C–6325	Sub. Code 91013

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Fire and Industrial Safety

BASIC OF FIRE SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a heat transfer method in fire safety?

   (a) Conduction (b) Radiation

   (c) Convection (d) Fusion

2. What is the lowest temperature at which a substance ignites without an external ignition source?

   (a) Flash Point

   (b) Fire Point

   (c) Auto Ignition Temperature

   (d) BLEVE

3. The primary purpose of a safety helmet is to:

   (a) Protect against head injuries

   (b) Improve aesthetics

   (c) Increase comfort at work

   (d) None of the above

4. CO_2 fire extinguishers are best suited for which class of fire?

(a) Class A (b) Class B

(c) Class C (d) Class D

5. Which component in a water-based sprinkler system detects heat and activates water flow?

(a) Wet pipe (b) Sprinkler head

(c) Piping system (d) Alarm valve

6. Which of the following is NOT a type of hand protection?

(a) Cotton gloves

(b) Safety goggles

(c) Leather gloves

(d) Chemical-resistant gloves

7. NFPA 72 primarily deals with:

(a) Electrical wiring

(b) Fire alarm and detection systems

(c) Chemical storage safety

(d) Construction site hazards

8. Smoke detectors primarily detect:

(a) Heat

(b) Carbon monoxide

(c) Particulate matter

(d) Sound

9. The purpose of an air-purifying respirator is to:

(a) Supply oxygen directly

(b) Remove contaminants from the air

(c) Detect toxic gases

(d) Store breathable air

10. Flammable liquids should be stored in:

(a) Wooden Cabine's

(b) Open Area's

(c) Special metal container's

(d) Any available space

Part B (5 × 5 = 25)

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

11. (a) Differentiate between flash point, fire point, and auto-ignition temperature.

Or

(b) Explain the different classes of fire and their characteristics.

12. (a) Compare the types of fire extinguishers and their applications.

Or

(b) Discuss the construction and maintenance of a safety helmet.

13. (a) Illustrate the working of a wet pipe sprinkler system.

Or

(b) Explain the importance of hand and leg protection in the workplace.

14. (a) Describe the types of fire alarm initiation devices.

Or

(b) Explain the hazards of chemical exposure to the skin and preventive measures.

15. (a) Discuss the different types of respirators and their uses.

Or

(b) Explain the safe storage and handling of flammable liquids.

Part C (5 × 8 = 40)

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

16. (a) Elaborate on the different methods of heat transfer in fire safety with examples.

Or

(b) Describe the different types of PPE and their significance in fire safety.

17. (a) Explain in detail the different types of fire extinguishers and their mechanisms.

Or

(b) Discuss the potential eye hazards in industries and the protective measures.

18. (a) Describe the Inspection and maintenance procedures of a sprinkler system.

Or

(b) Explain the importance of selecting appropriate hand and leg protection PPE.

19. (a) Illustrate the classification and components of a fire alarm system.

Or

(b) Explain in detail about radiant energy sensing detectors.

20. (a) Explain the effects of oxygen deficiency in the workplace and its mitigation strategies.

Or

(b) Describe the handling and transportation precautions for combustible liquids.

C–6326	Sub. Code 91015

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

First Semester

Fire and Industrial Safety

HUMAN RESOURCES MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a function of Human Resource Development?

   (a) Training and Development

   (b) Employee Motivation

   (c) Financial Auditing

   (d) Career Development

2. In HRM, which of the following is considered an internal influence on employee behavior?

   (a) Government Regulations

   (b) Organizational Culture

   (c) Market Competition

   (d) Technology Trends

3. What is the first step in assessing HRD needs?

(a) Conducting a performance appraisal

(b) Identifying skill gaps

(c) Implementing training programs

(d) Creating HR policies

4. Which training method involves structured problem-solving using past business scenarios?

(a) Role Plays

(b) Case Studies

(c) T-Groups

(d) Transactional Analysis

5. The Kirkpatrick Model is used to evaluate:

(a) Employee Selection Methods

(b) Training Effectiveness

(c) HRD Strategic Planning

(d) Career Growth Models

6. What is the main purpose of a Realistic Job Review (RJR)?

(a) To provide a clear job preview to potential employees

(b) To evaluate employee performance

(c) To facilitate career transitions

(d) To assess HRM policies

7. Which of the following is NOT a key function of employee counselling?

(a) Conflict resolution

(b) Employee Performance tracking

(c) Stress Management

(d) Career Guidance

8. Employee wellness programs are primarily aimed at:

(a) Enhancing organization revenue

(b) Improving employee productivity and well-being

(c) Reducing workforce size

(d) Managing financial resources

9. Which of the following is an impact of globalization on HRD?

(a) Increased job stability

(b) Decline in workforce diversity

(c) Need for expatriate training programs

(d) Reduction in international job opportunities

10. What is a key objective of HR performance benchmaking?

(a) Reducing HR costs

(b) Identifying best HR practices in the industry

(c) Increasing turnover rates

(d) Removing expatriate employees

Part B (5 × 5 = 25)

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

11. (a) Explain the evolution of Human Resource Development (HRD) with key milestones.

Or

(b) Describe the roles and competencies of HRD professionals in modern organisations.

12. (a) Differentiate between on-the job and off-the-job training with examples.

Or

(b) Discuss the HRD model and its significance in employee development.

13. (a) Explain the fundamental concepts of socialization in HRD.

Or

(b) What are the key frame works used for evaluating HRD programs?

14. (a) Describe employee wellness programs and their benefits to organizations.

Or

(b) Explain the importance of employee counselling as an HRD activity.

15. (a) Discuss the impact of workforce diversity on HRD programs.

Or

(b) What are the key challenges in HRD programs for expatriates and repatriates?

Part C (5 × 8 = 40)

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

16. (a) Analyze the relationship between HRM and HRD with relevant examples.

Or

(b) Explain the various learning strategies and styles used in HRD.

17. (a) Discuss the process of designing an effective HRD program, including key steps.

Or

(b) Explain the advantages and limitations of self-paced training methods.

18. (a) Critically evaluate different HRD program evaluation models with examples.

Or

(b) Explain the significance of career management and development in HRD.

19. (a) How can organizations develop effective employee counselling programs?

Or

(b) Discuss the impact of organizational strategies based on human resources.

20. (a) Examine the effects of globalization on HRD functions with real-world examples.

Or

(b) How can organizations retain employees effectively during workforce realignment?

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C–6328	Sub. Code 91023

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Fire and Industrial Safety

ELECTRICAL AND CHEMICAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a type of electrical burn?

   (a) Arc burn

   (b) Thermal contact burn

   (c) Flame burn

   (d) Radiation burn

2. What is the function of a Ground Fault Circuit Interrupter (GFCI)?

   (a) To protect against overloads

   (b) To protect against short circuits

   (c) To protect against ground faults

   (d) To protect against lightning strikes

3. Which of the following information is NOT typically found on a Safety Data Sheet (SDS)?

(a) Chemical composition

(b) Physical and chemical properties

(c) Price of the chemical

(d) Handling and storage precautions

4. What is the purpose of a HAZCHEM code?

(a) To identify the chemical composition of a substance

(b) To provide emergency responders with information about the hazards of a substance

(c) To indicate the appropriate storage conditions for a substance

(d) To classify the toxicity of a substance

5. Which of the following is NOT a principle of green chemistry?

(a) Designing safer chemicals

(b) Minimizing the use of renewable resources

(c) Preventing waste

(d) Maximizing atom economy

6. What is the primary function of an electrical insulator?

(a) To conduct electricity

(b) To prevent the flow of electricity

(c) To store electrical energy

(d) To convert electrical energy into mechanical energy

7. What is the purpose of "lockout/tagout" procedures?

(a) To prevent unauthorized access to electrical equipment

(b) To identify hazardous energy sources

(c) To isolate energy sources and prevent the release of hazardous energy during maintenance or repair

(d) To provide personal protective equipment (PPE) to workers

8. What is the difference between a flammable liquid and a combustible liquid?

(a) Flammable liquids ignite at lower temperatures than combustible liquids

(b) Combustible liquids ignite at lower temperatures than flammable liquids

(c) Flammable liquids are more toxic than combustible liquids

(d) Combustible liquids are more toxic than flammable liquids

9. What is the role of atmospheric monitoring in the workplace?

(a) To measure the oxygen levels in the air

(b) To assess the concentration of airborne contaminants

(c) To regulate the temperature and humidity in the workplace

(d) To detect the presence of fire hazards

10. Which of the following is NOT a typical step in a chemical exposure risk assessment?

(a) Identifying the hazardous properties of the chemical

(b) Determining the marketing strategy for the chemical

(c) Assessing the potential for exposure

(d) Evaluating the risk to workers' health

Part B

$(5 \times 5 = 25)$

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

11. (a) Describe the main components of an electrical circuit and their functions.

Or

(b) Discuss the concept of 'body resistance' and its influence on the severity of an electric shock.

12. (a) What are primary and secondary electrical hazards? Provide examples.

Or

(b) Describe different types of electrical burns and their first aid measures.

13. (a) Explain the selection of personal protective equipment (PPE) for electrical work.?

Or

(b) Explain the importance of no-load and earth fault protection in electrical systems.

14. (a) Explain the concept of flammable limits' and their significance in assessing fire and explosion hazards.

Or

(b) Discuss the various sources of information available for evaluating the hazards of chemicals.

15. (a) What is the Globally Harmonized System (GHS)? Briefly explain its purpose and benefits.

Or

(b) Describe the different types of PPE used for handling hazardous chemicals and their selection criteria.

Part C (5 × 8 = 40)

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

16. (a) Discuss the Indian Electricity Rules and their significance in ensuring electrical safety in workplaces.

Or

(b) Explain the statutory requirements from the Electrical Inspectorate in India for electrical installations and equipment.

17. (a) Discuss the National Electrical Safety Code and its role in establishing electrical safety standards in the United States.

Or

(b) Explain the working principle of a lightning arrestor and its importance in lightning protection systems.

18. (a) Explain the importance of maintaining safe distances from overhead power lines and the factors that influence the safe distance.

Or

(b) Explain the importance of equipment grounding and bonding in electrical safety.

19. (a) What are nano materials? Explain the potential hazards associated with nano materials and the precautions that should be taken when handling them

Or

(b) Discuss the classification of biohazards and the specific risks associated with different biohazard levels.

20. (a) Explain the concept of chemical exposure risk assessment and the steps involved in conducting a comprehensive risk assessment.

Or

(b) Explain the requirements for the safe transportation of hazardous chemicals, including labeling, packaging, and emergency response procedures.

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C–6329

Sub. Code
91025

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Fire and Industrial Safety

WAREHOUSE MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a characteristic of an ideal warehouse?

   (a) Strategic location

   (b) Efficient layout

   (c) High operating costs

   (d) Proper security measures

2. What is the term for the process of storing goods in a warehouse until they are needed?

   (a) Warehousing

   (b) Inventory management

   (c) Distribution

   (d) Transportation

3. Which of the following is NOT a function of inventory?

(a) Balancing supply and demand

(b) Protecting against uncertainties

(c) Increasing production lead time

(d) Enabling economies of scale

4. What type of inventory includes items that are used in the maintenance and repair of equipment?

(a) WIP Inventory

(b) Finished Goods Inventory

(c) MRO Inventories

(d) Safety Stock Inventory

5. Which of the following is a benefit of implementing a Warehouse Management System (WMS)?

(a) Increased labor costs

(b) Reduced inventory accuracy

(c) Improved order fulfillment

(d) Decreased customer satisfaction

6. In which demand system is the demand for one item directly related to the demand for another item?

(a) Dependent Demand System

(b) Independent Demand System

(c) Distribution Resource Planning

(d) Material Requirements Planning

7. What is the main objective of ABC inventory control?

(a) To treat all inventory items equally

(b) To focus on managing high-value items more closely

(c) To ignore low-value items completely

(d) To randomly allocate resources to inventory management

8. Which inventory system involves maintaining inventory at multiple locations within a supply chain network?

(a) Single Echelon Inventory System

(b) Multi-Echelon Inventory System

(c) Economic Order Quantity

(d) Just-in-Time Inventory System

9. Which of the following is NOT a performance measure of a material handling system?

(a) Vehicle travel time

(b) Handling time

(c) Employee satisfaction

(d) Vehicle utilization

10. What technology uses barcodes to identify and track items?

(a) RFID

(b) GPS

(c) Bar Coding

(d) Bluetooth

Part B (5 × 5 = 25)

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

11. (a) What's the difference between public, private, and contract warehousing?

