

- (b) Design an inspection checklist for earth-moving equipment.

20. (a) Evaluate the importance of site supervision in demolition work.

Or

(b) Develop a method statement for mechanical demolition.

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**C-7787**

**Sub. Code**

**91034**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Third Semester**

**Fire & Industrial Safety**

**INCIDENT PREVENTION, CONTROL AND  
INVESTIGATION REPORTING**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. Which control focuses on rules and procedures for safety?  
(a) Engineering      (b) Substitution  
(c) Administrative      (d) Elimination
  
2. Which measure is the last resort in accident prevention?  
(a) PPE      (b) Engineering Control  
(c) Substitution      (d) Elimination
  
3. Which method identifies the underlying cause of an accident?  
(a) Root Cause Analysis  
(b) Fishbone Diagram  
(c) AEB Model  
(d) Domino Theory

4. Which diagram is used for cause-and-effect analysis?  
(a) Flowchart                      (b) Fishbone  
(c) Histogram                      (d) Pie Chart
5. Which model assesses accident barriers and failures?  
(a) AEB                              (b) Swiss Cheese  
(c) Bird's Triangle                (d) Domino Theory
6. Which metric represents the total work done without accidents?  
(a) Frequency Rate                (b) Man Hours Worked  
(c) Severity Rate                  (d) Injury Index
7. Which classification considers minor injuries?  
(a) Fatal                            (b) Reportable  
(c) Non-Reportable                (d) Disabling
8. Which metric assesses accident trends in a workplace?  
(a) Injury Index                    (b) Work Injury Assessment  
(c) Risk Matrix                    (d) Hazard Report
9. What is used to measure accident occurrence over time?  
(a) Incident Rate                  (b) Frequency Computation  
(c) Severity Rate                  (d) Safety Score
10. Which parameter helps in evaluating workplace accident risk?  
(a) Safety Audit  
(b) Hazard Score  
(c) Accident Frequency  
(d) PPE Usage

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the key aspects of internal accident management in workplaces.

Or

- (b) Outline the essential steps involved in accident reporting.

12. (a) Evaluate the principles of Behavioral Theory in reducing workplace accidents.

Or

- (b) Illustrate the significance of Bird's Triangle in accident prediction and prevention.

13. (a) Identify and describe key control measures used in accident prevention.

Or

- (b) Assess the role of Personal Protective Equipment (PPE) in minimizing workplace accidents.

14. (a) Discuss the methods used for collecting accident-related data.

Or

- (b) Analyze how evidence and facts are evaluated in accident investigations.

15. (a) Examine the significance of cost-time analysis in accident management.

Or

- (b) Describe the implications of partial displacement injuries in occupational health.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze the importance of maintaining accident reports for workplace safety and legal compliance.

Or

- (b) Compare and contrast reportable and non-reportable accidents, providing relevant examples.

17. (a) Discuss the Accident/Incident Theory and how it explains workplace accidents.

Or

- (b) Identify and analyze the critical issues in accident causation, considering multiple perspectives.

18. (a) Discuss how administrative control helps in minimizing workplace accidents.

Or

- (b) Examine the risk control and prevention hierarchy, emphasizing its application in safety management.

19. (a) Illustrate the use of the Fishbone Diagram in identifying accident causes.

Or

- (b) Analyze the Accident Analysis and Barrier Function (AEB) model in accident prevention strategies.

20. (a) Describe the assessment of work injury and its importance in occupational health.

Or

- (b) Discuss the computation of accident frequency rate and its role in safety performance evaluation.

**C-7788**

**Sub. Code**

**91036**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Third Semester**

**Fire and Industrial Safety**

**ORGANIZATIONAL BEHAVIOUR**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What is the primary focus of organizational behavior?
  - (a) Marketing strategies
  - (b) Employee behavior in organizations
  - (c) Production techniques
  - (d) Supply chain management
  
2. Which stage of group development involves conflict resolution and role definition?
  - (a) Forming
  - (b) Storming
  - (c) Norming
  - (d) Performing

3. Which of the following is a major cause of workplace stress?
  - (a) Flexible work hours
  - (b) Supportive leadership
  - (c) Unrealistic deadlines
  - (d) Employee recognition
  
4. Which of these is a coping strategy for managing stress?
  - (a) Avoiding work
  - (b) Time management
  - (c) Increasing workload
  - (d) Ignoring problems
  
5. Which type of organization has clearly defined authority and formal procedures?
  - (a) Informal organization
  - (b) Formal organization
  - (c) Social organization
  - (d) Decentralized organization
  
6. What is the first step in the decision-making process?
  - (a) Implementing the decision
  - (b) Identifying the problem
  - (c) Evaluating alternatives
  - (d) Monitoring results

7. Which of these is a key component of a Management Information System (MIS)?
- (a) Data collection
  - (b) Employee training
  - (c) Production process
  - (d) Office decor
8. Blanchard's Situational Leadership Theory emphasizes leadership based on:
- (a) Employee motivation
  - (b) Task complexity
  - (c) Employee maturity and competence
  - (d) Organizational hierarchy
9. Which of the following is NOT a common conflict resolution strategy?
- (a) Avoidance
  - (b) Collaboration
  - (c) Miscommunication
  - (d) Compromise
10. What is the impact of cultural differences in an organization?
- (a) No effect on teamwork
  - (b) Improved global business adaptability
  - (c) Reduced efficiency in operations
  - (d) Elimination of innovation

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Compare the classical and modern approaches to management.

Or

- (b) Illustrate Fayol's principles of management with real-world applications.

12. (a) Examine the importance of delegation of authority in effective management.

Or

- (b) Distinguish between centralization and decentralization with advantages and disadvantages.

13. (a) Identify the essentials of a good control system and their relevance in decision-making.

Or

- (b) Evaluate the features of an effective control system in modern organizations.

14. (a) Illustrate the different stages of group development in organizations.

Or

- (b) Examine the genesis of conflicts in organizations and their consequences.

15. (a) Analyze the factors influencing organizational effectiveness.

Or

- (b) Assess the key aspects of internal business growth strategies.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss the role of planning and forecasting in effective managerial decision-making.

Or

- (b) Evaluate the major stages of management evolution and their impact on modern business practices.

17. (a) Assess the key criteria for social responsibility in business organizations.

Or

- (b) Critically examine the ethical responsibilities of managers in corporate governance.

18. (a) Discuss the components and benefits of a Management Information System (MIS) in decision-making.

Or

- (b) Evaluate various control techniques used in modern management for efficiency and productivity.

19. (a) Describe the conflict process and its stages with real-life organizational scenarios.

Or

- (b) Assess the significance of effective group communication in team-based environments.

20. (a) Evaluate the impact of cultural differences on organizational performance and teamwork.

