C–4778	Sub. Code
	91013

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Fire and Industrial Safety

BASIC OF FIRE SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** the questions.

1. Which of the following should be used to extinguish an electrical fire?

   (a) Fire blanket (b) Dry chemical extinguisher

   (c) CO2 extinguisher (d) All of the above

2. Fire escape plans should include the following

   (a) Predetermined escape route

   (b) A meeting point outside

   (c) Hiding places

   (d) Instructions

3. What is the minimum recommended distance in feet to keep away from a building that is on fire?

   (a) 50 (b) 100

   (c) 150 (d) 200

4. When using a fire extinguisher, what is the recommended distance from which you should start to extinguish the fire?

(a) 2 feet (b) 4 feet

(c) 6 feet (d) 8 feet

5. Portable fire extinguishers should be

(a) Hidden in closets for aesthetic reasons

(b) Placed inaccessible locations

(c) Used as doorstops

(d) Decorated to fit the office decor

6. The main reason for keeping exit routes clear is to

(a) Make cleaning easier

(b) Impress visitors

(c) Ensure a quick and safe evacuation

(d) Comply with decoration policies

7. The best way to deal with electrical fires is to

(a) Pour water on them

(b) Use a standard fire extinguisher

(c) Use a CO2 or dry powder extinguisher

(d) Blow on the fire to extinguish it

8. Smoking in the workplace should be:

(a) Allowed only in designated areas

(b) Encouraged to relieve stress

(c) Performed discreetly

(d) Not restricted

9. Which class of fire involves flammable gases?

(a) Class A (b) Class D

(c) Class C (d) Class B

10. The term 'flashpoint' refers to:

(a) The speed at which fire spreads

(b) The brightness of a fire

(c) The temperature at which materials ignite

(d) The point of origin of a fire

Part B $(5 \times 5 = 25)$

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

11. (a) Briefly discuss the heat transfer methods-conduction and convection.

Or

(b) Define safety. Explore the risks of fire safety.

12. (a) Elaborately discuss the construction of safety helmets.

Or

(b) Shortly, discuss about the fire extinguisher operating methods.

13. (a) What are all the hazards, and explain safety shoes?

Or

(b) Applications and safety measures of piping and valves.

14. (a) Explain the need for and importance of alarm and detection systems in industry.

Or

(b) Write short notes on protective crams.

15. (a) Describe in detail about respiratory protection.

Or

(b) What is hot work? Narrate the storage and transportation of flammable liquid.

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

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

16. (a) Explain the stage of fire and fire point with relevant information.

Or

(b) Mention the types of PPE. Briefly discuss about it.

17. (a) How to protect Head and Eye in industry.

Or

(b) Briefly discuss about the fire extinguisher operating methods and precaution steps.

18. (a) Explore the hand protection methods with the necessary data.

Or

(b) Describe in detail the water flow alarm.

19. (a) Name the detectors. Briefly discuss about heat detectors and smoke detectors.

Or

(b) What is a body suit? Explain in detail about the types of body suits.

20. (a) Explain - oxygen deficiency.

Or

(b) Briefly discuss about special workplace hazards.

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C–4779	Sub. Code 91015

B.Sc. DEGREE EXAMINATION, APRIL 2025.

First Semester

Fire And Industrial

HUMAN RESOURCE MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. _____ is the assessment of an individual's performance in a systematic way.

   (a) Systematic Appraisal

   (b) The 360-Degree Appraisal

   (c) Ranking Appraisal

   (d) Performance Appraisal

2. When an employee is trained for a key position in the organization is called _____?

   (a) leadership development

   (b) replacement planning

   (c) talent management

   (d) Succession Planning

3. When an employee is appraised by all the members of the organization, like superiors, subordinates peers, customers. etc., it is called as?

(a) Employee–Self Assessment

(b) The 360–Degree Appraisal

(c) Performance Appraisal

(d) Ranking Appraisal

4. _____ is the Last stage in Career planning.

(a) resignation (b) resume building

(c) withdrawal (d) negotiation

5. _____is a method of grievance settling in which the parties are allowed to select their own arbitrator.