Or

(b) What are the different types of warehouses? Describe the traits of an ideal e-commerce warehouse.

12. (a) How does inventory contribute to a company's supply chain and competitive edge?

Or

(b) Explain lead time and its impact on inventory management. How can it be reduced?

13. (a) Define Warehouse Management System (WMS). Why is it crucial in modern warehouse operations?

Or

(b) Explain service level in inventory management. How is it calculated and used in decision-making?

14. (a) Explain the ABC inventory control method and its benefits for prioritizing inventory management.

Or

(b) Explain Vendor Managed Inventory (VMI) and its potential benefits and drawbacks.

15. (a) Discuss the principles and key performance metrics used in material handling systems.

Or

(b) Explain "pick-to-light" and "voice-picking" technologies and their impact on order picking efficiency.

Part C $(5 \times 8 = 40)$

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

16. (a) What are the different warehousing facilities available? How do they cater to specific industry needs?

Or

(b) Explain cross-docking and its role in supply chains. What are its pros and Cons?

17. (a) Elaborate on the different types of inventory (WIP, finished goods. MRO) and their importance in management.

Or

(b) Describe the concept of Just-in-Time (JIT) inventory and its relationship with Lean manufacturing principles.

18. (a) Discuss the role of forecasting in inventory management What are the different forecasting methods used, and how do they impact inventory decisions?

Or

(b) Explain the concept of Material Requirements Planning (MRP). How does MRP help in coordinating production and inventory management?

19. (a) What is the Fixed Order Interval (FOI) model in inventory control? How does it differ from the EOQ model, and when is it more suitable for inventory management?

Or

(b) Discuss the challenges of managing inventory in multi-echelon networks and potential approaches to address them.

20. (a) Explain the different types of automated guided vehicles (AGVs) used in material handling systems. How do AGVs contribute to increased efficiency and productivity?

Or

(b) Discuss the importance of ergonomics in the design of material handling systems. How does ergonomic design impact worker safety, productivity, and overall warehouse efficiency?

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C–6330

Sub. Code
91033

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Fire and 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 is a common cause of fatal accidents in construction?
   (a) Proper training
   (b) Lack of safety equipment
   (c) Regular inspections
   (d) Quality assurance

2. What is the primary purpose of pre-construction meetings?
   (a) To assign blame for accidents
   (b) To plan and ensure safety measures are in place
   (c) To reduce project costs
   (d) To delay project timelines

3. Which of the following is a common hazard in excavation work?
   (a) Falling objects (b) Scaffold collapse
   (c) Trench collapse (d) Electrical hazards

4. What is the primary purpose of a scaffold inspection checklist?
   (a) To ensure scaffolding is safe for use
   (b) To increase project costs
   (c) To delay construction work
   (d) To assign blame for accidents

5. Which OSHA standard provides guidelines for fall protection in construction?
   (a) OSHA 1926 (b) OSHA 3146
   (c) OSHA 1910 (d) OSHA 3000

6. What is the primary purpose of a controlled access zone?
   (a) To restrict access to hazardous areas
   (b) To increase project costs
   (c) To delay construction work
   (d) To assign blame for accidents

7. Which of the following is a critical factor in the selection of construction machinery?
   (a) Cost (b) Safety
   (c) Speed (d) Brand

8. What is the primary purpose of a crane inspection checklist?
   (a) To ensure the crane is safe for use
   (b) To increase project costs
   (c) To delay construction work
   (d) To assign blame for accidents

9. Which of the following is a key to safe demolition?
   (a) Pre-survey inspection
   (b) Ignoring safety protocols
   (c) Rushing the process
   (d) Lack of supervision

10. What is the primary health hazard associated with demolition work?

(a) Dust and debris

(b) Noise pollution

(c) Water contamination

(d) Air pollution

Part B (5 × 5 = 25)

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

11. (a) Explain the human factors associated with construction accidents.

Or

(b) Discuss the importance of pre-contract activities in ensuring safety.

12. (a) Describe the hazards of working in confined spaces.

Or

(b) Explain the safety measures for working over water.

13. (a) Discuss the osha requirements for working at heights.

Or

(b) Analyze the importance of fall protection systems.

14. (a) Explain the safety measures for operating tower cranes.

Or

(b) Discuss the importance of inspecting earth-moving equipment.

15. (a) Describe the safety precautions for manual demolition.

Or

(b) Analyze the health hazards associated with demolition work.

Part C (5 × 8 = 40)

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

16. (a) Analyze the causes of fatal accidents in construction.

Or

(b) Evaluate the role of education and training in improving construction safety.

17. (a) Critically assess the hazards of scaffolding.

Or

(b) Design a safety plan for tunneling operations.

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

Or

(b) Propose a fall protection plan for high-rise building construction.

19. (a) Analyze the safety measures for using portable electrical tools.

Or

(b) Design an inspection checklist for construction machinery.

20. (a) Evaluate the importance of pre-survey inspections in demolition work.

Or

(b) Develop a method statement for safe demolition.

C–6331

Sub. Code
91034

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Fire and 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 act governs the welfare of constitute workers in India?
   (a) Factories Act (b) BOCW Act
   (c) Mines Act (d) OSHA

2. Which form is used for accident reporting in India?
   (a) Form 10 (b) Form 15
   (c) Form 18 (d) Form 20

3. What is the primary purpose of maintaining accident reports?
   (a) Punishment (b) Legal Compliance
   (c) Data Deletion (d) Ignorance

4. Which type of accident requires mandatory reporting?
   (a) Reportable (b) Non-reportable
   (c) Near Miss (d) Unsafe Act

5. Which accident theory suggests multiple factors lead to accidents?
   (a) Domino Theory
   (b) Multiple Causation Theory
   (c) Human Factors Theory
   (d) Behavioral Theory

6. Which theory focuses on an individual's tendency to accidents?
   (a) Accident Proneness Theory
   (b) Bird's Triangle
   (c) Heinrich's Theory
   (d) Systems Theory

7. Which model explains accidents using systemic failure analysis?
   (a) Fishbone
   (b) Accident/Incident Theory
   (c) Swiss Cheese
   (d) Behavioral Theory

8. Which is a key concern in accident causation?
   (a) Employee Training
   (b) Critical Issues
   (c) Near Miss
   (d) Safety Audit

9. Which is the first step in risk control hierarchy?
   (a) PPE (b) Elimination
   (c) Substitution (d) Engineering Control

10. Which prevention measure replaces hazardous materials with safer ones?
   (a) Elimination (b) Substitution
   (c) PPE (d) Administrative Control

Part B (5 × 5 = 25)

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

11. (a) Explain the primary causes of accidents in industrial settings.

Or

(b) Differentiate between the various types of accidents with suitable examples.

12. (a) Discuss Heinrich's Domino Theory and its relevance to accident prevention.

Or

(b) Analyse the role of human factors in accident causation based on the Human Factors Theory.

13. (a) Explain the Hierarchy of Risk Control and its application in accident prevention.

Or

(b) Justify the importance of elimination as a strategy in accident prevention.

14. (a) Describe the essential steps involved in accident investigation.

Or

(b) Explain the process of accident occurrence using a structured approach.

15. (a) Define fatal injury and explain its impact on workplace safety.

Or

(b) Differentiate between reportable and disabling injuries with examples.

Part C

$(5 \times 8 = 40)$

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

16. (a) Explain the key provisions and significance of the BOCW Act 1996 in workplace safety.

Or

(b) Discuss the role and purpose of Form No. 18 in accident reporting under safety regulations.

17. (a) Describe the Multiple Causation Theory and its application in accident analysis.

Or

(b) Critically evaluate the Accident Proneness Theory and its limitations in accident prevention.

18. (a) Explain prevention measures in accident management, highlighting their effectiveness.

Or

(b) Assess the role of substitution as a strategy in accident prevention, with examples.

19. (a) Describe different methods of accident investigation and their significance in workplace safety.

Or

(b) Explain the Root Cause Analysis (RCA) approach and how it helps in accident prevention.

20. (a) Explain the significance of man-hours worked in workplace safety analysis.

Or

(b) Classify different types of accidents, providing examples for each category.

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C–6332

Sub. Code
91036

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

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. Who is known as the father of modern management?

   (a) Henry Fayol

   (b) Frederick Taylor

   (c) Peter Drucker

   (d) Elton Mayo

2. Which of the following is NOT a function of management?

   (a) Planning

   (b) Controlling

   (c) Manufacturing

   (d) Leading

3. Which management approach focuses on scientific analysis of work methods?

(a) Classical Approach

(b) Contingency-Approach

(c) Scientific Management

(d) Human Relations Approach

4. Which principle of Fayol states that an employee should receive orders from only one superior?

(a) Unity of Command

(b) Unity of Direction

(c) Division of Work

(d) Authority and Responsibility

5. Which leadership style involves complete authority with little input from subordinates?

(a) Democratic (b) Autocratic

(c) Laissez-faire (d) Transformational

6. Delegation of authority leads to which of the following benefits?

(a) Increased workload on managers

(b) Improved efficiency and decision-making

(c) Reduced employee responsibility

(d) Increased centralization

7. Which of the following is a key feature of decentralization?

(a) Authority is retained at the top

(b) Decision-making is spread across different levels

(c) One person makes all major decisions

(d) Only routine tasks are assigned

8. Which of the following is a major function of controlling in management?

(a) Setting goals

(b) Evaluating performance

(c) Increasing workload

(d) Assigning tasks

9. Which of these is NOT a function of a controller in management?

(a) Financial reporting

(b) Cost control

(c) Staff hiring

(d) Budgeting

10. Which of the following is an essential characteristic of a good control system?

(a) Complexity (b) Flexibility

(c) Rigid rules (d) High cost

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain the key characteristics and importance of management in an organization.

Or

(b) Differentiate between various concepts of management with suitable examples.

12. (a) Analyze the role of leadership in organizational success.

Or

(b) Discuss the essential principles of leadership and their significance.

13. (a) Describe the role of controlling in management and its impact on organizational performance.

Or

(b) Summarize the key functions of a controller in an organization.

14. (a) Explain the nature and scope of organizational behavior.

Or

(b) Describe the key elements of organizational behavior with relevant examples.

15. (a) Identify the major sources of work stress in a corporate environment.

Or

(b) Discuss the coping strategies to manage workplace stress effectively.

Part C $(5 \times 8 = 40)$

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

16. (a) Compare formal and informal organizations, highlighting their advantages and limitations.

Or

(b) Analyze the significance of decision-making in management and explain the steps involved.

17. (a) Differentiate between line and staff functions in an organization and justify their relevance.

Or

(b) Explain the importance of manpower planning and its role in organizational success.

18. (a) Explain the role of a global manager in an increasingly interconnected world.

Or

(b) Analyze the functions of internal management and its significance in business operations.

19. (a) Illustrate Blanchard's Situational Leadership Theory with suitable workplace examples.

Or

(b) Examine the strategies for managing conflicts in organizations effectively.

20. (a) Explain the concept of culture shock and its impact on expatriates in multinational organizations.

Or

(b) Analyze recent trends in international business and their influence on global markets.