Or

- (b) Discuss key managerial implications in an organization and their influence on business success.
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**C-7789**

**Sub. Code**

**91043**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fourth Semester**

**Fire & Industrial Safety**

**FOOD HYGIENE AND SAFETY**

**(2023 Onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The invasion of the body by harmful microorganisms is called
  - (a) Hazard
  - (b) Infection
  - (c) Contamination
  - (d) Sanitation
  
2. A potential source of harm in food production is known as
  - (a) Bacteria
  - (b) Layout
  - (c) Hazard
  - (d) Hygiene
  
3. Microscopic organisms that can cause food spoilage and disease are
  - (a) Temperature
  - (b) Bacteria
  - (c) Adulteration
  - (d) CCP
  
4. The process of heating food to destroy harmful microbes is called
  - (a) Pasteurisation
  - (b) Thawing
  - (c) Poisoning
  - (d) Blast

5. The official examination of food premises for compliance is called  
(a) Inspection (b) Microbiology  
(c) Sanitation (d) Kitchen
6. The arrangement of space and equipment in a food facility is called  
(a) Layout (b) Kitchen  
(c) Commodities (d) Contamination
7. The main place where meals are prepared in catering establishments is the  
(a) Poisoning (b) Hygiene  
(c) Kitchen (d) Hazard
8. Practices that maintain health and prevent disease spread are called  
(a) Hygiene (b) Layout  
(c) Temperature (d) Blast
9. The creation of clean conditions to prevent contamination is called  
(a) Commodities (b) Sanitation  
(c) Inspection (d) Adulteration
10. A chemical agent used to destroy harmful microorganisms is  
(a) Adulteration (b) Poisoning  
(c) Disinfectant (d) Kitchen

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define hygiene and explain its role in food safety.  
Or  
(b) Describe the correct use of deodorants in food handling areas.

12. (a) Explain safe practices for Proper food storage.

Or

(b) Outline the standard cleaning procedures in food preparation zones.

13. (a) State the purpose and scope of food inspection.

Or

(b) Identify Possible consequences of food infection on Public health.

14. (a) Discuss sanitary procedures required for safe cooking of food.

Or

(b) Explain key considerations when Purchasing food ingredients.

15. (a) Analyze the importance of critical control Points in food Processing.

Or

(b) Summarize the principles of the HACCP program for food safety.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Evaluate how adequate rest and exercise contribute to health and safety in the food industry.

Or

(b) Discuss the role of recreation in maintaining worker efficiency in food handling environments.

17. (a) Explain the recommended temperature range for safe food storage and preparation.

Or

- (b) Analyze the risks associated with storing food within the temperature danger Zone.

18. (a) Compare different types of food inspection and their effectiveness in ensuring quality.

Or

- (b) Propose strategies for the prevention of food infection in commercial kitchens.

19. (a) Classify commodities into categories and explain their relevance in food safety.

Or

- (b) Evaluate safe thawing methods and their importance in preventing bacterial growth.

20. (a) Discuss the steps involved in the critical implementation of a food safety plan.

Or

- (b) Summarize the key components and benefits of implementing HACCP in the food sector.
-

**C-7790**

**Sub. Code**

**91044**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fourth Semester**

**Fire & Industrial Safety**

**HAZARD IDENTIFICATION, RISK ASSESSMENT AND  
RISK CONTROL**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The likelihood of an unwanted event occurring is called
  - (a) Risk
  - (b) FTA
  - (c) HIRA
  - (d) Warning
2. The process of systematically finding hazards and assessing them is
  - (a) ETA
  - (b) HIRA
  - (c) Alarp
  - (d) Sevso
3. A non-numerical method of assessing hazards is called
  - (a) Control measure
  - (b) Qualitative
  - (c) Cost benefit
  - (d) Unsafe
4. A technique used for hazard analysis of an activity is
  - (a) HAZAN
  - (b) Horseplay
  - (c) Risk
  - (d) Root cause

5. A structured method for hazard and operability studies is  
(a) Mexico (b) Root cause  
(c) HAZOP (d) Qualitative
6. The fault tree analysis method is abbreviated as  
(a) Alarp (b) FTA  
(c) Bhopal (d) FMEA
7. Mistakes made due to actions or decisions of individuals are called  
(a) Human error (b) ETA  
(c) Qualitative (d) Risk matrix
8. A condition that is not safe is described as  
(a) Unsafe (b) Warning  
(c) Sevso (d) HAZAN
9. The industrial disaster that occurred in 1984 due to gas leak was in  
(a) Horseplay (b) Bhopal  
(c) Alarp (d) Risk
10. The location of a major petrochemical accident in 1984 in Europe was  
(a) Sevso (b) Control measure  
(c) HIRA (d) Human error

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define hazard and explain its significance in workplace safety.

Or

- (b) Describe how horseplay can lead to unsafe situations in industrial environments.

12. (a) Explain the steps involved in conducting a risk analysis.

Or

- (b) Identify the key activities involved in risk identification.

13. (a) Describe the purpose and process of failure mode analysis.

Or

- (b) Summarize the methodology used in FMEA for risk assessment.

14. (a) Explain the concept and scope of hazard identification and risk assessment (HIRA).

Or

- (b) State the main objectives of performing HIRA in industries.

15. (a) Analyze how past accident analysis contributes to preventing future incidents.

Or

- (b) Outline the steps for conducting a chemical accident analysis.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the purpose and components of a risk register in industrial safety management.

Or

- (b) Evaluate how a checklist can improve hazard identification and risk assessment accuracy.

17. (a) Discuss the key benefits of performing a thorough risk analysis in workplaces.

Or

- (b) Justify the significance of recording risk history for future safety planning.

18. (a) Compare different types of FMEA and their applications in safety engineering.

Or

- (b) Assess situations where using FMEA is most effective for hazard prevention.

19. (a) Interpret the fundamental principles of risk assessment in industrial operations.

Or

- (b) Describe the process and importance of reporting findings from a HIRA study.

20. (a) Analyze the causes, impacts, and lessons learned from the Mexico disaster.

Or

- (b) Examine the events and industrial safety applications of the Sevso disaster.
-

**C-7791**

**Sub. Code**

**91046**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fourth Semester**

**Fire & Industrial Safety**

**RETAIL ENVIRONMENT**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The sale of goods or services to end users is called
  - (a) Retail
  - (b) Trend
  - (c) Marketing
  - (d) Size
  
2. A term referring to operations or markets worldwide is
  - (a) Concept
  - (b) Global
  - (c) Career
  - (d) India
  
3. Employment opportunities in the retail sector are referred to as
  - (a) Career
  - (b) Consumer
  - (c) Threat
  - (d) Retailing
  
4. A pattern of change influencing the retail market is called
  - (a) Trend
  - (b) Control
  - (c) Feedback
  - (d) Evolution

5. A long-term plan to achieve retail objectives is a  
(a) Threat (b) Strategy  
(c) Size (d) Retail
6. Customer opinions used to improve services are called  
(a) Retailing (b) Feedback  
(c) Global (d) Analysis
7. The process of regulating or guiding retail operations is  
(a) Control (b) Need  
(c) India (d) Concept
8. A person who purchases goods or services is called a  
(a) Consumer (b) FDI  
(c) Lifecycle (d) Retail
9. The stages a product goes through from launch to decline form its  
(a) Career (b) Concept  
(c) Lifecycle (d) Threat
10. Steps in a retail processor project are called  
(a) Phases (b) Retailing  
(c) Strategy (d) Control

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define retail and explain its scope in the modern economy.
- Or
- (b) Describe the primary functions performed by retail businesses.

12. (a) Explain the concept of a retail model with an example.

Or

- (b) Summarize one major theory applied in retail management.

13. (a) Outline the steps involved in strategic planning for retail growth.

Or

- (b) Discuss how situation analysis supports retail decision-making.

14. (a) Explain the role and impact of foreign direct investment in retail.

Or

- (b) Identify the key challenges faced by the retail industry today.

15. (a) Describe current global retail trends influencing the market.

Or

- (b) Analyze how strategic planning is applied in global retail operations.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze recent trends in retailing and their impact on consumer behavior.

Or

- (b) Evaluate career opportunities available in the retail sector and their growth potential.

17. (a) Explain the stages of the retail lifecycle with suitable examples.

Or

- (b) Discuss the phases involved in the retail recycling process and their significance.

18. (a) Assess the objectives behind identifying and fulfilling consumer needs in retail

Or

- (b) Explain methods for identifying consumer needs and preferences in a retail setting.