(a) mediation (b) arbitration

(c) litigation (d) moderation

6. _____is grievance-settling machinery with less legal procedure.

(a) mediation (b) arbitration

(c) litigation (d) moderation

7. The group of employees joined to solve the production related issues is called _____.

(a) internal group

(b) production group

(c) virtual community

(d) quality circle

8. _____ will be done when an employee is suspected to be guilty and has not yet proved.

(a) firing (b) attrition

(c) suspension (d) posting

9. When either the party bargaining is not ready to give up from a particular Point, that Point is called as _____ Point.

(a) grief (b) sticky

(c) barter (d) crucial

10. The list of Demands prepared by the employees at the time of bargaining is called as _____.

(a) charter (b) barter

(c) want (d) promotion

Part B $(5 \times 5 = 25)$

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

11. (a) Explore the roles of Human Resource Development professionals.

Or

(b) Explain in detail about employee behaviour.

12. (a) How to design an effective HRD program?

Or

(b) Briefly discuss about Brainstorming.

13. (a) Explore the impact of HRD programs.

Or

(b) Write short notes on concepts of socialization.

14. (a) Who is an employee? Describe the issues in employee counselling.

Or

(b) Explain the characteristics and elements of management development.

15. (a) Define Retention. Express the concept and policy of retention.

Or

(b) Distinguish expatriate and repatriate support.

Part C (5 × 8 = 40)

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

16. (a) What is HRD? Briefly discuss about the evolution of HRD.

Or

(b) Describe in detail about the external and internal influence.

17. (a) Briefly discuss the HRD process.

Or

(b) Explain the following:

(i) on the oh and

(ii) off the job training.

18. (a) How do you evaluate the HRD program and briefly discuss its methods?

Or

(b) What is career management in HRM? Explain the stages of career management.

19. (a) Why do we need to conduct counselling for the employee? Explore the wellness services.

Or

(b) List the health promotion programs. And briefly discuss the merits and demerits of it.

20. (a) Explore the impact of globalization on HRD.

Or

(b) Briefly discuss the HRD programs for diverse employees.

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C–4780	Sub. Code 91023

B.Sc. DEGREE EXAMINATION, APRIL 2025.

Second Semester

Fire and Industrial Safety

ELECTRICAL AND CHEMICAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. Which law defines the relationship between current, voltage, and resistance in an electrical circuit?

   (a) Faraday's Law (b) Kirchhoffs Law

   (c) Ohm's Law (d) Coulomb's Law

2. What is the most common cause of electrical fires?

   (a) Overloads (b) Short circuits

   (c) Ground faults (d) Lightning strikes

3. Which of the following is a primary electrical hazard?

   (a) Falls from ladders

   (b) Electric shock

   (c) Burns from touching hot surfaces

   (d) Exposure to hazardous chemicals

4. What is the purpose of a lightning arrestor?

(a) To prevent lightning strikes

(b) To attract lightning strikes

(c) To divert lightning strikes to the ground

(d) To store electrical energy from lightning strikes

5. Which of the following is NOT a type of circuit breaker?

(a) Miniature Circuit Breaker (MCB)

(b) Earth Leakage Circuit Breaker (ELCB)

(c) Ground Fault Circuit Interrupter (GFCI)

(d) Residual Current Device (RCD)

6. What is the primary route of entry for most chemicals into the human body?

(a) Inhalation (b) Ingestion

(c) Skin absorption (d) Eye contact

7. What does the "LD50" value of a chemical represent?

(a) The concentration that is lethal to 50% of test animals

(b) The dose that is lethal to 50% of test animals

(c) The level of exposure that is safe for 50% of workers

(d) The time it takes for a chemical to degrade by 50%

8. What does the Globally Harmonized System (GHS) provide?

(a) A standardized system for classifying and labeling chemicals

(b) A list of approved chemicals for industrial use

(c) A set of guidelines for conducting risk assessments

(d) A protocol for emergency response to chemical spills

9. What is "green chemistry"?

(a) The use of plants to produce chemicals

(b) The study of the environmental impact of chemicals

(c) The design of chemical products and processes that minimize the use and generation of hazardous substances

(d) The recycling of chemical waste

10. What is the purpose of a Safety Data Sheet (SDS)?

(a) To provide information about the safe handling, storage, and disposal of a chemical

(b) To list the ingredients of a chemical product

(c) To assess the environmental impact of a chemical

(d) To provide emergency contact information in case of a chemical spill

Part B (5 × 5 = 25)

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

11. (a) Differentiate between current, voltage, and power in an electrical circuit.