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C–6333

Sub. Code
91043

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Fire and Industrial Safety

FOOD HYGIENE AND SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Cleanliness, physical exercise, rest and sleep are the part of

   (a) Hygiene (b) Social hygiene

   (c) Personal hygiene (d) None of the above

2. One of the following is not a bacterial disease

   (a) AIDS (b) Dengue

   (c) Measles (d) All of the above

3. Food contaminants means

   (a) Intentionally added one

   (b) Not intentionally added to food but are present due to processing

   (c) Presence of harmful chemical

   (d) None of the above

4. What are the four steps of food safety?
   (a) Store, cook, clean and eat
   (b) Clean, cook, eat and throw
   (c) Clean, separate, cook and chill
   (d) Get, cook, clean and consume

5. The food item that can be used as natural food preservative
   (a) Vinegar, ginger, apple and banana
   (b) Garlic, lemon, sugar and vinegar
   (c) Garlic, lemon, ginger and sugar
   (d) Ginger, garlic, banana and tamarind

6. The physical qualities of storage food can be tested
   (a) Odour measurement
   (b) Mechanical texture meter
   (c) Odour measurement and Mechanical texture meter
   (d) Neither of the mentioned

7. Food borne ———————— results when a person consumes food containing pathogens
   (a) Infection (b) Intoxication
   (c) Both (a) and (b) (d) None of the above

8. Symptoms of Diphtheria
   (a) Bleeding gum (b) Hydrophobia
   (c) Suffocation (d) Excessive watering

9. The pathogen causes cholera in humans
   (a) Fungi (b) Bacteria
   (c) Virus (d) Protozoan

10. Why is HACCP required
   (a) Controls potential hazards in food protection
   (b) Controls only microbial hazards in food protection
   (c) Controls only physical hazards in food protection
   (d) Controls only chemical hazards in food protection

Part B (5 × 5 = 25)

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

11. (a) Explain how cosmetics could contaminate food during preparation.

Or

(b) Explain the importance of regular cleaning and maintenance of kitchen equipment for food hygiene.

12. (a) List few personal hygiene practices that are crucial in preventing food contamination.

Or

(b) Explain the FIFO (First-In, First-Out) principle and its importance in food storage.

13. (a) Define foodborne illness and differentiate between food infection and food poisoning.

Or

(b) What is botulism? Why is it considered a serious foodborne illness?

14. (a) Explain the importance of proper hand washing techniques in a catering environment.

Or

(b) Explain the concept of the "danger zone" and its relevance to food storage.

15. (a) Describe the steps involved in conducting a hazard analysis.

Or

(b) Differentiate between a CCP and a CP. Give an example of each in a food processing scenario.

Part C

(5 × 8 = 40)

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

16. (a) Discuss the importance of protective clothing in the food industry.

Or

(b) Explain the importance of food labeling and allergen information.

17. (a) Elaborate the causes of food contamination with remedies.

Or

(b) Sketch and explain a safe kitchen layout in detail.

18. (a) Discuss the challenges in ensuring food safety in a globalized food supply chain

Or

(b) Discuss the importance of proper hand hygiene in preventing foodborne illness.

19. (a) Explain the importance of maintaining proper temperatures during the transportation of catered food.

Or

(b) Write short notes on Thawing, Blanching, Maceration and Freezing.

20. (a) Outline the importance and the seven steps of HACCP.

Or

(b) During a HACCP audit, you observe that a CCP is not being monitored properly. What actions would you recommend?

C–6334

Sub. Code
91044

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Fire and Industrial Safety

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. The _____ process determines whether exposure to a chemical can increase the incidence of adverse health effect

   (a) Hazard identification

   (b) Exposure assessment

   (c) Risk characterization

   (d) Toxicity assessment

2. Why does site history have to be considered for hazard identification?

   (a) To estimate the risk

   (b) To calculate carcinogenic exposure

   (c) To know the probable source and causes of contamination on site

   (d) For determination of remedial action

3. RE represents

(a) Risk Expense (b) Related Expense

(c) Risk Exposure (d) Risk Evaluation

4. The way to deal with risk is

(a) Mitigate or ignore (b) Contingency

(c) Transfer (d) All of the above

5. What is FTA?

(a) Free Tree Analysis

(b) Fault Tree Analysis

(c) Fault Top Analysis

(d) Free Top Analysis

6. FMEA represents

(a) Fast Mode and Effect Analysis

(b) Front Mode and Effect Analysis

(c) False Mode and Effect Analysis

(d) Failure Mode and Effect Analysis

7. Who should undertake the risk assessment?

(a) Health and safety officer

(b) A competent person

(c) The manager

(d) An employee

8. The main objective of risk assessment is

(a) To evaluate hazard and minimize the risks

(b) Remediation of contaminated sites

(c) Hazard management

(d) To know the source of pollutants

9. Earth quake is a disaster of

(a) Meteorological (b) Hydrological

(c) Geological (d) Biological

10. 'Tsunami' occurs due to

(a) Wave upwelling

(b) Earthquake generated in a subduction zone

(c) Wind impact

(d) Tidal force

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain the concept of 'horseplay' and its relation to workplace safety.

Or

(b) What you will do in preliminary hazards analysis?

12. (a) State the four stages of risk analysis. Explain any one in detail.

Or

(b) Shortly explain the Benefit analysis.

13. (a) What is the significance of the 'Failure Mode' in FMEA?

Or

(b) Explain the event tree analysis with a shop floor incident.

14. (a) State the main objectives of a HIRA study.

Or

(b) Give a short notes on risk analysis and risk matrix.

15. (a) Outline the Convey report.

Or

(b) Analyze the effects of a chemical accident.

Part C (5 × 8 = 40)

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

16. (a) Point out the most important ten safety rules in a work place.

Or

(b) What is risk? How human errors enhance risk factors of an incident?

17. (a) State the five methods of managing risk and stress. List out the benefits of risk analysis.

Or

(b) Describe the steps involved in root cause analysis.

18. (a) Write down the four stages of HAZOP and explain its key words with neat diagrams.

Or

(b) Discuss other safety management tools that can complement FMEA.

19. (a) Brief the steps involved in hazard identification and risk assessment.

Or

(b) Explain the difference between Quantitative and Qualitative Risk Assessment.

20. (a) How the past accident analysis helps the human beings to overcome disasters?

Or

(b) Illustrate Bhopal Tragedy and Port Hudson incident.

———————

C–6335

Sub. Code
91046

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Fire and Industrial Safety

RETAIL ENVIRONMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a unique characteristic of retailing compared to other types of businesses?

   (a) Focus on profit maximization

   (b) Direct interaction with consumers

   (c) Reliance on advertising

   (d) Large-scale production

2. The "retailer-marketing equation' emphasizes the importance of:

   (a) Maximizing profits at all costs

   (b) Balancing customer needs with business goals

   (c) Focusing solely on marketing efforts

   (d) Ignoring competitor strategies

3. The Accordion Theory suggests that retail institutions:

(a) Constantly expand and contract their product offerings

(b) Move from general merchandise to specialized stores and back again

(c) Rely on a combination of online and offline channels

(d) Focus on low prices to attract customers

4. A business model in retail defines:

(a) The specific products a retailer sells

(b) The company's advertising budget

(c) How the retailer creates, delivers, and captures value

(d) The number of employees a retailer hires

5. The feedback and control stage of the retail strategic planning process involves:

(a) Setting long-term goals for the business

(b) Evaluating the effectiveness of the implemented strategy

(c) Conducting market research to identify consumer needs

(d) Developing a marketing plan

6. Which of the following is NOT a typical step in the consumer decision-making process?

(a) Need recognition

(b) Information search

(c) Impulse buying

(d) Post-purchase evaluation

7. Foreign Direct Investment (FDI) in retail in India has been a contentious issue due to:

(a) Concerns about its impact on small retailers

(b) Lack of interest from foreign investors

(c) Stringent government regulations

(d) All of the above

8. The evolution of retail in India can be characterized by a shift from:

(a) Organized to unorganized retail

(b) Online to offline retail

(c) Unorganized to organized retail

(d) Rural to urban retail

9. A major threat facing global retailers is:

(a) Increased consumer spending

(b) Growing demand for luxury goods

(c) Rise of counterfeit products

(d) Expansion of physical stores

10. Which of the following is a critical success factor for global retailers?

(a) Maintaining a rigid, standardized approach

(b) Ignoring local cultural sensitivities

(c) Building strong relationships with local suppliers and partners

(d) Focusing solely on online channels

Part B (5 × 5 = 25)

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

11. (a) Describe the various functions of retailers and how they add value for consumers.

Or

(b) Discuss the various trends shaping the future of retailing, such as the rise of e-commerce, and personalization.

12. (a) Discuss the different phases in the lifecycle of a retail market and how retailers adapt.

Or

(b) Discuss the different retail business models (e.g., franchise, department store, specialty store) and their advantages and disadvantages.

13. (a) Explain the role of situation analysis in retail strategic planning. What are the key components of a situation analysis?

Or

(b) Discuss the "retail marketing mix" and how retailers use it to achieve their objectives.

14. (a) Discuss the major drivers of retail change in India. How have these drivers impacted the retail landscape in the country?

Or

(b) Discuss the impact of e-commerce on the Indian retail industry and traditional retailers.

15. (a) Explain the strategic planning process for global retailing and the factors to consider.

Or

(b) Discuss "cross-border e-commerce" and its growing importance in global retail.

Part C (5 × 8 = 40)

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

16. (a) Explain different types of retailers based on ownership, merchandise, and pricing. How do these choices impact their market and competition?

Or

(b) Explain "customer relationship management" (CRM) and how it enhances loyalty in retail.

17. (a) Discuss the role of AI, AR, and VR in transforming the retail experience.

Or

(b) Explain "retail analytics" and its importance in data-driven decision-making.

18. (a) Elaborate on the concept of retail location and factors influencing location selection for driving foot traffic and sales.

Or

(b) Explain different types of retail promotions and how they drive sales and engagement.

19. (a) Discuss supply chain management challenges in Indian retail and potential solutions.

Or

(b) Analyze the impact of government policies (GST, ease of doing business) on the Indian retail sector.

20. (a) Explain different entry modes for retailers expanding internationally (franchising, joint ventures, etc.) with their pros and cons.

Or

(b) Describe "retail format innovation" and its importance. Give examples of innovative retail~form8tS disrupting traditional models.

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C–6336	Sub. Code 91051

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Fire and Industrial Safety

SAFETY INSPECTION AND AUDIT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What process involves examining workplace conditions to identify hazards and ensure compliance?
   (a) Monitoring (b) Inspection
   (c) Audit (d) Assessment

2. What is the primary goal of workplace safety programs?
   (a) Increasing production
   (b) Reducing environmental impact
   (c) Protecting workers from hazards
   (d) Ensuring legal documentation

3. Which process systematically evaluates safety compliance in an organization?
   (a) Inspection (b) Monitoring
   (c) Audit (d) Assessment

4. What is required to verify compliance during an audit?
   (a) Interviews (b) Evidence
   (c) Safety drills (d) Leadership involvement

5. What does OH and S stand for?
   (a) Occupational Health and Sustainability
   (b) Operational Health and Safety
   (c) Occupational Hazard and Safety
   (d) Occupational Health and Safety

6. Which standard focuses on occupational health and safety management?
   (a) ISO 14001 (b) ISO 9001
   (c) ISO 45001 (d) ISO 50001

7. Which ISO standard addresses environmental management systems?
   (a) ISO 14001 (b) ISO 45001
   (c) ISO 9001 (d) ISO 50001

8. Which ISO standard is specifically related to life cycle assessment?
   (a) ISO 14001 (b) ISO 1404
   (c) ISO 45001 (d) ISO 50001

9. What labeling system identifies environmentally friendly products?
   (a) Quality certification
   (b) Ecolabelling
   (c) Performance testing
   (d) Risk assessment

10. Which factor is essential for effective leadership in workplace safety?
   (a) Profit maximization
   (b) Cost-cutting strategies
   (c) Employee engagement
   (d) Reducing documentation

Part B (5 × 5 = 25)

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

11. (a) Identify common workplace hazards and describe how inspections help mitigate risks.