19. (a) Examine how the size of a retail business influences its operational strategies.

Or

- (b) Analyze the major challenges faced by the Indian retail sector and suggest solutions.

20. (a) Evaluate challenges in global retailing and propose strategic countermeasures.

Or

- (b) Discuss the significance of retail in the global economy.
-

**C-7792**

**Sub. Code**

**91051**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fifth Semester**

**Fire & Industrial Safety**

**SAFETY INSPECTION AND AUDIT**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What ensures that corrective actions after an audit are implemented?  
(a) Monitoring                      (b) Leadership  
(c) Follow-up                        (d) Documentation
2. What is the process of tracking safety performance over time?  
(a) Inspection                        (b) Monitoring  
(c) Leadership                        (d) Assessment
3. What contributes to the successful implementation of an OHSMS?  
(a) Success factors                  (b) Documentation  
(c) Inspection                        (d) Ecolabelling
4. What is the abbreviation for Occupational Health and Safety Management System?  
(a) OHMS                              (b) OHSMS  
(c) OSHAS                            (d) OHS

5. What type of ecolabel is awarded based on third-party certification?
  - (a) Type 1 label
  - (b) Type 2 label
  - (c) Type 3 label
  - (d) Performance label
  
6. What provides organizations with guidelines for best practices?
  - (a) Policies
  - (b) Standards
  - (c) Regulations
  - (d) Inspections
  
7. What term refers to potential sources of danger in the workplace?
  - (a) Standard
  - (b) Audit
  - (c) Hazard
  - (d) Label
  
8. What is essential for maintaining compliance and tracking improvements?
  - (a) Leadership
  - (b) Documentation
  - (c) Monitoring
  - (d) Follow-up
  
9. What process evaluates environmental and safety risks?
  - (a) Monitoring
  - (b) Documentation
  - (c) Assessment
  - (d) Inspection
  
10. What provides a concise overview of an audit or assessment?
  - (a) Summary
  - (b) Evidence
  - (c) Hazard analysis
  - (d) Labeling

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the key components of an effective workplace inspection process.
 

Or

 (b) Discuss the significance of workplace inspections in maintaining industrial safety and compliance.

12. (a) Compare and contrast safety audits with workplace inspections in terms of objectives and scope.

Or

- (b) Differentiate between compliance audit and performance audit in workplace safety.

13. (a) Summarize the core principles and benefits of implementing ISO 45001 in an organization.

Or

- (b) Discuss the role of an Occupational Health and Safety Management System (OHSMS) in risk prevention.

14. (a) Describe the fundamental principles of an Environmental Management System (EMS).

Or

- (b) List and explain the key specifications of ISO 14001 that support environmental sustainability.

15. (a) Outline the major steps involved in conducting an Environmental Impact Assessment (EIA).

Or

- (b) Describe the general principles of Life Cycle Assessment (LCA) and its importance.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze the importance of workplace inspections in ensuring compliance and preventing hazards.

Or

- (b) Describe the key steps involved in planning an effective workplace inspection.

17. (a) Describe the essential on-site activities conducted during a safety audit.

Or

- (b) Explain the process of collecting audit evidence and evaluating reports for continuous improvement.

18. (a) Describe the importance of worker consultation and leadership participation in safety management.

Or

- (b) Analyze the content and scope of ISO 45001 in occupational health and safety management.

19. (a) Discuss the three levels of documentation required for ISO 14001 compliance.

Or

- (b) Describe the key objectives of ISO 14001 and how they contribute to environmental sustainability.

20. (a) Discuss the various methodologies used in conducting an Environmental Impact Assessment.

Or

- (b) Explain the scope and benefits of EIA in sustainable environmental planning and decision-making.
-

**C-7793**

**Sub. Code**

**91052**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fifth Semester**

**Fire & Industrial Safety**

**SAFETY IN OIL AND GAS INDUSTRIES**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What is the most effective way to improve workforce competency in safety procedures?  
(a) Inspections                      (b) Penalties  
(c) Training                              (d) Supervision
2. Which safety measure ensures proper airflow and prevents gas accumulation?  
(a) Ventilation                      (b) Insulation  
(c) Filtration                              (d) Cooling
3. What system regulates authorization for hazardous tasks in oil and gas facilities?  
(a) Safety checklist                      (b) Work permit  
(c) Incident report                      (d) Audit log
4. What term describes measures taken to reduce risks in hazardous environments?  
(a) Mitigation                              (b) Precaution  
(c) Protection                              (d) Risk assessment

5. Which activity requires strict adherence to load limits and balance checks?  
(a) Welding                      (b) Lifting  
(c) Excavation                  (d) Drilling
6. Where are oil exploration and drilling operations conducted on land?  
(a) Offshore                      (b) Midstream  
(c) Downstream                  (d) Onshore
7. What factor contributes most to workplace accidents in oil and gas industries?  
(a) Lack of equipment  
(b) Poor lighting  
(c) Accident factor  
(d) Insufficient staffing
8. Which sector of the oil industry deals with exploration and drilling?  
(a) Midstream                      (b) Upstream  
(c) Downstream                  (d) Refining
9. What is a major environmental concern associated with pipeline failures?  
(a) Fire outbreak                  (b) Equipment wear  
(c) Oil leak                          (d) Noise pollution
10. What device is commonly used for gas detection in hazardous work environments?  
(a) Thermometer                  (b) Pressure gauge  
(c) Sensor                              (d) Flow meter

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the core principles of safety management in the oil and gas industry.  

Or

(b) Classify hazardous products used in the oil and gas sector and their associated risks.

12. (a) Evaluate the role of Interface Safety Analysis in mitigating operational risks.

Or

- (b) Illustrate the steps involved in conducting a Job Safety Analysis in oil and gas sites.

13. (a) Identify common industrial risks associated with offshore oil and gas operations.

Or

- (b) Describe the standard reporting procedure followed in offshore accident scenarios.

14. (a) Explain the impact of group dynamics on accident prevention in oil and gas workplaces.

Or

- (b) Discuss the role of individual behavior in ensuring safety in oil and gas industries.

15. (a) Evaluate the critical safety measures in lifting operations in oil and gas sites.

Or

- (b) Analyze the handling and safety precautions for hazardous materials in oil and gas operations.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain accident causation theories and their relevance to oil and gas industry safety.

Or

- (b) Interpret the bathtub hazard curve and its significance in oil and gas equipment reliability.

17. (a) Explain the importance of toolbox talks in promoting safety awareness in oil and gas sites.

Or

- (b) Assess the role of safety checklists in reducing operational hazards in the oil and gas sector.

18. (a) Examine the safety failures and their impact in the Seacrest drillship accident.

Or

- (b) Discuss the Baker drilling barge accident and its implications for offshore drilling safety.

19. (a) Analyze the explosion and fire hazards in oil and gas facilities and suggest mitigation strategies.

Or

- (b) Evaluate oil field fatality analysis and discuss trends in accident prevention.

20. (a) Examine the risks associated with working at height in oil and gas operations and suggest safety measures.