Or

(b) Briefly describe the types of electrical faults and their potential hazards.

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

Or

(b) Explain the concept of 'arc flash' and its associated hazards.

13. (a) How do fuses and circuit breakers contribute to electrical safety?

Or

(b) Describe the different types of earthing (grounding) systems and their importance.

14. (a) Identify the main routes of entry for chemicals into the body and factors influencing absorption.

Or

(b) Explain exposure limits (TLVs, PELs) for chemicals and their role in worker protection.

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

Or

(b) Summarize the key principles of "green chemistry" and their importance in reducing hazardous substances.

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

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

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

Or

(b) Discuss the steps involved in providing Cardiopulmonary Resuscitation (CPR) to a victim of electric shock.

17. (a) Explain the concept of ionization and its relevance to electrical hazards like spark and arc flash.

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) Describe the different types of electrical guarding techniques used to prevent accidental contact with live parts.

19. (a) Discuss the different types of information sources used for evaluating chemical hazards, including Safety Data Sheets (SDSs), labels, and regulatory databases.

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) Describe the different types of chemical storage tanks and the specific design considerations for each type to ensure safe storage.

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C–4781

Sub. Code
91025

B.Sc. DEGREE EXAMINATION, APRIL 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. What is the primary function of warehousing?

   (a) Production of goods

   (b) Storage and distribution of goods

   (c) Marketing and sales of goods

   (d) Transportation of goods

2. Which of the following is NOT an issue affecting warehousing?

   (a) Location

   (b) Technology

   (c) Product design

   (d) Inventory management

3. What is the role of inventory in a supply chain?

(a) To increase production costs

(b) To balance supply and demand

(c) To reduce customer satisfaction

(d) To create unnecessary delays

4. Which type of inventory includes raw materials and components used in the production process?

(a) WIP Inventory

(b) Finished Goods Inventory

(c) MRO Inventories

(d) Safety Stock Inventory

5. What is the purpose of a Warehouse Management System (WMS)?

(a) To track employee attendance

(b) To manage financial transactions

(c) To optimize warehouse operations

(d) To design product packaging

6. Which demand system is characterized by independent and unpredictable customer orders?

(a) Dependent Demand System

(b) Independent Demand System

(c) Distribution Resource Planning

(d) Material Requirements Planning

7. What does ABC inventory control prioritize?

(a) All items equally

(b) High-value items

(c) Low-value items

(d) Randomly selected items

8. Which approach considers the entire supply chain network when managing inventory?

(a) Single Echelon Approach

(b) Multi-Echelon Approach

(c) Distribution Requirements Planning

(d) Economic Order Quantity

9. What is the primary goal of material handling systems?

(a) To increase labor costs

(b) To slow down production

(c) To improve efficiency and reduce costs

(d) To create complex processes

10. Which technology uses radio waves to identify and track items?

(a) Bar Coding

(b) RFID

(c) GPS

(d) Bluetooth

Part B (5 × 5 = 25)

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

11. (a) Explain the need for warehousing and the key factors affecting its success.

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) What makes up the 'cost of inventory'? Why do businesses maintain inventory despite these costs?

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

Or

(b) Contrast independent and dependent demand systems in inventory management, with examples.

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

Or

(b) What are multi-echelon inventory systems? Compare their management with single-echelon systems.

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

Or

(b) Explain the basics of Automated Storage and Retrieval Systems (AS/RS). What are their pros and cons?

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) Discuss the emerging trends in warehousing (e.g., automation, sustainability). How are these trends shaping the future of warehousing?

17. (a) Explain the concept of inventory turnover ratio and its importance in assessing inventory performance. What are the factors that influence inventory turnover?