Or

(b) Outline the essential elements of an effective workplace inspection report.

12. (a) Explain the systematic steps involved in conducting a safety audit using an objective methodology.

Or

(b) Describe the key preparatory steps required before conducting a safety audit.

13. (a) Explain how an OH and S management system enhances workplace safety and health performance.

Or

(b) Illustrate the application of the PDCA cycle in continuous safety improvement.

14. (a) Discuss the core guidelines and principles of ISO 14001 for effective environmental management.

Or

(b) Explain the significance of an environmental policy in an organization's sustainability efforts.

15. (a) Discuss the key aspects involved in reporting and reviewing a Life Cycle Assessment (LCA).

Or

(b) Provide an overview of the development and significance of ISO 14040 in environmental management.

Part C

(5 × 8 = 40)

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

16. (a) Explain the significance of inspection frequency and how it impacts workplace safety.

Or

(b) Discuss the role of follow-up and monitoring in maintaining an effective safety system.

17. (a) Explain the critical post-audit activities and their impact on safety management.

Or

(b) Discuss the importance of evidence reporting in audits and the methods used for documentation.

18. (a) Discuss the key elements of an OH and S policy and its role in workplace safety.

Or

(b) Explain the organizational roles and responsibilities in implementing an effective OH and S system.

19. (a) Outline the key steps involved in implementing ISO 14001 for environmental management.

Or

(b) Explain the significance of clauses 4.1 to 4.5 in ISO 14001 and their implications for organizations.

20. (a) Explain the rules for ecolabelling and their role in promoting environmentally friendly products.

Or

(b) Compare and contrast different types of Environmental Impact Assessments (EIA).

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C–6337

Sub. Code
91052

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and 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. Which sector of the oil and gas industry involves transportation and storage of petroleum products?

   (a) Upstream

   (b) Midstream

   (c) Downstream

   (d) Offshore

2. What type of hazard curve represents failure rates over time?

   (a) Exponential curve

   (b) Gaussian curve

   (c) Bathtub hazard curve

   (d) Linear curve

3. Which risk assessment method is used to systematically identify potential hazards in a process?

(a) HAZOP

(b) FMEA

(c) FTA

(d) Bowtie analysis

4. What mathematical approach is used to model system reliability and failure probability?

(a) Monte Carlo simulation

(b) Markov method

(c) Regression analysis

(d) Weibull distribution

5. Which risk analysis technique uses a top-down approach to identify failure causes?

(a) FMEA

(b) Bowtie analysis

(c) Fault tree analysis

(d) HAZID

6. What is the primary purpose of a safety report in the oil and gas industry?

(a) Legal compliance

(b) Performance evaluation

(c) Incident documentation

(d) All of the above

7. What term defines the condition of being free from unacceptable risk?

(a) Reliability

(b) Safety

(c) Hazard

(d) Vulnerability

8. What type of oil and gas operation occurs in deep waters?

(a) Onshore

(b) Midstream

(c) Offshore

(d) Downstream

9. What term refers to the combination of probability and consequences of hazardous events?

(a) Risk

(b) Hazard

(c) Failure

(d) Vulnerability

10. Which process removes water content from natural gas before transportation?

(a) Condensation

(b) Filtration

(c) Dehydration

(d) Compression

Part B (5 × 5 = 25)

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

11. (a) Explain the key safety challenges in upstream oil and gas operations.

Or

(b) Discuss the major safety concerns in downstream oil and gas operations.

12. (a) Analyze the significance of root cause analysis in preventing oil and gas accidents.

Or

(b) Explain the purpose and process of a HAZOP study in oil and gas operations.

13. (a) Discuss the key safety measures implemented in offshore oil and gas platforms.

Or

(b) Examine the potential consequences of an onshore oil and gas industry incident.

14. (a) Summarize notable oil and gas industry accidents and their causes.

Or

(b) Assess how organizational factors influence safety performance in oil and gas industries.

15. (a) Describe the importance of proper ventilation in oil and gas workplaces.

Or

(b) Illustrate the different types of gas tests performed in oil and gas industries.

Part C

(5 × 8 = 40)

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

16. (a) Analyze the common causes of work injuries in the oil and gas industry and propose preventive measures.

Or

(b) Compare and contrast the safety challenges in onshore and offshore oil and gas operations.

17. (a) Evaluate the role of refresher training in reducing workplace accidents in oil and gas operations.

Or

(b) Discuss the effectiveness of on-the-job training in improving safety performance in the oil and gas industry.

18. (a) Analyze the causes, consequences, and lessons learned from the Piper Alpha accident.

Or

(b) Evaluate the key factors that led to the Glomar Java Sea drillship accident and propose preventive measures.

19. (a) Explain the work permit system in oil and gas industries and its role in accident prevention.

Or

(b) Propose key recommendations to reduce accidents in oil and gas industries based on past incidents.

20. (a) Assess the impact of poor lighting on workplace safety in oil and gas sites.

Or

(b) Discuss the safe storage requirements for flammable liquids in oil and gas facilities.

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C–6338

Sub. Code
91053A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

ENVIRONMENTAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which type of UV rays is most harmful to humans?
   (a) UVA (b) UVB
   (c) UVC (d) Both UVB and UVC

2. What is the primary cause of air pollution in urban areas?
   (a) Deforestation (b) Automobile emissions
   (c) Industrial waste (d) Soil erosion

3. Which gas is responsible for ozone layer depletion?
   (a) CO_2 (b) CH_4
   (c) CFCs (d) N_2O

4. Which pollutant is a major contributor to smog formation?
   (a) CO (b) NOx
   (c) SO_2 (d) O_2

5. What is the full form of CFC?

(a) Chlorine Fluoride Carbon

(b) Chlorofluorocarbon

(c) Carbon Fluoride Compound

(d) Chlorinated Fossil Compound

6. Which is the major cause of water pollution?

(a) Overfishing (b) Industrial discharge

(c) Solar radiation (d) Rock erosion

7. What does the term 'hazard' refer to in environmental safety?

(a) A natural disaster

(b) A potential source of harm

(c) A chemical reaction

(d) A beneficial process

8. Which symbol is used to indicate biohazardous materials?

(a) Radiation symbol

(b) Biohazard symbol

(c) Recycling symbol

(d) Flammable warning sign

9. What is the best method for managing solid waste?

(a) Open dumping

(b) Landfilling

(c) Recycling and composting

(d) Incineration without treatment

10. What is the process of reducing pollutant concentration by adding water called?

(a) Adsorption (b) Filtration

(c) Dilution (d) Sedimentation

Part B (5 × 5 = 25)

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

11. (a) Differentiate between primary and secondary air pollutants with suitable examples.

Or

(b) Explain the major sources of air pollution in urban areas.

12. (a) What are the major health hazards associated with water pollution?

Or

(b) Describe any two common water treatment methods used for industrial wastewater.

13. (a) Define hazardous waste and provide examples of different types.

Or

(b) Explain the key parameters used in the characterization of hazardous waste.

14. (a) What is the purpose of a dust monitor? Explain its working principle.

Or

(b) Describe the role of a gas analyzer in environmental monitoring.

15. (a) Discuss the sources and control measures of pollution in the cement industry.

Or

(b) How does the paper industry contribute to environmental pollution?

Part C

(5 × 8 = 40)

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

16. (a) Explain the formation of ozone holes and their environmental consequences.

Or

(b) Discuss the major pollutants in automobile exhaust and their effects on air quality.

17. (a) Explain the environmental and health impacts of chemical industry waste. How can it be managed effectively?

Or

(b) Describe different methods used for the treatment and disposal of wastewater.

18. (a) Discuss the significance of recycling and reuse in reducing environmental pollution. Provide examples.

Or

(b) What are bioprocess hazards, and how can they be controlled in industrial settings?

19. (a) What are the functions and responsibilities of the Pollution Control Board in regulating environmental pollution?

Or

(b) Explain the working principle of cyclone separators and their role in air pollution control.

20. (a) Explain the characteristics of an eco-friendly industry and provide examples of sustainable industrial practices.

Or

(b) Discuss the sources and environmental impact of pollution from thermal power plants. Suggest pollution control measures.

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C–6339

Sub. Code
91053B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

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 term describes the physical or mental effort exerted to achieve a task?

   (a) Work (b) Energy

   (c) Efficiency (d) Process

2. What term refers to the failure of a machine or process, causing operational disruption?

   (a) Shutdown

   (b) Breakdown

   (c) Defect

   (d) Delay

3. Which field focuses on designing workplaces and tools for human efficiency and comfort?

(a) Automation

(b) Ergonomics

(c) Management

(d) Engineering

4. What concept integrates Productivity, Quality, and Safety in workplace optimization?

(a) TQM

(b) Lean Manufacturing

(c) PQS

(d) Kaizen

5. Which technology is commonly used to replace humans in hazardous environments?

(a) AI (b) Robots

(c) Automation (d) Sensors

6. What is the essential safety gear used to protect workers from hazards?

(a) Helmets (b) PPE

(c) Uniforms (d) Tools

7. Which PPE protects hands from chemical, thermal, and mechanical hazards?

(a) Apron (b) Gloves

(c) Mask (d) Shield

8. Which protective equipment is used to shield eyes from debris and chemical splashes?

(a) Visor (b) Face mask

(c) Goggles (d) Cap

9. What term defines the standard of excellence required in manufacturing and service industries?

(a) Compliance (b) Perfection

(c) Quality (d) Control

10. What aspect of facility planning ensures optimal arrangement of equipment and workflow?

(a) Structure (b) Layout

(c) Model (d) Map

Part B (5 × 5 = 25)

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

11. (a) Analyze the significance of work content in determining overall efficiency and productivity.

Or

(b) Illustrate how a well-defined work procedure can enhance productivity and reduce errors in a manufacturing process.

12. (a) Discuss the fundamental principles of ergonomics and their relevance in the modern workplace.

Or

(b) Describe the ergonomic considerations in designing workbenches to improve worker efficiency and safety.

13. (a) Examine the importance of personal protection in ensuring workplace safety and reducing occupational hazards.

Or

(b) Differentiate between various types of PPE and their specific applications in industrial environments.

14. (a) Explain the importance of process design in ergonomics and its impact on minimizing worker fatigue.

Or

(b) Assess the key factors involved in instrument selection and design for ergonomic usability.

15. (a) Evaluate the job risk factors associated with poor ergonomic design and inadequate work-study implementation.

Or

(b) Summarize the role of standards in designing an effective man-machine system for improved efficiency.

Part C

(5 × 8 = 40)

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

16. (a) Analyze the interrelationship between productivity, Quality and Safety (PQS) and their collective impact on organizational efficiency.

Or

(b) Explain the fundamental concepts of robotics and their significance in improving workplace automation and efficiency.

17. (a) Examine the physiological aspects of workers and their importance in ergonomic job design to prevent fatigue and injuries.

Or

(b) Analyze the principles of motion economy and how they contribute to the reduction of worker fatigue and improvement of efficiency.

18. (a) Critique the quality parameters of PPE and their role in ensuring worker safety in various industrial environments.

Or

(b) Discuss the key aspects involved in the procurement and testing of PPE to meet industrial safety standards.

19. (a) Analyze different types of workplace hazards and the corresponding preventive measures to mitigate risks.

Or

(b) Evaluate the role of statutory provisions and operator training in ensuring workplace safety and regulatory compliance.

20. (a) Examine the effects of posture strain on worker performance and the ergonomic interventions to minimize its impact.

Or

(b) Analyze the importance of an effective man-machine interface in reducing human errors and improving system performance.