Or

- (b) Describe the key sources of accident data collection in oil and gas industries and their importance in safety improvements.
-

**C-7794**

**Sub. Code**

**91053A**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fifth Semester**

**Fire & industrial Safety**

**ENVIRONMENTAL SAFETY**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. Which process converts waste materials into reusable materials?  
(a) Decomposition      (b) Recycling  
(c) Incineration      (d) Landfilling
2. What is the difference between recycling and reuse?  
(a) Reuse does not change the material's form  
(b) Recycling and reuse are the same  
(c) Recycling does not save energy  
(d) Reuse increases waste generation
3. Which pollutant is a major concern in cement manufacturing?  
(a) Dust      (b) CO<sub>2</sub>  
(c) SO<sub>2</sub>      (d) NO<sub>2</sub>
4. What does a pH meter measure?  
(a) Temperature of water  
(b) Acidity or alkalinity of a solution  
(c) Salinity of seawater  
(d) Dissolved oxygen content

5. Which device is commonly used to remove dust from industrial emissions?
  - (a) Electrostatic precipitator
  - (b) Bag filter
  - (c) Scrubber
  - (d) Cyclone separator
  
6. Which process is used to remove contaminants from air or water using activated carbon?
  - (a) Filtration
  - (b) Absorption
  - (c) Adsorption
  - (d) Coagulation
  
7. Which industry is a major source of air pollution due to particulate matter emissions?
  - (a) Textile
  - (b) Cement
  - (c) Pharmaceutical
  - (d) Dairy
  
8. Which environmental issue is associated with paper pulp industries?
  - (a) Ozone depletion
  - (b) Acid rain
  - (c) Water pollution
  - (d) Soil erosion
  
9. Which industrial process is a major contributor to water pollution due to the release of synthetic dyes?
  - (a) Leather tanning
  - (b) Textile dyeing
  - (c) Cement production
  - (d) Mining
  
10. What is the main goal of an eco-friendly industry?
  - (a) Profit maximization
  - (b) Increased production
  - (c) Sustainable and minimal environmental impact
  - (d) Resource depletion

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the effects of air pollution on human health and the environment.

Or

- (b) How do vehicular emissions contribute to air pollution? Suggest control measures.

12. (a) Classify water pollutants based on their origin and effects.

Or

- (b) How do industrial effluents affect aquatic ecosystems?

13. (a) What are the different categories of hazardous waste based on their properties?

Or

- (b) Discuss the methods used for the disposal of hazardous waste safely.

14. (a) How does a particle size analyzer help in air pollution control?

Or

- (b) What is the significance of using a lux meter and a gas chromatograph in pollution studies?

15. (a) Explain the major pollutants emitted by the petroleum industry and their impact.

Or

- (b) What are the environmental challenges posed by the textile industry? Suggest mitigation strategies.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) How does deforestation contribute to environmental degradation? Suggest mitigation strategies.

Or

- (b) Analyze the impact of UV radiation on human health and the ecosystem.

17. (a) What are the major pollutants in textile effluents, and how can they be treated before disposal?

Or

- (b) Explain the process of sampling and analysis of water for pollution monitoring.

18. (a) Explain the importance of standards in hazardous waste management and list key regulations governing hazardous waste disposal.

Or

- (b) Describe different methods for the collection and segregation of solid waste in urban areas.

19. (a) Describe the combustion method for hazardous waste disposal and discuss its advantages and limitations.

Or

- (b) Discuss the major laws and regulations governing environmental hazard control at national and international levels.

20. (a) How does the tannery industry contribute to pollution? Explain the treatment methods used to minimize its environmental impact.

Or

- (b) Describe the role of the pollution control industry in mitigating industrial pollution and promoting sustainable development.

**C-7795**

**Sub. Code**

**91053B**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Fifth Semester**

**Fire and Industrial Safety**

**WORK STUDY AND ERGONOMICS**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What safety feature is integrated into machinery to prevent accidents?  
(a) Safety rules                      (b) Guards  
(c) In-built safety                  (d) Emergency stop
2. What term describes the elements that contribute to workplace hazards?  
(a) Dangers                              (b) Risk factors  
(c) Threats                                (d) Defects
3. What term describes the point of interaction between a worker and a machine?  
(a) Contact                                (b) Interface  
(c) System                                 (d) Design
4. Which factor influences musculoskeletal disorders when working for prolonged hours?  
(a) Speed                                  (b) Posture  
(c) Load                                  (d) Force

5. What is the primary function of PPE in the workplace?  
(a) Comfort                      (b) Appearance  
(c) Protection                  (d) Productivity
6. What condition results from prolonged work without adequate rest?  
(a) Exhaustion                  (b) Fatigue  
(c) Laziness                      (d) Tension
7. Which process ensures proper execution of tasks through monitoring?  
(a) Coordination                (b) Supervision  
(c) Scheduling                  (d) Execution
8. What is a common psychological effect of excessive workload and stress?  
(a) Fatigue                        (b) Anxiety  
(c) Mental strain                (d) Depression
9. What structure is designed to provide a stable surface for standing and working?  
(a) Platform                      (b) Workbench  
(c) Work platform                (d) Scaffold
10. Which ability is crucial in maintaining alertness and responding effectively to hazards?  
(a) Intelligence                  (b) Vigilance  
(c) Awareness                    (d) Coordination

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the impact of breakdowns on work-study analysis and productivity.  
Or  
(b) Evaluate the role of human factors in work-study and their influence on operational efficiency.

12. (a) Justify the application of ergonomics in reducing work-related musculoskeletal disorders.
- Or
- (b) Compare the key ergonomic principles applied on the shop floor to enhance worker comfort and productivity.
13. (a) Illustrate the essential concepts of PPE and their role in maintaining workplace safety.
- Or
- (b) Critique the effectiveness of invisible protective barriers in enhancing workplace safety without obstructing workflow.
14. (a) Discuss the principles of equipment design in ensuring ergonomic compatibility and operator safety.
- Or
- (b) Analyze the significance of inbuilt safety features in machinery and their impact on workplace accident prevention.
15. (a) Examine the components of a man-machine system and their interdependence in an industrial setup.
- Or
- (b) Discuss the concept of adjustment range in ergonomic design and its role in accommodating diverse workforce needs.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Evaluate the role of safety measures in method study and how they contribute to reducing workplace hazards.
- Or
- (b) Discuss the application of robots in hazardous workplaces and their impact on worker safety and productivity.

17. (a) Illustrate the importance of proper location of controls in machines to ensure safe and efficient operation.

Or

- (b) Assess the ergonomic considerations in designing the layout of an electric panel to enhance operational safety and usability.
18. (a) Examine the major design considerations in PPE to ensure comfort, usability, and maximum protection.

Or

- (b) Compare various international and national standards in PPE and their importance in ensuring workplace safety compliance.
19. (a) Explain the significance of machine guarding and its impact on preventing occupational injuries.

Or

- (b) Discuss different types of safety devices and methods used to enhance machine safety and Operator protection.
20. (a) Evaluate the relationship between worker fatigue and vigilance, and propose strategies to enhance worker alertness.

Or

- (b) Discuss different types of control systems in a man-machine interface and their role in optimizing operational efficiency and safety.
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**C-7797**

**Sub. Code**

**91054A**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fifth Semester**

**Fire & Industrial Safety**

**SAFETY IN TEXTILE INDUSTRY**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. Which process removes short fibers and improves fiber alignment before spinning?  
(a) Warping                      (b) Combing  
(c) Drawing                      (d) Bleaching
2. Which natural fiber is widely used for making sacks and ropes?  
(a) Cotton                      (b) Jute  
(c) Wool                      (d) Silk
3. Which textile manufacturing process involves interlooping yarns?  
(a) Knitting                      (b) Sizing  
(c) Combing                      (d) Drawing
4. What term refers to liquid waste discharged from textile processing?  
(a) Bleaching                      (b) Effluent  
(c) Dyeing                      (d) Warping

5. Which chemical process removes natural color impurities from fabric?
- (a) Dyeing                      (b) Sizing  
(c) Bleaching                  (d) Combing
6. Which hazard is caused by airborne fibers in the textile industry?
- (a) Noise Pollution      (b) Dust Hazard  
(c) Puncturing              (d) Effluent
7. What is a major environmental concern caused by excessive machinery noise?
- (a) Bleaching                  (b) Waste Disposal  
(c) Noise Pollution      (d) Precaution
8. What is the process of managing and removing unwanted textile byproducts?
- (a) Knitting                      (b) Waste Disposal  
(c) Combing                      (d) Drawing
9. Which fiber is most commonly used in the textile industry?
- (a) Wool                              (b) Cotton  
(c) Jute                                (d) Nylon
10. Which frame is used for twisting fibers into yarns before final spinning?
- (a) Loom                              (b) Flyer Frames  
(c) Shuttle                          (d) Warping Drum

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Compare the safety challenges between short staple spinning and long staple spinning processes.