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 perishable inventory. What are the strategies and techniques used to minimize waste and optimize inventory levels for perishable goods?

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–4782	Sub. Code 91033

B.Sc. DEGREE EXAMINATION, APRIL 2025.

Third Semester

Fire and Industrial Safety

CONSTRUCTION SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. Which of the following is a proactive approach to accident prevention in construction?

   (a) Conducting accident investigations

   (b) Implementing a safety management system

   (c) Providing first aid training

   (d) Reporting accidents to regulatory authorities

2. What is the primary purpose of a Job Safety Analysis (JSA)?

   (a) To identify potential hazards and control measures for specific tasks

   (b) To track accident statistics

   (c) To train workers on emergency procedures

   (d) To evaluate the overall safety performance of a project

3. When working in trenches, a ladder or other means of egress must be provided within feet of employees.

(a) 10 (b) 15

(c) 20 (d) 25

4. What is the primary hazard associated with working on contaminated sites?

(a) Falls

(b) Electrocution

(c) Exposure to hazardous materials

(d) Struck-by object

5. A personal fall arrest system should be inspected:

(a) Before each use (b) Weekly

(c) Monthly (d) Annually

6. The maximum allowable slope for a standard ladder is:

(a) 4:1 (b) 3:1

(c) 2:1 (d) 1:1

7. Which of the following is NOT a common type of hoisting crane?

(a) Mobile crane

(b) Tower crane

(c) Scissor lift

(d) Overhead crane

8. Before operating a mobile crane, it is essential to check the:

(a) Outrigger stability

(b) Tire pressure

(c) Swing radius

(d) All of the above

9. Which demolition method is considered the safest and most controlled?

(a) Manual demolition

(b) Mechanical demolition

(c) Explosive demolition

(d) All methods are equally safe

10. Before starting demolition work, it is crucial to obtain:

(a) A demolition permit

(b) A site safety plan

(c) Approval from neighboring property owners

(d) All of the above

Part B $(5 \times 5 = 25)$

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

11. (a) Explain the different types and causes of accidents related to various construction activities.

Or

(b) Explain the concept of 'permit to work' and its importance in ensuring safe construction practices.

12. (a) Describe the safety precautions necessary for tunneling and blasting operations.

Or

(b) Discuss the safety measures for road works and power plant construction projects.

13. (a) Explain the safety considerations involved in working on fragile roofs.

Or

(b) Discuss the importance of safe access and egress in preventing falls from heights.

14. (a) Describe the safe use of builder's hoists, winches, and chain pulley blocks.

Or

(b) Explain the safety precautions to be taken during the operation of mobile cranes and tower cranes.

15. (a) Explain the importance of establishing a safe clearance zone during demolition.

Or

(b) Outline the Indian standards related to safety in demolition work.

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

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

16. (a) Discuss the role of quality assurance in construction safety and how it can be implemented effectively.

Or

(b) Critically analyze the causes of fatal accidents in the construction industry and suggest effective preventive measures.

17. (a) Discuss the hazards associated with the use of falsework and the safety precautions to be taken.

Or

(b) Analyze the safety challenges in handling and disposing of hazardous materials on construction sites.

18. (a) Discuss the use of technology, such as drones and wearable devices, in improving safety for workers at heights.

Or

(b) Analyze the challenges in implementing fall protection measures in small-scale construction projects.

19. (a) Discuss the importance of regular maintenance and inspection of construction machinery in ensuring safety.

Or

(b) Discuss the role of automation and robotics in improving safety in the operation of construction machinery.

20. (a) Explain the importance of communication and coordination among various stakeholders during demolition work.

Or

(b) Discuss the safety considerations involved in the demolition of heritage structures.