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C–6340

Sub. Code
91053C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

DOCK SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the designated area where ships load and unload cargo?

   (a) Dock (b) Pier

   (c) Port (d) Terminal

2. In which year was the Dock Workers Act enacted?

   (a) 1951 (b) 1986

   (c) 1989 (d) 1990

3. The Marking of Heavy Packages Act was introduced in which year?

   (a) 1986 (b) 1989

   (c) 1951 (d) 2000

4. The Manufactures, Storage, and Import of Hazardous Chemicals Rule was implemented in:

   (a) 1951 (b) 1986

   (c) 1989 (d) 1995

5. What term is used for detachable equipment used in lifting operations?

(a) Loose gear (b) Hatch beam

(c) Derrick (d) Boom

6. Who is responsible for the overall safety of a ship and its crew?

(a) Shipmaster

(b) Port Manager

(c) Dock Supervisor

(d) Cargo Handler

7. What term refers to goods transported via ship?

(a) Docking (b) Cargo

(c) Freight (d) Lashing

8. Which equipment is commonly used for lifting and transporting pallets?

(a) Payloader (b) Top lift truck

(c) Forklift (d) Conveyor

9. Which machine is primarily used for scooping and transporting bulk materials?

(a) Payloader (b) Conveyor

(c) Top lift truck (d) Forklift

10. What type of cargo requires special handling due to its potential risks?

(a) Dry cargo (b) Hazardous cargo

(c) Bulk cargo (d) Containerized cargo

Part B (5 × 5 = 25)

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

11. (a) Describe the key regulations governing Dock Safety in India.

Or

(b) Summarize the history of dock safety and its evolution over time.

12. (a) Classify the different types of cargo ships based on their functionality.

Or

(b) Illustrate the proper handling of hatch beams to prevent accidents.

13. (a) Explain the importance of regular inspection and maintenance of lifting appliances.

Or

(b) Describe the hazards and preventive measures in container handling.

14. (a) Identify the different transport equipment used in docks and their specific applications.

Or

(b) Differentiate between various lifting equipment and their safety considerations.

15. (a) Analyze the causes and preventive measures for fire and explosion hazards in docks.

Or

(b) Examine the consequences of collapse of lifting appliances and suggest preventive actions.

Part C (5 × 8 = 40)

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

16. (a) Explain the role and functions of the Dock Labour Board in ensuring worker welfare.

Or

(b) Discuss the key dock safety responsibilities of employers, workers and authorities.

17. (a) Compare the working principles, safety measures, and uses of lift trucks and pay loaders.

Or

(b) Classify the different types of hazardous cargo and outline the risks involved.

18. (a) Examine the importance of wire rope chains in lifting operations and their maintenance requirements.

Or

(b) Illustrate the function and operational safety guidelines for transtainers in cargo handling.

19. (a) Classify the types of cargo handled at docks and their respective safety requirements.

Or

(b) Describe the systematic process of loading and unloading cargo with an emphasis on safety protocols.

20. (a) Examine the key provisions of the Dock Worker Rule 1990 and its impact on worker safety.

Or

(b) Explain the role of conveyors and dock railways in efficient and safe dock operations.

C–6341

Sub. Code
91054A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN TEXTILE INDUSTRY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which spinning method is widely used for producing coarse and medium-count yarns?

   (a) Ring Spinning (b) Rotor Spinning

   (c) Air Jet Spinning (d) Friction Spinning

2. Which process improves fiber alignment before spinning?

   (a) Combing (b) Drawing

   (c) Scouring (d) Warping

3. What process is used to apply adhesive to warp yarns to improve weaving efficiency?

   (a) Dyeing (b) Sizing

   (c) Bleaching (d) Warping

4. What is the name of the area where weaving machines are installed in a textile mill?

   (a) Loom Shed (b) Combing Unit

   (c) Drawing Section (d) Effluent Treatment Plant

5. Which process is used to apply color to textile materials?

(a) Bleaching (b) Dyeing

(c) Scouring (d) Sizing

6. What term refers to a technique used in textile processing for adjusting fabric dimensions?

(a) Punting (b) Warping

(c) Drawing (d) Combing

7. Which fabric type is made without weaving or knitting?

(a) Combed (b) Non-wovens

(c) Mercerized (d) Worsted

8. What term describes risks that arise due to unsafe working conditions in textile industries?

(a) Noise Pollution

(b) Effluent

(c) Occupational Hazard

(d) Waste Disposal

9. What should be implemented to reduce risks in textile industries?

(a) Effluent (b) Precaution

(c) Sizing (d) Warping

10. What process aligns yarns parallel, to each other before weaving?

(a) Knitting (b) Dyeing

(c) Warping (d) Sizing

Part B (5 × 5 = 25)

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

11. (a) Explain the safety precautions required in short staple spinning to minimize accidents.

Or

(b) Identify different types of accident hazards commonly found in the textile industry.

12. (a) Examine the major transportation hazards in textile industries and propose mitigation measures.

Or

(b) Analyze the risks associated with steam hazards in textile plants and recommend preventive measures.

13. (a) Summarize the safety guidelines for handling chemicals in the scouring process.

Or

(b) Evaluate the impact of effluents in textiles on worker health and the environment.

14. (a) List the effects of dust hazards in the textile industry and suggest preventive measures.

Or

(b) Assess the consequences of noise hazards in textile industries and methods to control them.

15. (a) Interpret the provisions of the Factory Act relevant to ensuring worker safety in textile units.

Or

(b) Summarize the major rules applicable to the textile industry regarding industrial safety.

Part C ($5 \times 8 = 40$)

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

16. (a) Explain the different spinning methods used in textile manufacturing and their associated hazards.

Or

(b) Analyze the environmental and health risks associated with Viscose Rayon production and suggest control measures.

17. (a) Discuss the common hazards associated with shuttle looms and how they can be mitigated.

Or

(b) Illustrate the sizing process in the textile industry and the occupational risks involved.

18. (a) Define punting in the textile industry and analyze its potential risks to workers.

Or

(b) Explain the safety hazards associated with dyeing processes and suggest ways to minimize risks.

19. (a) Analyze the role of a safe work environment in preventing occupational diseases in textile industries.

Or

(b) Discuss various precautionary measures that can be taken to prevent textile-related hazards.

20. (a) Explain the significance of effluent treatment in textile industries and its role in environmental protection.

Or

(b) Propose sustainable methods for the safe disposal of waste in textile industries.

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C–6342

Sub. Code
91054B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN MINES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Where are mining vehicles typically maintained?
   (a) Warehouse (b) Garage
   (c) Workshop (d) Pit

2. What is a major health hazard in mines due to airborne particles?
   (a) Smoke (b) Vapors
   (c) Dust (d) Fumes

3. What process is used to remove accumulated water from mines?
   (a) Draining (b) Filtering
   (c) Pumping (d) Absorbing

4. What is the primary goal of mining regulations?
   (a) Productivity (b) Safety
   (c) Profit (d) Expansion

5. What is the most common cause of injuries in underground mining?

(a) Slipping (b) Equipment failure

(c) Fall (d) Electrical shocks

6. What is a major hazard caused by combustible materials in mines?

(a) Explosion (b) Fire

(c) Toxic fumes (d) Overheating

7. What mining hazard occurs due to excessive water accumulation?

(a) Landslide (b) Flooding

(c) Cave-in (d) Erosion

8. What technology is used to detect gas leaks in mines?

(a) Probes (b) Alarms

(c) Sensors (d) Drones

9. What technique is used to analyze the root cause of accidents?

(a) Safety chart (b) Incident log

(c) Fault tree (d) Hazard mapping

10. What systematic review ensures compliance with safety standards?

(a) Risk analysis (b) Training program

(c) Safety audit (d) Monitoring system

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain the safety precautions required while operating a belt conveyor in mines.

Or

(b) Describe the potential hazards associated with drilling in underground mines.

12. (a) What are the primary causes of fall of roof incidents in mines and how can they be prevented?

Or

(b) Analyze the effect of gas accumulation in mines and its impact on worker safety.

13. (a) Identify the major tunnelling hazards in mining operations and suggest safety measures.

Or

(b) Explain the mechanisms leading to ground collapse and how it can be controlled.

14. (a) Explain the steps involved in risk assessment for underground mining operations.

Or

(b) How do we evaluate the hazard potential of different mining activities?

15. (a) How are mining accidents classified under accident classification systems?

Or

(b) What methods are commonly used for analysis of mine accidents and near-miss incidents?

Part C $(5 \times 8 = 40)$

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

16. (a) Explain the fundamental principles of safety management in mining operations and their impact on worker protection.

Or

(b) Discuss the best practices for explosive handling in mines and the potential risks involved.

17. (a) Explain the risks associated with transportation of materials and personnel in mines and how they can be minimized.

Or

(b) Describe the wining process in mining and its associated safety concerns.

18. (a) Discuss the advantages and risks of using a pneumatic tool in mining operations.

Or

(b) How does ventilation impact air quality and safety in underground mines?

19. (a) How does a fuzzy model risk assessment improve decision-making in mining safety?

Or

(b) Discuss the significance of a quantitative structure approach in mine risk assessment and safety analysis.

20. (a) How do you evaluate the cost of accident in a mining operation and what factors influence it?

Or

(b) What are the key components of emergency preparedness in mining, and how do they ensure worker safety?

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C–6343

Sub. Code
91054C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

TRANSPORTATION SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. What represents a warning or instruction in transportation safety?

   (a) Symbol (b) Marking

   (c) Letter (d) Tag

2. Which vehicle is primarily used for transporting goods over long distances?

   (a) Car (b) Bike

   (c) Truck (d) Van

3. What is another term for a company or individual responsible for transporting goods?

   (a) Supplier (b) Carrier

   (c) Manufacturer (d) Retailer

4. What is the primary load transported by commercial trucks?

(a) Passengers (b) Goods

(c) Documents (d) Water

5. What type of vehicle is used for transporting petroleum products?

(a) Dump truck (b) Oil tanker

(c) Crane (d) Excavator

6. Which type of hazardous material requires special handling during transport?

(a) Wood (b) Chemical

(c) Paper (d) Plastic

7. What warning sign is used for infectious substances?

(a) Corrosive (b) Bio-Tlazard

(c) Flammable (d) Explosive

8. What is required to legally operate a commercial transport vehicle?

(a) Passport (b) License

(c) ID card (d) Ticket

9. What protects vehicle owners from financial losses due to accidents?

(a) Warranty (b) Loan

(c) Insurance (d) Tax

10. What road structure is used to reduce vehicle speed in safety zones?

(a) Pothole (b) Speed breaker

(c) Traffic signal (d) Pedestrian lane

Section B (5 × 5 = 25)

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

11. (a) What is the purpose of a TREM card in hazardous material transportation?

Or

(b) How does driver training contribute to reducing road accidents?

12. (a) Why is preventative maintenance essential for transportation safety?

Or

(b) What are some effective strategies for improving safety on the road?

13. (a) How does a driver safety program help in reducing transportation risks?

Or

(b) What are the essential components of an effective driver training program?

14. (a) How does road alignment affect vehicle movement and safety?

Or

(b) What is a ruling gradient, and how does it influence transportation safety?

15. (a) What safety measures should be followed in shop floor transportation?

Or

(b) What precautions should be taken to ensure safety in manual handling?

Section C (5 × 8 = 40)

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

16. (a) Explain the importance of warning symbols in transportation safety.

Or

(b) How does the design of tanker trucks enhance safety in hazardous material transport?

17. (a) How does motor vehicle insurance contribute to risk management in transportation?

Or

(b) Explain the operational requirements and challenges of motor truck usage.

18. (a) Analyze the factors affecting fleet accident frequency and suggest preventive measures.

Or

(b) What are the essential steps in accident reporting, and why is it important?

19. (a) Discuss key safety practices that should be followed in commercial transportation.

Or

(b) How do sight conditions affect driver performance and road safety?