Or

- (b) Describe the potential risks involved in warping and suggest ways to prevent accidents.

12. (a) Illustrate how knitting machines can cause workplace injuries and how to avoid them.

Or

- (b) Discuss safety regulations applicable to workers in the loom shed area.

13. (a) Outline the safety measures that should be implemented in the finishing process of textiles.

Or

- (b) Define punting in the textile industry and describe its potential hazards.

14. (a) Explain how occupational diseases develop among textile workers and ways to prevent them.

Or

- (b) Classify different types of PPE in the textile industry and justify their importance.

15. (a) Propose sustainable methods for waste disposal in textile industries.

Or

- (b) Analyze the role of water treatment in maintaining safety and environmental compliance in textile industries.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Compare and contrast the safety challenges in handling synthetic fibers versus natural fibers in textile industries.

Or

- (b) Evaluate the role of carding and combing in yarn preparation and its impact on worker safety.

17. (a) Examine the advantages of shuttle-less looms in improving safety compared to traditional shuttle looms.

Or

- (b) Assess the importance of non-woven fabrics in the textile industry and the safety precautions in their production.
18. (a) Examine the chemical hazards in bleaching operations and propose measures for worker safety.

Or

- (b) Describe the scouring process in textiles and evaluate its environmental and workplace safety concerns.
19. (a) Evaluate the effectiveness of welfare measures in the textile industry in ensuring worker safety and health.

Or

- (b) Identify and discuss the most effective control measures for common hazards in textile industries.
20. (a) Summarize the key rules of the textile industry related to occupational health and safety.

Or

- (b) Compare any two Factory Acts related to textiles, highlighting their importance in worker protection.

**C-7798**

**Sub. Code**

**91054B**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fifth Semester**

**Fire & Industrial Safety**

**SAFETY IN MINES**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What fuel source is primarily extracted from underground mining?
  - (a) Ore
  - (b) Coal
  - (c) Sand
  - (d) Shale
  
2. What is the general term for naturally occurring substances extracted from the earth?
  - (a) Rock
  - (b) Soil
  - (c) Mineral
  - (d) Aggregate
  
3. What is the primary cause of humidity and flooding in mines?
  - (a) Gas accumulation
  - (b) Water
  - (c) Poor ventilation
  - (d) Over-mining

4. Which equipment is commonly used for hoisting materials in mining?
  - (a) Forklift
  - (b) Bucket
  - (c) Conveyor
  - (d) Belt
  
5. What is used to identify harmful gases in underground mines?
  - (a) Barometer
  - (b) Detectors
  - (c) Thermometer
  - (d) Altimeter
  
6. What essential body function is most affected by dust and toxic gases in mining?
  - (a) Circulation
  - (b) Respiration
  - (c) Digestion
  - (d) Nervous system
  
7. What hazard occurs due to the weakening of ground support structures?
  - (a) Sinking
  - (b) Collapse
  - (c) Landslide
  - (d) Blockage
  
8. What is a major risk when miners are stuck in confined spaces after a cave-in?
  - (a) Drowning
  - (b) Trapping
  - (c) Poisoning
  - (d) Suffocation
  
9. Which physical hazard is caused by the operation of heavy machinery in mines?
  - (a) Radiation
  - (b) Shock
  - (c) Vibration
  - (d) Overheating
  
10. What terms used for large-scale mining accidents causing severe casualties and damage?
  - (a) Mishap
  - (b) Incident
  - (c) Disaster
  - (d) Emergency

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) How can improper use of hand tools contribute to mining accidents?

Or

- (b) Discuss the role of a pneumatic system in mine safety and its potential risks.

12. (a) What preventive measures can be taken to reduce the risks of fire and explosion in mines?

Or

- (b) How does water flooding occur in mines, and what are the mitigation strategies?

13. (a) What safety protocols should be followed to prevent accidents caused by falling bodies in mines?

Or

- (b) How do gases and dusts in mines impact miners' health and safety?

14. (a) What are the key elements in risk assessment, and how do they contribute to safety management?

Or

- (b) Discuss the significance of control charts in monitoring and improving mine safety.

15. (a) Discuss the causes and consequences of a fatal accident in a mining environment.

Or

- (b) What is the role of a safety audit in ensuring compliance with mining safety standards?

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) How does water usage affect mining safety, and what measures can be taken to prevent water-related hazards?

Or

- (b) Analyze various fire prevention techniques used in underground and surface mining operations.

17. (a) How do gas detectors contribute to mine safety, and what factors affect their efficiency?

Or

- (b) Examine the different types of occupational hazards in mines and their long-term effects on workers.

18. (a) Explain the importance of PPE in tunnelling and how it reduces risks in hazardous conditions.

Or

- (b) Analyze the effects of noise and vibration on mine workers and the control measures to mitigate them.

19. (a) Explain the concept of failure mode in mining systems and how it helps prevent catastrophic failures.

Or

- (b) Describe the fault tree analysis method and its application in identifying mining hazards.

20. (a) Explain the importance of accident reporting in mining safety and how it helps in preventing future incidents.

Or

- (b) Discuss some recent developments in mine safety and their impact on reducing hazards in modern mining operations.

**C-7799**

**Sub. Code**

**91054C**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fifth Semester**

**Fire and Industrial Safety**

**TRANSPORTATION SAFETY**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What material handling equipment moves goods continuously over a fixed path?  
(a) Forklift                      (b) Conveyor  
(c) Truck                          (d) Trolley
2. Which type of tracked vehicle is used for rough terrains?  
(a) Crawler                      (b) Trailer  
(c) Pickup                        (d) Scooter
3. Which equipment is used for lifting and moving pallets in warehouses?  
(a) Forklift                      (b) Ladder  
(c) Wheelbarrow                (d) Jack
4. What is used for lifting heavy loads at construction sites?  
(a) Tractor                        (b) Crane  
(c) Bicycle                        (d) Conveyor

5. What is the primary focus of transportation safety regulations?
  - (a) Cost
  - (b) Speed
  - (c) Safety
  - (d) Style
  
6. What can impair a driver's ability to react quickly?
  - (a) Sleep
  - (b) Water
  - (c) Exercise
  - (d) Loud music
  
7. What system helps in warning drivers about hazards ahead?
  - (a) Sound system
  - (b) Alert system
  - (c) GPS
  - (d) Camera
  
8. What term is used for an unexpected event causing damage or injury?
  - (a) Warning
  - (b) Signal
  - (c) Accident
  - (d) Report
  
9. What regular process ensures a vehicle's proper functioning?
  - (a) Decoration
  - (b) Servicing
  - (c) Painting
  - (d) Branding
  
10. What is the loss of traction that causes a vehicle to slide uncontrollably?
  - (a) Braking
  - (b) Acceleration
  - (c) Skidding
  - (d) Drifting

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the key considerations for parking a goods truck safely?