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C–4783

Sub. Code
91034

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Fire and Industrial Safety

INCIDENT PREVENTION, CONTROL, INVESTIGATION AND REPORTING

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Accidents are

   (a) Preventable (b) Costly

   (c) Part of life (d) Both (a) and (b)

2. If the factory employs more than 1000 workers, they should appoint qualified ———— to carry out prescribed duties

   (a) Safety officer

   (b) Welfare officer

   (c) Development officer

   (d) None of the above

3. ———————— improves the safety environment in an industry

(a) Reduced noise levels

(b) Good house keeping

(c) Proper material handling system

(d) All of the above

4. Who developed the System theory?

(a) W.H. Heinrich (b) Ferrel

(c) Don Petersen (d) Firenze

5. The term 'Near miss' in an accident means

(a) Just too late to see what happened

(b) Someone could have been injured

(c) Someone was injured and nearly had to go to hospital

(d) Someone was injured and nearly had to take time off work

6. Which control is essential to minimize risks in industries?

(a) Administrative control

(b) Personal protective equipment

(c) Engineering control

(d) Procedural control

7. One of the following is not an objective of accident studies

(a) To evaluate existing design

(b) To compute the financial losses

(c) To study the root cause of accidents

(d) To collect data regarding parking demand

8. A minor accident defines as

(a) An accident where no report is necessary

(b) An accident where no one is injured or the most severe injury only requires first aid

(c) An accident only property damage occurs

(d) None of the above

9. Who may be responsible for accident

(a) Worker

(b) Working condition

(c) Management

(d) All of the above

10. Which is not included in the causes of accidents due to worker

(a) Mischievous behaviour

(b) Poor house keeping

(c) Lack of concentration

(d) Over confidence

Part B $(5 \times 5 = 25)$

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

11. (a) Which types of accidents are required to be reported under the BOCW Act?

Or

(b) State the four types of incident reports.

12. (a) Critically evaluate the validity of the accident proneness theory.

Or

(b) Discuss the role of human factors and ergonomics in understanding accident causation.

13. (a) Differentiate Administrative and engineering control.

Or

(b) Outline the steps involved in conducting a risk assessment.

14. (a) Explain the accident investigation procedure in safety.

Or

(b) Explain the difference between immediate causes and root causes in accident analysis.

15. (a) Discuss the legal and regulatory framework for compensation of workers injured in industrial accidents in India.

Or

(b) Classify industrial accidents and its prevention methods.

Part C (5 × 8 = 40)

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

16. (a) Discuss the potential consequences of ignoring non-reportable accidents.

Or

(b) Choose a recent industrial accident in India and analyse whether the Factories Act provisions were adequately implemented and enforced.

17. (a) Explain the Heinrich's Domino theory with an example.

Or

(b) Write short notes on Birds triangle and accident proneness theory.

18. (a) Outline the key steps involved in designing and implementing effective preventive controls.

Or

(b) Describe how you would implement a safety training program for new employees in a manufacturing facility.

19. (a) Explain the Accident Analysis and Barrier Function (AABF) model and its role in accident prevention.

Or

(b) Explain the steps involved in constructing a fishbone diagram.

20. (a) Point out the factors which increase the incident and severity rate and how to minimize them?

Or

(b) Discuss the impact of industrial injuries on the individual worker, their family and the organization.

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C–4784

Sub. Code
91036

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Fire and Industrial Safety

ORGANIZATIONAL BEHAVIOUR

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** the questions.

1. Management is not
   (a) A pure science
   (b) An art
   (c) Art and science both
   (d) An applied science

2. Which one of the following is not important to management?
   (a) Developing society
   (b) Disciplining employees
   (c) Inculcating creativity
   (d) Integrating various interest groups

3. Leadership is often more associated with
   (a) Planning (b) Consistency
   (c) Paperwork (d) Change

4. A quality not possessed by a leader is
   (a) Paternalistic (b) Delegating
   (c) Motivational (d) Stressful

5. The following is not a limitation of controlling
   (a) difficulty in setting quantitative standards
   (b) resistance from employees
   (c) ensuring order and discipline
   (d) none of the above

6. What is control system?
   (a) Output is controlling by varying input
   (b) Will not regulate the behaviours of other devices using control loops
   (c) A feedback system
   (d) The input is controlled by varying output

7. Factor affects organizational behaviour
   (a) Technology (b) People
   (c) Environment (d) All of the above

8. The essential thing to understand the structure of organization is
   (a) Delegation (b) Process
   (c) Control (d) Modification

9. Examples of environmental stressors are
   (a) Weather
   (b) Traffic
   (c) Financial problem
   (d) Substandard housing

10. Effectiveness relates to
   (a) Doing the right task
   (b) Completing activities
   (c) Achieving goals
   (d) All of the above

Section B (5 × 5 = 25)

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

11. (a) What are the four primary functions of management? Briefly describe each.