20. (a) What precautions should be taken during grease rack operation for vehicle maintenance?

Or

(b) Discuss the risks associated with gasoline handling and safety measures to mitigate them.

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C–6344	Sub. Code
	91055A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY MANAGEMENT SYSTEMS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the primary goal of workplace safety?
   (a) Profit maximization
   (b) Safety
   (c) Product quality
   (d) Customer satisfaction

2. The likelihood of an accident occurring in a workplace is called?
   (a) Hazard (b) Injury
   (c) Risk (d) Prevention

3. What protects workers from workplace hazards?
   (a) First aid kit (b) PPE
   (c) Fire extinguisher (d) Work permit

4. An organization that represents employees' interests is called?
   (a) Employer association
   (b) Trade union
   (c) Government body
   (d) HR department

5. A systematic evaluation of an employee' s performance is called?

(a) Promotion (b) Appraisal

(c) Compensation (d) Increment

6. A reward given to employees to encourage safety is called?

(a) Incentive (b) Penalty

(c) Salary (d) Overtime

7. What is provided to employees in case of workplace injury?

(a) Allowance (b) Incentive

(c) Compensation (d) Suspension

8. A short safety meeting before work begins is called?

(a) Job briefing (b) Toolbox

(c) Orientation (d) Workshop

9. Which standard is used for occupational health and safety management?

(a) ISO 9001 (b) OSHAS 18001

(c) IS 45001 (d) OSHA 2000

10. A system used for managing and analyzing safety-related data is?

(a) ERP (b) MIS

(c) CRM (d) Database

Part B (5 × 5 = 25)

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

11. (a) Explain the importance of implementing a safety management system in an organization.

Or

(b) Describe the key components and significance of OSHAS in workplace safety.

12. (a) Outline the essential elements of an effective safety policy in an organization.

Or

(b) How does safety responsibility cascade down the organization and why is it important?

13. (a) Discuss the factors that should be considered while assessing the need for safety training.

Or

(b) Describe the objectives and benefits of an in-plant safety training program.

14. (a) How does employee participation enhance workplace safety management?

Or

(b) Summarize the history of trade unions in India and their impact on workers' rights.

15. (a) What strategies can be implemented for the effective promotion of safety within an organization?

Or

(b) Analyze how organizational behavior influences workplace safety performance.

Part C (5 × 8 = 40)

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

16. (a) Compare and contrast different theories of accidents and their relevance in workplace safety.

Or

(b) Explain the social cost of accidents and how it impacts organizations and society.

17. (a) Analyze different modes of communication and their effectiveness in safety management.

Or

(b) How do different organizational structures influence safety policies and implementation?

18. (a) What are the key responsibilities of a training manager in workplace safety programs?

Or

(b) Discuss the role of a supervisor in enforcing safety measures and ensuring compliance.

19. (a) How do performance appraisals contribute to workplace safety improvements?

Or

(b) Evaluate the effectiveness of safety incentives in reducing workplace accidents.

20. (a) What are the major ethical issues in workplace safety and how should they be addressed?

Or

(b) Explain the role of management in the functioning and success of the safety department.

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C–6345	Sub. Code 91055B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN FIREWORKS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which chemical is commonly used as an oxidizer in fire works?

   (a) Sodium Nitrate

   (b) Potassium Nitrate

   (c) Lead Oxide

   (d) Ferric Oxide

2. Which chemical is highly reactive and used in explosives but requires careful handling?

   (a) Ammonium Nitrate

   (b) Sodium Chlorate

   (c) Potassium Chlorate

   (d) Calcium Carbonate

3. Which compound is responsible for producing green-colored flames in fireworks?

(a) Strontium Nitrate

(b) Barium Nitrate

(c) Potassium Perchlorate

(d) Aluminium Powder

4. Which nitrate compound is used in pyrotechnics for producing orange flames?

(a) Barium Nitrate

(b) Sodium Nitrate

(c) Calcium Nitrate

(d) Magnesium Nitrate

5. Which element is commonly used in fireworks to increase combustibility and sustain ignition?

(a) Zinc

(b) Sulphur

(c) Iron

(d) Copper

6. What process involves securely attaching the ignition mechanism in fireworks?

(a) Fuse cutting

(b) Fuse fixing

(c) Chemical mixing

(d) Packing

7. Which acid is highly corrosive and used in manufacturing explosives and fireworks?

(a) Sulfuric acid

(b) Nitric Acid

(c) Hydrochloric Acid

(d) Acetic Acid

8. What is the correct method for disposing of expired or defective fireworks.?

(a) Open burning

(b) Chemical neutralization

(c) Disposal

(d) Burying

9. Where are fireworks legally sold to customers?

(a) Firework factory

(b) Warehouse

(c) Sales outlet

(d) Residential area

10. What safety equipment is essential for workers in fireworks factories?

(a) PPE

(b) Fire hose

(c) Hand sanitizer

(d) None of these

Part B (5 × 5 = 25)

Answer **all** questions, Choosing either (a) or (b)

11. (a) Explain the role of fire properties in determining the safety measures for fireworks.

Or

(b) Compare the use of potassium Nitrate and Potassium Chlorate in fireworks in terms of safety and reactivity.

12. (a) Justify the use of copper plates for earthing in firework manufacturing units.

Or

(b) Evaluate the importance of dress material selection for workers in the fireworks industry.

13. (a) Outline the safety precautions required during the mixing and filling process in a fireworks factory.

Or

(b) Summarize the risks involved in fuse cutting and fixing, and suggest ways to minimize them.

14. (a) Identify key precautions to be followed in the handling of materials in a firework facility.

Or

(b) Explain the purpose of a waste pit in a fireworks factory and its role in hazard mitigation.

15. (a) Define the concept of waste in a fireworks industry and explain its environmental implications.

Or

(b) Classify different types of waste generated in fireworks manufacturing and their disposal methods.

Part C (5 × 8 = 40)

Answer **all** questions, Choosing either (a) or (b)

16. (a) Analyze the impact of frictional sensitivity on the safety of fireworks manufacturing and handling.

Or

(b) Compare the roles of Sulphur and Phosphorus in fireworks composition and their effects on combustion.

17. (a) Discuss effective pollution prevention techniques in the fireworks industry to minimize environmental hazards.

Or

(b) Explain the function of biological barriers in enhancing safety within a fireworks manufacturing unit.

18. (a) Assess the risk associated with different stages of firework production and suggest risk management strategies.

Or

(b) Discuss the importance of selecting appropriate hand tools and materials to ensure workplace safety in fireworks manufacturing.

19. (a) Analyze the risks posed by overhead power lines near firework factories and suggest protective measures.

Or

(b) Examine how driver habits impact the safe transportation of fireworks and materials.

20. (a) Explain the role of emergency services and first responders in managing firework-related accidents.

Or

(b) Discuss the necessity of worker restrictions in firework industries and their impact on safety and productivity.

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C–6346

Sub. Code
91055C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

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. Which term refers to the continuous process of disaster management?

   (a) Hazard Management

   (b) Disaster Cycle

   (c) Risk Mapping

   (d) Crisis Plan

2. What is the most common cause of water-related disasters?

   (a) Earthquake (b) Flood

   (c) Landslide (d) Drought

3. Which natural disaster results from magma eruption?

   (a) Earthquake (b) Tsunami

   (c) Volcano (d) Landslide

4. Which type of storm is characterized by fine particles reducing air quality?

(a) Sandstorm (b) Tornado

(c) Hurricane (d) Dust

5. What is triggered by undersea earthquakes or volcanic eruptions?

(a) Cyclone (b) Tsunami

(c) Flood (d) Landslide

6. What term describes a disease outbreak on a global scale?

(a) Epidemic (b) Pandemic

(c) Endemic (d) Outbreak

7. Which organization assesses climate change and its impacts?

(a) WHO (b) IPCC

(c) UNDP (d) FAO

8. Which field studies long-term atmospheric conditions and their effects?

(a) Meteorology (b) Hydrology

(c) Climatic Science (d) Geography

9. What is the primary goal of disaster management efforts?

(a) Rescue (b) Recovery

(c) Risk Reduction (d) Crisis Response

10. What type of flooding occurs in river channels?

(a) Coastal flooding (b) Pluvial flooding

(c) Fluvial flooding (d) Urban flooding

Part B (5 × 5 = 25)

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

11. (a) Define and classify disasters with suitable examples.

Or

(b) Explain the differences between natural hazards and anthropogenic hazards.

12. (a) Describe the key phases of disaster management and their significance.

Or

(b) Justify the importance of promoting a culture of safety in disaster-prone areas.

13. (a) Identify and explain the key factors that influence disaster vulnerabilities.

Or

(b) Assess the environmental consequences of dam construction.

14. (a) Discuss major vulnerabilities of India concerning different disasters.

Or

(b) List and explain the essential components of disaster relief management.

15. (a) Outline the process and benefits of landslide hazard zonation.

Or

(b) Identify key vulnerabilities of structures and communities to earthquakes.

Part C

(5 × 8 = 40)

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

16. (a) Explain the causes of earthquakes and analyze their impact on human settlements and infrastructure.

Or

(b) Evaluate the social and economic consequences of disasters with relevant case studies.

17. (a) Explain the role and effectiveness of early warning systems in disaster risk reduction.

Or

(b) Assess the role of state disaster management authorities in mitigating and responding to disasters.

18. (a) Examine climate change adaptation strategies and their role in reducing disaster risks.

Or

(b) Discuss how indigenous knowledge contributes to disaster preparedness and resilience.

19. (a) Evaluate the role of Information Technology in disaster monitoring, prediction, and response.

Or

(b) Discuss the key steps involved in disaster risk assessment and their significance.

20. (a) Identify major causes of man-made disasters and suggest mitigation strategies.

Or

(b) Analyze the causes, effects, and mitigation measures for fluvial flooding.

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C–6347

Sub. Code
91032

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Fire and Industrial Safety

INDUSTRIAL SAFETY AND LEAN CONCEPTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is working hour for adult?

2. What is Insurance?

3. Define Hazard Analysis.

4. What is planning?

5. Define Welfare.

6. Define Ergonomics.

7. What is Poor House Keeping?

8. What is Static Electricity?

9. What is POKA YOKE?

10. Define Benchmarking.

Part B (5 × 5 = 25)

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

11. (a) Explain about planning for major emergencies.

Or

(b) Write about the Insurance and compensation for the accident.

12. (a) Write about the causes of Building Collapse and Failure.

Or

(b) Write about safety in storage of hazardous chemical and materials.

13. (a) Brief about the Industrial Toxicology.

Or

(b) Write briefly about the necessity of PPE in Industry.

14. (a) Brief about the Hazards present in confined space.

Or

(b) Brief about Hand tool and portable power tools hazards.

15. (a) Write short notes about WAR Room.

Or

(b) Explain about MUDA principle.

Part C

$(3 \times 10 = 30)$

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

16. (a) Write about Accident Reporting and Investigation.

Or

(b) Write notes about Safety Inspection and Audit.

17. (a) Write notes on Building Design and Fire Protection.

Or

(b) Explain about Machine and Radiation Hazards.

18. (a) Draw and Explain ISHIKAWA Diagram.

Or

(b) Explain about A3 problem solving and Quality circles.

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C–6348

Sub. Code
91033

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Fire and Industrial Safety

SAFETY IN CONSTRUCTION SECTOR

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is decibel?

2. What are the health risks to construction workers?

3. What is fencing and shoring?

4. What is unsafe act and unsafe condition?

5. Define : Road making.

6. Write about cranes used in demolition.

7. What is suspension rope?

8. What is stepladder?

9. Write about circular saw.

10. What is cartridge operated tool?

Part B (5 × 5 = 25)

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

11. (a) Explain in detail about fall protection ppe.

Or

(b) Write about the hazards of toxic fumes.

12. (a) What are the responsibilities of supervisor in construction site?