Or

- (b) How does speed management impact road safety?

12. (a) Identify and explain the major causes of road accidents.

Or

- (b) What factors should be considered when selecting a motor truck for transportation?

13. (a) What criteria should be used for selecting drivers in a transportation company?

Or

- (b) Why is a driving test necessary for evaluating driver competency?

14. (a) Explain the role of tractive force in vehicle movement.

Or

- (b) How do braking characteristics impact the safety of a vehicle?

15. (a) How do cranes and conveyors contribute to safe material handling?

Or

- (b) What are the key safety considerations when using mechanical loading equipment?

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) What are the key responsibilities of a driver to ensure transportation safety?

Or

- (b) Develop a comprehensive checklist for hazardous goods transportation.

17. (a) Discuss the critical design aspects of a motor truck for safe and efficient transportation.

Or

- (b) How does the Motor Vehicle Act regulate transportation safety and compliance?

18. (a) How do slogans in driver's cabin impact driving behavior and safety?

Or

- (b) Explain how speed control contributes to fuel conservation and road safety.

19. (a) Compare different warning methods used in transportation for hazard prevention.

Or

- (b) Explain best practices for safe loading and unloading of goods.

20. (a) How does off-road motor equipment contribute to industrial and transportation operations?

Or

- (b) Explain the purpose and safety measures involved in wash rack operation.

**C-7800**

**Sub. Code**

**91055A**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fifth Semester**

**Fire & Industrial Safety**

**SAFETY MANAGEMENT SYSTEMS**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The first step in setting up a safety program in a company is?  
(a) Implementation      (b) Planning  
(c) Inspection              (d) Training
2. The process of formally starting a new system or equipment is called?  
(a) Maintenance          (b) Evaluation  
(c) Commissioning        (d) Decommissioning
3. A failure that stops production and requires urgent attention is called?  
(a) Breakdown              (b) Downtime  
(c) Wear and tear          (d) Overhaul
4. What process enhances employee skills and safety awareness?  
(a) Induction                (b) Training  
(c) Recruitment              (d) Termination

5. Who are temporary employees gaining work experience?
- (a) Contractors            (b) Interns  
(c) Supervisors            (d) Consultants
6. Advancement in job position within an organization is called?
- (a) Transfer                (b) Demotion  
(c) Promotions            (d) Suspension
7. The indirect costs associated with workplace accidents are called?
- (a) Direct costs            (b) Social costs  
(c) Compensation        (d) Expenses
8. The behavior and interaction of employees in a team is called?
- (a) Group dynamics       (b) Leadership  
(c) Productivity           (d) Motivation
9. The process of exchanging safety-related information is called?
- (a) Documentation        (b) Reporting  
(c) Communications       (d) Evaluation
10. Employee involvement in decision-making processes is called?
- (a) Supervision            (b) Participation  
(c) Inspection             (d) Training

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the major causes of industrial accidents and strategies for their prevention.

Or

- (b) Identify and explain the different types of accident prevention methods used in industries.

12. (a) Explain the role of strategic planning in ensuring workplace safety.

Or

- (b) What are the key steps involved in effective planning for safety in an industrial environment?

13. (a) Compare in-plant and out-of-plant training programs in terms of their effectiveness and applications.

Or

- (b) Explain the role of induction training in promoting workplace safety for new employees.

14. (a) Discuss the role of trade unions in ensuring workplace safety and employee welfare in India.

Or

- (b) Explain how safety suggestion schemes contribute to improving workplace safety culture.

15. (a) Explain the role of human factors in workplace accidents and how they can be minimized.

Or

- (b) Describe the key characteristics of a strong safety culture system and its impact on an organization.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) How does a Management Information System (MIS) contribute to safety management?

Or

- (b) Discuss the key considerations in budgeting for safety and its impact on risk management.

17. (a) Evaluate the role of management in establishing and maintaining a safe work environment.

Or

- (b) Explain Haddon's principle and its application in accident prevention strategies.

18. (a) Explain how safety can be effectively integrated into an organization's operations and policies.

Or

- (b) Discuss the importance of job safety instructions and their impact on accident prevention.

19. (a) Analyze the scope and methods of employee participation in workplace safety initiatives.

Or

- (b) Discuss the significance of collective bargaining in ensuring workplace safety and employee rights.

20. (a) Discuss various strategies for the prevention of danger in hazardous work environments.

Or

- (b) Analyze the psychological aspects of workplace safety and their influence on employee behavior.

**C-7802**

**Sub. Code**

**91055C**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fifth Semester**

**Fire and Industrial Safety**

**DISASTER MANAGEMENT**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. What disaster occurs due to prolonged water scarcity?
  - (a) Drought
  - (b) Tsunami
  - (c) Flood
  - (d) Cyclone
  
2. Which disaster is commonly caused by dry conditions and lightning?
  - (a) Tsunami
  - (b) Forest fire
  - (c) Earthquake
  - (d) Landslide
  
3. What is a significant consequence of disasters on businesses and employment?
  - (a) Psychological impact
  - (b) Political unrest
  - (c) Economic loss
  - (d) Environmental degradation

4. What disaster is characterized by the downward movement of rocks or soil?  
(a) Earthquake            (b) Landslide  
(c) Tsunami                (d) Drought
5. Which disaster is measured using the Richter scale?  
(a) Cyclone                (b) Earthquake  
(c) Tsunami                (d) Volcano
6. Which factor is crucial for maintaining hygiene post-disaster?  
(a) Shelter                 (b) Sanitation  
(c) Food supply            (d) Rescue teams
7. What is an essential requirement for displaced populations during disasters?  
(a) Transportation        (b) Shelter  
(c) Water sources         (d) Surveillance
8. What term refers to any event with the potential to cause damage or loss?  
(a) Risk                    (b) Hazard  
(c) Disaster                (d) Vulnerability
9. What system provides crucial information before a disaster strikes?  
(a) Evacuation plan       (b) Warning system  
(c) Rescue operation      (d) Risk assessment
10. Which disaster is associated with strong winds and heavy rainfall?  
(a) Earthquake            (b) Tsunami  
(c) Storm                  (d) Volcano

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Compare different types of disasters based on their origin and impact.

Or

- (b) Analyze how climate change influences the frequency and intensity of disasters.

12. (a) Evaluate the effectiveness of disaster mitigation and preparedness strategies.

Or

- (b) Discuss the roles of urban local bodies in disaster management and response.

13. (a) Examine the ecological impact of embankments in flood-prone areas.

Or

- (b) Analyze the consequences of land-use changes on disaster risk.

14. (a) Describe the impact of water-related disasters, particularly floods, on communities.

Or

- (b) Explain the significance of waste management in post-disaster scenarios.

15. (a) Discuss different methods used for drought assessment and prediction.

Or

- (b) Explain the process of storm surge assessment and its importance in coastal regions.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss the challenges and strategies for managing urban disasters in densely populated areas.

Or

- (b) Analyze the impact of pandemics on public health, economy, and global preparedness strategies.

17. (a) Compare different structural measures used in disaster mitigation and their effectiveness.

Or

- (b) Describe the key components of a disaster management framework and their implementation.

18. (a) Analyze the importance of utilizing local resources for disaster response and recovery.

Or

- (b) Explain the functionalities of the IPCC in addressing climate-related disaster risks.

19. (a) Explain major disaster management programs and legislations at national and international levels.

Or

- (b) Describe the process of disaster damage assessment and its role in post-disaster recovery.

20. (a) Explain the impact of forest fires on the environment and strategies for fire management.

Or

- (b) Discuss the importance and methodologies of fieldwork in disaster management and response.