Or

(b) Explain in detail about guidelines for loading blasting agent.

13. (a) Write about road maintenance.

Or

(b) Explain the reasons for crane failure.

14. (a) How to operate putlog scaffolds?

Or

(b) Write about structural steel works.

15. (a) Write about hazards of hot work.

Or

(b) Write about hazards of compressed air tools.

Part C

$(3 \times 10 = 30)$

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

16. (a) Explain briefly about safe use of portable electrical tools and equipment.

Or

(b) Write about tunnelling in soft ground.

17. (a) Write about Indian explosives act 1984.

Or

(b) Explain the precautions for using during the explosives.

18. (a) Write about shot firing.

Or

(b) How to dispose explosives?

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C–6349

Sub. Code
91034

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Fire and Industrial Safety

EHS LAWS AND ACTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is law? What is rule?

2. How many chapters and sections in factories act 1948?

3. What are the sources of industrial noise?

4. What are the functions of pollution control board?

5. Define : Accident.

6. Write about emergency control center.

7. What are the reasons for boiler accidents?

8. What is SMVP?

9. Write the objectives of OHS.

10. What is ISO?

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain in detail working hours as per factories act 1948.

Or

(b) Write about safety and health chapters of factories act 1948.

12. (a) What is control and abatement of environmental pollution?

Or

(b) Explain in detail about powers of pollution control board.

13. (a) How to prepare the safety reports?

Or

(b) Explain in detail about main sections of MSDS.

14. (a) Explain in detail about Indian boiler act 1923.

Or

(b) What are the main points of pesticides act?

15. (a) Write about features of OSHAS 18000.

Or

(b) Explain in detail about structure of ISO 14000.

Part C

$(3 \times 10 = 30)$

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

16. (a) Explain briefly about hazardous wastes (management and handling) rules.

Or

(b) Write about mines act 1952.

17. (a) What are the duties of works incident controller and works main controller in ERP?

Or

(b) Explain : Air act 1981 and Water act 1974.

18. (a) Write about causes, effects and control measures of water pollution.

Or

(b) Give a brief notes on employment of young person's as per factories act 1948.

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C–6350

Sub. Code
91035

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Fire and Industrial Safety

INCIDENT PREVENTION, CONTROL, INVESTIGATION AND REPORTING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is the purpose of Form No. 18 under the Factories Act 1948?

2. Define "accident" in the context of workplace safety.

3. What are the three main factors considered in the Epidemiological Theory of accident causation?

4. Briefly explain the concept of "Accident Proneness Theory".

5. Give two examples of "Administrative Control" in accident prevention.

6. What is the significance of "Elimination" in the hierarchy of controls?

7. List four key steps involved in accident investigation.

8. What is the purpose of "Fault Tree Analysis" in accident investigation?

9. Define "Man-hours Worked" as per IS 3786:1993.

10. What is the difference between "Partial Disablement" and "Total Disablement"?

Part B (5 × 5 = 25)

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

11. (a) Explain the importance of maintaining accurate accident records in an organization.

Or

(b) Discuss the role of government agencies in ensuring workplace safety through accident reporting.

12. (a) Describe the Energy Transfer Theory of accident causation with examples.

Or

(b) Explain the Multi-Causation Theory and its relevance in understanding complex accidents.

13. (a) Discuss the factors to consider when selecting appropriate Personal Protective Equipment (PPE) for workers.

Or

(b) Explain the concept of "Substitution" in accident prevention with relevant examples.

14. (a) Describe the "Change Analysis" method used in accident investigation.

Or

(b) Explain the "Event Tree Analysis" technique and its application in accident prevention.

15. (a) Discuss the concept of "Scheduled Charges" for disabilities as per IS 3786:1993.

Or

(b) A worker suffers an injury that results in 10 days away from work. Classify this injury according to IS 3786: 1993.

Part C (3 × 10 = 30)

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

16. (a) Analyse the ethical considerations involved in accident reporting and investigation.

Or

(b) Compare and contrast the Systems Theory and the Behavioural Theory of accident causation.

17. (a) Develop a comprehensive accident prevention program for a construction site, incorporating elements from all levels of the hierarchy of controls.

Or

(b) Discuss the role of safety training and education in promoting a positive safety culture within an organization.

18. (a) Explain how the "Sequential Timed Events Plotting (STEP)" method can be used to reconstruct the sequence of events leading to an accident.

Or

(b) Analyse the challenges in accurately calculating "Days of Disablement" and discuss how these challenges can affect the reliability of Severity Rates.

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C–6351

Sub. Code
91042

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Fire and Industrial Safety

FIRE DESIGN ENGINEERING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define fire.

2. What is Flash point?

3. What is a fire extinguisher?

4. Define fire load.

5. List out types of detecting devices in fire alarm systems.

6. Explain about Fire Ball.

7. Define fire hydrant monitor system.

8. What is NBC?

9. Classify the types of exits.

10. Explain about Manual call point.

Part B (5 × 5 = 25)

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

11. (a) Explain about Fire Fighting Techniques.

Or

(b) What is fire triangle, tetrahedron and pentagon?

12. (a) How to install fire extinguisher and it procedure for fixing?

Or

(b) Discuss about the maintenance checklist required for checking fire extinguisher.

13. (a) Explain in detail about Smoke and Heat detectors.

Or

(b) Explain in details about inspection, testing and maintenance of fire alarm systems.

14. (a) Explain about installations of fire pump room.

Or

(b) Write about underground and terrace water tanks in fire hydrant systems.

15. (a) Explain the testing and maintenance procedure needed for Fire Alarm system.

Or

(b) Write short note on fire escape and stairs in detail.

Part C

(3 × 10 = 30)

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

16. (a) Explain about the installation of Clean agent suppression system?

Or

(b) Explain in details about fire extinguisher maintenance as per BIS 2190.

17. (a) Explain in detail about fire alarm systems and emergency lightings.

Or

(b) Write short notes on fire safety in temporary occupancies.

18. (a) Explain in detail about fire sprinkler system with types.

Or

(b) Write short note on installation of MCP.

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C–6352

Sub. Code
91043

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fourth Semester

Fire and Industrial Safety

PROCESS SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Process Safety Management?

2. Define LEL and UEL.

3. Write the limitations of PHA.

4. Who need safety training?

5. Define Mechanical Integrity.

6. What is Quality Assurance?

7. What is Incident?

8. What incident should be investigated?

9. What is Hot work?

10. Define Trade secret.

Part B (5 × 5 = 25)

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

11. (a) What are the 14 elements of PSM?

Or

(b) Write about Process Safety Hazards.

12. (a) Explain the elements of operating procedure.

Or

(b) Write about Failure Mode and Effect Analysis.

13. (a) How accidents will be documented?

Or

(b) Explain the role of safety committee.

14. (a) Write the disadvantages of calculation of accident indices.

Or

(b) Explain Frequency Severity Incidence.

15. (a) Write about safety campaign.

Or

(b) Explain the methods of promoting safety.

Part C

(3 × 10 = 30)

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

16. (a) Write about Disaster Control.

Or

(b) Write the contents of accident investigation report.

17. (a) Explain the principles of Accident Prevention.

Or

(b) What are the documents to be examined during safety audit?

18. (a) What is the role of private consulting agencies in safety training?

Or

(b) Write about ANSI recommended practises for compiling and measuring work injury experience.

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C–6353

Sub. Code
91044

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Fire and Industrial Safety

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write about Risk Ranking.

2. What is Functional Safety?

3. Give the objectives of Risk Assessment.

4. What is PHA?

5. Write the disadvantages of FTA.

6. What is Quantitative Risk Analysis?

7. Define FMECA.

8. What is Intelligent HAZOP?

9. What is explosion?

10. Write the steps of Risk Assessment.

Part B (5 × 5 = 25)

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

11. (a) Write about Safety Instrumentation.

Or

(b) Explain ALARP.

12. (a) Write about PHA preliminaries.

Or

(b) Explain about HAZID and Risk Estimation.

13. (a) Write about layer of protection analysis.

Or

(b) Explain about Computer HAZOP.

14. (a) Write about Checklist Analysis.

Or

(b) Explain about HAZOP Methodology.

15. (a) Write about Electrical Area Classification.

Or

(b) Explain about third party certification of instruments.

Part C

(3 × 10 = 30)

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

16. (a) Explain about SIL Determination Techniques.

Or

(b) Write about automated FMEA concepts.

17. (a) Write about evaluation of plant hazard selection techniques.

Or

(b) Give the comparison of various PHA methods.

18. (a) Write about SIL certification and standards.

Or

(b) Explain about SIL calculation for safety instrument loop.

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C–6354

Sub. Code
91045

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Fire and Industrial Safety

SAFETY INSPECTION AND AUDIT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is safety inspection?
2. Define inspection team.
3. What is safety audit?
4. What is NCR?
5. Define EIA in EMS.
6. What is environmental policy?
7. Define Auditee.
8. What is open meeting in audit?
9. Define safety policy.
10. What is short term action plan?

Part B (5 × 5 = 25)

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

11. (a) Write about importance of workplace inspection.

Or

(b) Explain about

(i) Duration of safety inspection

(ii) Frequency of safety inspection

12. (a) Explain in detail about post audit activities.

Or

(b) What are the background information to be gathered in safety audit?

13. (a) Explain in detail about Documentation requirements in ISO 14001.

Or

(b) Explain about ISO 14020 (Eco-Labelling).

14. (a) Explain in detail about elements of OH&S system.

Or.

(b) Explain about Audit Documents and reports.

15. (a) Write about benefits of audit certification.

Or

(b) Discuss in detail about OH&S policy.

Part C

(3 × 10 = 30)

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

16. (a) Explain in details about safety inspection.

Or

(b) Explain about pre audit, on site audit & post audit activities.

17. (a) Explain in detail about ISO 14001.

Or

(b) Explain in detail about LCA.

18. (a) List out types of records to be examined during the safety audit.

Or

(b) Discuss in details about Correspondence between OHSAS 18001, ISO 14001, ISO 9001.

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C–6355	Sub. Code 91051

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN HIGH HAZARDOUS AREAS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the primary types of hazards found in highly hazardous areas?

2. How is risk assessment conducted in a hazardous environment?

3. What is the role of a safety officer in hazardous areas?

4. What personal protective equipment (PPE) is mandatory in high-risk zones?

5. What are the common procedures for handling hazardous materials?

6. How does one identify and classify the hazardous substance

7. What is the use of oil filled enclosure?

8. What are the standard protocols for responding to chemical spills?

9. How often should safety drills should be conducted in high-hazardous areas?

10. How are emergency evacuation routes established in highly hazardous areas

Part B (5 × 5 = 25)

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

11. (a) Explain about the explosion proof.

Or

(b) Explain the enclosures for various hazardous gases and vapors.

12. (a) Explain the procedure for the classification of hazardous areas.

Or

(b) Explain about the industrial zone classification.

13. (a) Describe the oil-immersed equipment.

Or

(b) Explain about the safety hazards in electrical equipment.

14. (a) Describe the intrinsic safety in the hazardous area.

Or

(b) Describe the explosion-proof enclosures.

15. (a) Explain the intrinsically safe barriers.

Or

(b) Describe the hazardous location.

Part C (3 × 10 = 30)

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

16. (a) Detailed note on the design features of increased safety equipment.

Or

(b) Explain the online monitoring system in highly hazardous areas.

17. (a) Write a note on the International Electro technical Committee.

Or

(b) Explain in detail the structural emission due to failure emission due to gas, vapours, dust, fibres.

18. (a) Give a detailed explanation of faults and hazards in electrical equipment and safety.

Or

(b) Write about the NFPA standards class I, II, III.

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C–6356

Sub. Code
91052

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN OIL AND GAS INDUSTRIES

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is accident?