**C-7803**

**Sub. Code**

**91061**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Sixth Semester**

**Fire & Industrial Safety**

**PROCESS SAFETY MANAGEMENT**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. A potential source of harm in industrial processes is called
  - (a) Hazard
  - (b) Response
  - (c) PHA
  - (d) Checklist
2. The study of substances and their reactions relevant to safety is
  - (a) Emergency
  - (b) Chemistry
  - (c) Planning
  - (d) Team
3. Hazards arising from the use of power circuits and equipment relate to
  - (a) Electrical
  - (b) Trade
  - (c) Relief system
  - (d) Contractor
4. A device or arrangement to release excess pressure safely is a
  - (a) Ventilation System
  - (b) Relief system
  - (c) Design code
  - (d) Training

5. The system used to ensure adequate airflow for safety is a
  - (a) HAZOP
  - (b) Ventilation System
  - (c) Checklist
  - (d) Contractor
  
6. Standards that specify engineering requirements for safety are called
  - (a) Planning
  - (b) Design code
  - (c) FTA
  - (d) Hazard
  
7. The method used to systematically analyze potential process hazards is
  - (a) PHA
  - (b) Contractor
  - (c) Checklist
  - (d) Chemistry
  
8. A structured study for identifying hazards and operability issues is
  - (a) Team
  - (b) FTA
  - (c) HAZOP
  - (d) Planning
  
9. A graphical method for analyzing the causes of system failures is
  - (a) FTA
  - (b) Contractor
  - (c) Relief system
  - (d) Participation
  
10. The buying and selling of goods or services in process safety context relates to
  - (a) Trade
  - (b) Emergency
  - (c) Planning
  - (d) Training

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Identify the hazards associated with regulated substances in industrial processes.

Or

- (b) Explain the Purpose and use of a block flow diagram in Process safety.

12. (a) Introduce the concept and objectives of process hazard analysis.

Or

- (b) List and describe common methods used for conducting PHA.

13. (a) Explain the importance of maintaining mechanical integrity in process equipment

Or

- (b) Discuss the role of management of change in preventing accidents.

14. (a) Outline the key steps involved in conducting an incident investigation.

Or

- (b) Describe the term methodology in the Context of process safety studies.

15. (a) Explain the Purpose and conditions of issuing a hot work permit.

Or

- (b) State the factors to consider during contract selection in safety Management.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the role of process chemistry in identifying and managing industrial hazards.

Or

- (b) Analyze the significance of determining upper and lower limits in process safety.

17. (a) Evaluate the limitations of PHA and how they affect hazard assessment accuracy.

Or

- (b) Interpret the methodology and applications of HAZOP in process safety management.

18. (a) Assess the importance of training in ensuring safe process Operations.

Or

- (b) Explain the concept of equivalent deficiency and its impact on safety performance.

19. (a) Discuss the preparation and use of an investigation questionnaire in incident analysis.

Or

- (b) Evaluate the challenges of protecting trade secrets while ensuring safety transparency.

20. (a) Describe the underlying Principles that guide process safety management systems.

Or

- (b) Propose an emergency response plan for a high-risk industrial process.
-

**C- 7804**

**Sub. Code**

**91062**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Sixth Semester**

**Fire & Industrial Safety**

**BEHAVIOR BASED SAFETY AND INDUSTRIAL  
ERGONOMICS**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The set of individual characteristics that influence behaviour is called
  - (a) Personality
  - (b) Group
  - (c) Values
  - (d) Cost
2. A systematic explanation of phenomena based on concepts is a
  - (a) Motivation
  - (b) Theory
  - (c) ABC
  - (d) Ergonomics
3. The science of designing tasks and workplaces for efficiency and safety is
  - (a) Hazard
  - (b) Ergonomics
  - (c) Safety
  - (d) Workbench

4. Principles or standards guiding human conduct are called
  - (a) Values
  - (b) Effectiveness
  - (c) Personality
  - (d) Coaching
  
5. The internal or external factor that drives individuals to act is
  - (a) Group
  - (b) Fatigue
  - (c) Motivation
  - (d) Shopfloor
  
6. A collection of individuals with shared objectives is called a
  - (a) Seated
  - (b) Safety
  - (c) Group
  - (d) Theory
  
7. An approach focusing on modifying behaviours to prevent accidents is
  - (a) BBS
  - (b) ABC
  - (c) Static
  - (d) Hazard
  
8. In behaviour-based safety, the model linking Antecedent, Behaviour, and Consequence is
  - (a) Effectiveness
  - (b) Shopfloor
  - (c) ABC
  - (d) Workbench
  
9. A source or situation with the potential to cause harm is
  - (a) Hazard
  - (b) Fatigue
  - (c) Cost
  - (d) Ergonomics
  
10. A feeling of tiredness that reduces work capacity is called
  - (a) Static
  - (b) Fatigue
  - (c) Values
  - (d) Group

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define different personality types and explain their relevance in workplace safety.

Or

- (b) Identify factors that influence personality development in an industrial setting.

12. (a) Explain the concept of organization and its role in safety management.

Or

- (b) Describe workplace dynamics and their effect on employee performance.

13. (a) Explain the concept and purpose of behaviour-based safety in accident prevention.

Or

- (b) Summarize the components of the ABC model in safety behaviour analysis.

14. (a) Define ergonomics and explain its importance in workplace design.

Or

- (b) State the principles of shop floor ergonomics for improving worker efficiency.

15. (a) Explain the objectives of work design in industrial operations.

Or

- (b) Describe ergonomic considerations for seated work arrangements.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Classify the different types of learners in an industrial safety context.

Or

- (b) Explain the stages involved in the learning process for workplace skills.

17. (a) Describe the role of informal leaders in influencing team safety behaviour.

Or

- (b) Identify common working norms and their effect on workplace culture.

18. (a) Analyze the consequences in the ABC model of behaviour-based safety.

Or

- (b) Explain the purpose and methods of safety coaching in accident prevention.

19. (a) Describe ergonomic requirements for workbenches in industrial tasks.

Or

- (b) State the guidelines for the safe layout of an electrical panel.

20. (a) Explain the concept of personal space and its importance in teamwork.

Or

- (b) Summarize fundamental aspects of standing ergonomics for worker safety.

**C-7805**

**Sub. Code**

**91064A**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Sixth Semester**

**Fire & Industrial Safety**

**SAFETY IN PROCESS INDUSTRIES**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The process of creating specifications for equipment or systems is called
  - (a) Design
  - (b) Condition
  - (c) LPG
  - (d) Corrosion
  
2. The state of being protected from harm or danger is called
  - (a) Pressure
  - (b) Safety
  - (c) Leak testing
  - (d) Apell
  
3. An opening that allows gases or vapors to escape safely is a
  - (a) Fireproof
  - (b) Vent
  - (c) Refinery units
  - (d) Vibration
  
4. A large container used for storing liquids or gases is a
  - (a) Tank
  - (b) Acoustic
  - (c) Disposal
  - (d) Condition

5. Material or structure resistant to fire damage is called  
(a) Fireproof (b) Safety  
(c) Colour coding (d) Hydrogen
6. The act of discarding waste material safely is called  
(a) Disposal (b) Vent  
(c) Demolition (d) Pressure
7. A sudden event causing great damage or loss is called  
(a) Refinery units (b) Disaster  
(c) Condition (d) LPG
8. The force exerted by a fluid per unit area is called  
(a) Pressure (b) Leak testing  
(c) Acoustic (d) Safety
9. The operational state or environment in which equipment is used is called  
(a) Condition (b) Colour coding  
(c) Hydrogen (d) Design
10. Rapid, repeated movement that may cause damage is called  
(a) Vibration (b) Disposal  
(c) Demolition (d) Fireproof

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define safety design and explain its importance process industries.

Or

- (b) Explain how assessment of safety is carried out before starting operations.

12. (a) Describe the commissioning process of a new industrial plant.

Or

- (b) List and explain the main phases in commissioning activities.

13. (a) Define operation discipline and explain its role in safe plant performance.

Or

- (b) Describe the purpose and procedure of inspection in process equipment.

14. (a) Identify common maintenance hazards and suggest preventive measures.

Or

- (b) Explain the concept and application of isolation for equipment safety.

15. (a) Describe key safety measures in the petroleum industry.

Or

- (b) Explain the function and safety importance of vacuum valves.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the operation of batch reactors and assess the safety measures required.

Or

- (b) Evaluate methods for hazard evaluation in process industries with examples.

17. (a) Describe pre-commissioning activities and their significance for safe plant startup.

Or

- (b) Discuss the role of documentation in maintaining process safety compliance.

18. (a) Develop an emergency procedure for a high-risk industrial process scenario.

Or

- (b) Analyze safety considerations for various refinery units in petroleum processing.

19. (a) Design a disaster planning framework suitable for a chemical manufacturing facility.

Or

- (b) Explain the steps involved in managing an on-site emergency effectively.

20. (a) Assess the function and importance of flame arrestors in preventing explosions.

Or

- (b) Evaluate safety requirements and design considerations for toxic storage facilities.

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**C-7806**

**Sub. Code**

**91064B**

**B.Sc. DEGREE EXAMINATION, APRIL 2026.**

**Sixth Semester**

**Fire & Industrial Safety**

**SAFETY IN ENGINEERING INDUSTRIES**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. The condition of being protected from harm or injury is called
  - (a) Safety
  - (b) Hazard
  - (c) Cold working
  - (d) Furnace
  
2. A machining process that Uses a rotating tool to remove material is
  - (a) Roiling mill
  - (b) Milling
  - (c) Boring
  - (d) Welding

3. A machining process that enlarges existing holes is called
  - (a) Boring
  - (b) Leak
  - (c) Guarding
  - (d) ZMS
  
4. A natural material obtained from trees and used in carpentry is
  - (a) Wood
  - (b) Soldering
  - (c) Milling
  - (d) Cold working
  
5. A type of safety device or system abbreviated as ZMS is
  - (a) ZMS
  - (b) Arrestor
  - (c) Pulley
  - (d) Pressure
  
6. An unintended escape of gas or liquid from a system is called
  - (a) Leak
  - (b) Brazing
  - (c) Furnace
  - (d) Hazard

7. A process of joining metals using a filler that melts below 450°C is
- (a) Soldering
  - (b) Milling
  - (c) Welding
  - (d) Furnace
8. Metal shaping at or near room temperature is called
- (a) Cold working
  - (b) Forming
  - (c) Rolling mill
  - (d) Milling
9. The act of shaping materials into a desired geometry is called
- (a) Furnace
  - (b) Forming
  - (c) Brazing
  - (d) Pulley
10. A Closed vessel for generating steam is called a
- (a) Biler
  - (b) Safety
  - (c) Furnace
  - (d) Pressure

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) State essential safety rules to be followed in engineering industries.

Or

- (b) Explain the importance of proper maintenance in preventing equipment failures

12. (a) Describe the purpose and types of machine guarding.

Or

- (b) Define zero mechanical state and explain its safety significance.

13. (a) Explain the gas welding process and associated safety precautions.

Or

- (b) Describe the procedure and safety measures for oxygen cutting.

14. (a) Explain the concept of cold working and its industrial applications.

Or

- (b) Describe the operation and safety measures for a power press.

15. (a) Explain the purpose and methods of heat treatment in engineering processes.

Or

- (b) Discuss safety precautions required during electroplating operations.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the role of inspection in maintaining machinery safety and operational reliability.

Or

- (b) Describe the safe operating procedure and hazards associated with a planning machine.

17. (a) Analyze the functions and importance of operating protective devices in engineering equipment.

Or

- (b) Evaluate the effectiveness of automatic guards in preventing industrial accidents.

18. (a) Discuss the arc welding process, associated risks, and safety measures.

Or

- (b) Assess the importance of training programs for ensuring welding safety compliance.

19. (a) Explain the role of auxiliary mechanisms in enhancing machine performance and safety.

Or

- (b) Describe safety requirements and hazards related to operated presses.

20. (a) Analyze the use of radiography in industry and the safety protocols required.

Or

(b) Evaluate the risks of radiation hazards and propose control measures.

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**C-7807**

**Sub. Code**

**91064C**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**

**Sixth Semester**

**Fire & Industrial Safety**

**SAFETY IN ON AND OFF SHORE DRILLING**

**(2023 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 1 = 10)

Answer **all** questions.

1. A substance that can accumulate in pipelines and restrict flow is
  - (a) Wax
  - (b) Grease
  - (c) Sea
  - (d) Position
2. A semi-solid lubricant used in drilling equipment is
  - (a) Cleaning
  - (b) Lighting
  - (c) Grease
  - (d) Crude oil
3. Drilling operations conducted on land are called
  - (a) Offshore
  - (b) On shore
  - (c) Hazard
  - (d) Fuel
4. Drilling operations conducted in marine environments are called
  - (a) On shore
  - (b) Offshore
  - (c) Fire
  - (d) Wax

5. The process of making holes in the earth's surface to extract resources is  
(a) Drilling (b) Transport  
(c) Pipeline (d) Repair
6. The unrefined petroleum product extracted from wells is called  
(a) Crude oil (b) Relief system  
(c) Grease (d) Lighting
7. A large body of saltwater where offshore drilling occurs is  
(a) Sea (b) Fire  
(c) Position (d) Hazard
8. The movement of personnel or materials between locations is called  
(a) Prevention (b) Repair  
(c) Transport (d) Lighting
9. The act of removing dirt, contaminants, or deposits from equipment is  
(a) Cleaning (b) Fuel  
(c) Pipeline (d) Lubricant
10. An uncontrolled combustion causing damage is called  
(a) Fire (b) On shore  
(c) Sea (d) Hazard

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define petroleum products and explain their industrial uses.

Or

- (b) Describe different types of fuel used in drilling operations.

12. (a) Explain the process and safety considerations in on-shore oil operations.

Or

- (b) Describe offshore operations and their unique safety challenges.

13. (a) Explain common drilling techniques used in petroleum extraction.

Or

- (b) List and describe key equipment used in offshore drilling.

14. (a) Explain the process of petroleum extraction from crude oil.

Or

- (b) Describe the transportation procedure for petroleum products.

15. (a) Explain safe practices for onshore crude oil storage.

Or

- (b) Identify hazards associated with petroleum storage and suggest controls.

**Part C**

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze the hazards associated with problem solvents and propose safe handling procedures.

Or

- (b) Evaluate the role of lubricants in drilling operations and their impact on equipment safety.

17. (a) Explain the procedure for safe installation of onshore drilling systems.

Or

- (b) Assess the maintenance requirements for offshore drilling facilities.

18. (a) Describe the functions and safety considerations for equipment used in onshore drilling.

Or

- (b) Explain how work position affects safety and efficiency in drilling operations.

19. (a) Analyze safety considerations in the design and maintenance of transportation pipelines.

Or

- (b) Discuss safety measures required for crude oil transportation via different modes.

20. (a) Propose prevention strategies for hazards in onshore petroleum storage facilities.

Or

- (b) Evaluate safe maintenance practices for offshore petroleum storage units.
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