2. Write the common cause of work injuries.

3. Expand: FMEA, PHA

4. Define: Interface safety analysis.

5. What are the hazards of hot work?

6. Define: Individual factor.

7. What is material handling?

8. What is upstream processing?

9. List out accident occurs in oil and gas industry?

10. What is hydrocarbon release database?

Part B (5 × 5 = 25)

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

11. (a) Write about safety management principles.

Or

(b) Explain: Occupational stress and human error occurrence reasons.

12. (a) Write a short note on HAZOP.

Or

(b) Explain in detail about root cause analysis.

13. (a) Explain the offshore industrial sector risk.

Or

(b) Briefly explain about piper alpha accident.

14. (a) Write a short note on group factors.

Or

(b) Write about oil field fatality analysis.

15. (a) Briefly explain about hydrocarbon release database.

Or

(b) Write short note on danish energy agency.

Part C (3 × 10 = 30)

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

16. (a) Write about consequence of human error and human error classification.

Or

(b) Explain in detail about FMEA.

17. (a) Prepare JSA for confined space.

Or

(b) Explain in detail about

(i) Bohai 2 oil accident

(ii) Alexander- kielland accident

18. (a) Write in detail about factors contributing to accidents in the oil and gas industry.

Or

(b) Explain off shore oil and gas rigs accident analysis.

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C–6357

Sub. Code
91053

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY ASPECTS IN INDUSTRIAL PLANT LAYOUT DESIGN

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define plant layout.
2. What is effluent?
3. What is meant by plant inspection?
4. Expand CNG,LPG.
5. What is facility design?
6. Define: Quantitative models.
7. What is Safety?
8. What is housekeeping?
9. Write about Prime mover.
10. Define material handling.

Part B (5 × 5 = 25)

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

11. (a) Write a note on plant railway lines.

Or

(b) Explain Briefly about thermal power station and metal powders manufacturing

12. (a) Explain the process for Selection of plant location.

Or

(b) Write briefly about eddy current methods.

13. (a) Briefly explain about manufacturing operation.

Or

(b) What a note on facility design and their procedure.

14. (a) Explain the Principles of good ventilation.

Or

(b) Illustrate: Glare and its effect.

15. (a) Write briefly about Team lifting and carrying.

Or

(b) Explain the importance of lubrication.

Part C (3 × 10 = 30)

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

16. (a) Explain in details about Fire hydrant location.

Or

(b) Briefly explain about safe location for Ammonia and chlorine.

17. (a) Write in detail about Warehouse operations and Warehouse function.

Or

(b) Give an Overview about Housekeeping.

18. (a) Explain in details about Computerized layout and analytical methods.

Or

(b) Write in detail about facilities for safe effluent disposal and treatment tanks.

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C–6358

Sub. Code
91054

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN LOGISTICS AND WAREHOUSE SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define logistics.
2. What is the meaning of a warehouse?
3. Define TERM.
4. Write the types of communication.
5. Write any two transport precaution.
6. Define forklift.
7. Write the types of crane.
8. Write a load lift of chain sling.
9. What is fire fighting system?
10. What is Fire load?

Part B (5 × 5 = 25)

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

11. (a) Explain the maximum minimum inventory control system.

Or

(b) Write a note on role of a Warehouse manager.

12. (a) Briefly explain about accident reporting and investigation procedures.

Or

(b) Explain the process of selection of drivers.

13. (a) Briefly explain about safe practices off the road motorized equipment

Or

(b) Write in detail about Gasoline Handling.

14. (a) Explain in details about SWL.

Or

(b) Explain the chain pulley block safety precaution for forklift trucks safety precaution.

15. (a) Write a note on Dow fire and explosion index.

Or

(b) Explain carbon- dioxide flooding system.

Part C

(3 × 10 = 30)

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

16. (a) Give brief note on Warehouse management system.

Or

(b) Explain parking method of tankers on the highways speed of the vehicle.

17. (a) Explain the driving test drivers responsibility.

Or

(b) Explain in detail about EOT and Jib-crane safety precautions.

18. (a) Give an overview about fire detection alarm system.

Or

(b) Briefly explain the process of the installation process of fire extinguisher.

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C–6359

Sub. Code
91055A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN TEXTILE INDUSTRIES

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the types of machine guarding?

2. Define machine guarding.

3. Differentiate between shuttle and shuttles loom.

4. Define loom shed.

5. What are the objectives of bleaching process?

6. What are the two methods of scouring?

7. Define PPE.

8. What are control measures for dust exposure?

9. What is difference between fabric and textile?

10. What is the waste disposal?

Part B (5 × 5 = 25)

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

11. (a) Give short notes on process flow chart of synthetic fibre manufacture.

Or

(b) Give short notes on type of guards and safety precaution of combing & drawing machine in textile industry.

12. (a) Give short notes on causes of accident and safety measures for loom shed.

Or

(b) Give short notes on causes and safety measures for knitting machine in textile industry.

13. (a) Explain in detail about methods of dyeing machine in textile industry.

Or

(b) Give short notes on different types of mechanical finishing operations in textile industry.

14. (a) Give short notes on selection, use, types of PPE using textile industry.

Or

(b) Give short notes on sources, causes, consequence and control measures for noise generated equipment's using textile industry.

15. (a) Give short notes on common physical hazards and control measures in textile industry.

Or

(b) Give short notes on function and importance of textile committee act 1963.

Part C

(3 × 10 = 30)

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

16. (a) Explain in detail about process flow chart of jute spinning process.

Or

(b) Explain the process flow chart of jute fabric manufacture in detail.

17. (a) Explain in detail about causes of accident, safety precaution and guarding of machinery for rotor spinning and winding machine.

Or

(b) Explain in detail about importance and process of waste disposal in textile industry.

18. (a) Explain in detail about effluent treatment process in textile industry.

Or

(b) Explain in detail about causes of accident, safety precaution and guarding of machinery for warping and softening machine.

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C–6360

Sub. Code
91055D

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN AIRPORT AND SHIPYARD

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the fire safety measures to be followed in airports?

2. How is crane operation safety ensured in shipyards?

3. What are the security protocols for cargo handling in airports?

4. How is fall protection implemented in shipyards?

5. What steps are taken to ensure food safety in airport restaurants?

6. How are environmental hazards addressed in shipyards?

7. What are the procedures for managing bomb threats in airports?

8. How is respiratory protection provided in shipyards?

9. What are the guidelines for safe dicing operations in airports?

10. How are ergonomic hazards addressed in shipyards?

Part B (5 × 5 = 25)

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

11. (a) Describe the rules and regulations for workers for health and safety

Or

(b) Explain the manufacture, storage, and import of hazardous chemicals.

12. (a) Explain about safety in chipping and painting.

Or

(b) Describe the internal combustible engines like forklifts.

13. (a) Describe the different types of slings and loose gears.

Or

(b) Explain the different types of lifting appliances.

14. (a) Explain about the examination and inspection of containers.

Or

(b) Explain the stacking and unshackling both on board ships and ashore.

15. (a) Briefly explain the emergency action plans for fire and explosion.

Or

(b) Describe the collapse of lifting appliances and building sheds.

Part C (3 × 10 = 30)

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

16. (a) Detailed notes on the rules and regulations framed under the environmental protection act 1989.

Or

(b) Write about the 16 responsibilities of the port agencies for safety, health and welfare involved in dock work.

17. (a) Write in detail about the safety in handling of hatch beams and hatch covers and its different types.

Or

(b) Explain in detail the types of hazardous cargo.

18. (a) Give a detailed note on safety in the use of self-loading container vehicles.

Or

(b) Write about detail in testing and examination of lifting appliances.

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C–6362

Sub. Code
91061

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Fire and Industrial Safety

SAFETY MANAGEMENT SYSTEMS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is near miss incident?

2. Define cost of accident.

3. Define safety policy.

4. What is group dynamics?

5. What is tool box talk?

6. List out some safety training methods.

7. Mention few safety promotional methods.

8. What is a safety incentive scheme?

9. What is safety Culture?

10. What is Ethical Issues?

Part B (5 × 5 = 25)

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

11. (a) Explain in detail about Budgeting for safety.

Or

(b) Write about role of management in industrial safety.

12. (a) Explain in detail about Barriers & Break downs in communication.

Or

(b) Discuss in detail about safety policy.

13. (a) Explain in detail about training need assessment.

Or

(b) Explain about safety induction training.

14. (a) What is the importance of employee participation in safety?

Or

(b) Explain about safety suggestion schemes.

15. (a) Explain in detail about human factors contributing to accidents.

Or

(b) Explain in detail about safety culture system.

Part C

(3 × 10 = 30)

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

16. (a) Explain in details about authority power and qualification of safety officer.

Or

(b) Explain about theories of accident occurrences.

17. (a) Explain in detail about Toolbox talk with sample report.

Or

(b) Write about role of trade unions in SHE.

18. (a) Explain in details about role of management, supervisor and safety department in motivations.

Or

(b) Discuss in details about Management Information System (MIS).

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C–6365

Sub. Code
91062

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Fire and Industrial Safety

COMPUTER AIDED HAZARD ANALYSIS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define hazards.

2. What is societal risk?

3. Define safety audit.

4. What is shock sensitiveness test?

5. What is pool fire?

6. What is chemical inventory analysis?

7. Define flash point.

8. What is HAZAN?

9. Mention the reason for Bhopal disaster.

10. What is explosion?

Part B (5 × 5 = 25)

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

11. (a) Explain in detail about Human Error analysis.

Or

(b) Write about hazards assessment, procedure and methodology.

12. (a) Explain about Thermo Gravimetric Analyzer (TGA).

Or

(b) What are the safety precautions to be followed during Explosive test?

13. (a) Explain in detail about FTA.

Or

(b) Explain about Reliability Software's on FMEA for mechanical and Electrical systems.

14. (a) Explain about chemical inventory analysis.

Or

(b) Explain about plotting the damage distance on Plot Plant / Layout.

15. (a) Explain in detail about Flix borough disaster.

Or

(b) Explain in detail about Feyzin Disaster.

Part C

(3 × 10 = 30)

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

16. (a) Explain in details about Reaction System Screening Tool (RSST).

Or

(b) Explain about Safety Audit in workplace.

17. (a) Explain in detail about HAZOP.

Or

(b) Write about Fire Explosion & Toxicity Index (FETI).

18. (a) Explain in details about

(i) Heat Radiation Effects.

(ii) BLEVE.

(iii) Pool Fire.

(iv) Jet Fire.

Or

(b) Discuss in details about Bhopal Disaster.

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C–6368

Sub. Code
91063

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Fire and Industrial Safety

BEHAVIOUR BASED SAFETY AND INDUSTRIAL ERGONOMICS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define personality.
2. What is motivation?
3. Define team building.
4. What is group dynamics?
5. What is safety culture?
6. Define BBS.
7. What is ergonomics?
8. Define switch gears.
9. Define personal risk factors.
10. Give a short note of fatigue.

Part B (5 × 5 = 25)

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

11. (a) Explain in detail about Learning & Types of Learners.

Or

(b) Write about motivation and its types.

12. (a) Explain in detail about group decision making techniques.

Or

(b) Discuss in detail about organization structure.

13. (a) Explain in detail about Behaviour based safety.

Or

(b) Explain about critical impact of social comparison feedback.

14. (a) Explain about applications of ergonomic principles in the shop floor.

Or

(b) Explain about principles of motion Economy.

15. (a) Give some guide lines for safe design and safe postures.

Or

(b) Explain in detail about man-machine interface control.

Part C

(3 × 10 = 30)

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

16. (a) Explain in details about learning, types of learners, learning process and learning theories.

Or

(b) Explain about

(i) Group dynamic.

(ii) Team Building.

17. (a) Explain in detail about ABC behaviour modification.

Or

(b) Write about physiology of workers.

18. (a) Explain in detail about body sizes and postures.

Or

(b) Discuss in details about interpersonal perception impression management.

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