Or

(b) Define formal and informal organizations and explain their key characteristics.

12. (a) Define leadership and differentiate between leadership and management.

Or

(b) Differentiate the social and ethical responsibilities of management.

13. (a) Explain the concept of Management Information Systems (MIS) and its role in organizational control.

Or

(b) Discuss the impact of technology on organizational control.

14. (a) Explain the importance and purpose of organizational behaviour.

Or

(b) Explain the difference between individual and group behaviour in an organizational context.

15. (a) Define work stress and discuss its potential causes and consequences.

Or

(b) How can cultural differences impact teamwork and collaboration in international teams?

Section C (5 × 8 = 40)

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

16. (a) Discuss Fayol's 14 principles of management and their relevance in today's organizations.

Or

(b) Describe the concept of managerial roles and provide examples of interpersonal, informational, and decisional roles.

17. (a) Discuss Maslow's hierarchy of needs and its implications for motivating employees.

Or

(b) Discuss the different approaches to CSR and their impact on stakeholders.

18. (a) Discuss the potential challenges in implementing and maintaining effective control systems.

Or

(b) Describe the role of non-financial controls in measuring organizational performance.

19. (a) Is to elaborate on the key responsibilities of management and employees in conflict resolution.

Or

(b) State the five steps for conflict resolution and 4 C's of conflict management.

20. (a) Briefly explain the components of organization effectiveness and 5 strategies to improve them.

Or

(b) Explain the concept of globalization and discuss its impact on international business.

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C–4785	Sub. Code
	91043

B.Sc. DEGREE EXAMINATION, APRIL 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. Essential for good health is
   (a) Environmental cleanliness
   (b) Physical hygiene
   (c) Food
   (d) More than one of the above

2. Which one of the following is an unhealthy habit?
   (a) Sharing food
   (b) Bathing twice a day
   (c) Drinking boiled water
   (d) Eating without washing hand

3. During processing foods can get contaminated because of
   (a) Workers
   (b) Equipment
   (c) Packaging material
   (d) All of the above

4. For what purpose a chemical is added to food?

(a) Degradation (b) Decomposition

(c) Protection (d) Recycling

5. An important source of heat resistant spore forming bacteria is

(a) Air (b) Sewage

(c) Soil (d) Water

6. What is the most common food preservation method?

(a) Freezing (b) Fermentation

(c) Heating (d) Freeze drying

7. Closetridium perfringens poisoning is associated with

(a) Meat products (b) Vegetables

(c) Canned foods (d) Fish products

8. Which of the following is a set of bacterial diseases

(a) Malaria, poliomyelitis, mumps

(b) Mumps, cholera, typhoid

(c) Plaque, leprosy, diphtheria

(d) Measles, tuberculosis, tetanus

9. Widal test is used for the susceptibility of

(a) Typhoid (b) Cholera

(c) Malaria (d) Salmonella enterica

10. HACCP means

(a) Hazard analysis critical control point

(b) Hazard analysis control critical problem

(c) Hazard analysis critical control problem

(d) Hazard analysis control critical point

Part B (5 × 5 = 25)

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

11. (a) Explain why hand hygiene is considered the cornerstone of personal hygiene.

Or

(b) Explain the role of the skin in protecting the body and maintaining health.

12. (a) Describe the three main types of food contamination: biological, chemical, and physical. Provide an example of each.

Or

(b) Explain the concept of the "danger zone" in relation to food storage and handling.

13. (a) List out the causes of food borne diseases and their symptoms.

Or

(b) Explain the diseases caused by bacteria and state its preventive measures.

14. (a) Differentiate the process Blanching and freezing.

Or

(b) Explain the sanitary procedures during food handling.

15. (a) Explain the concept of a Critical Control Point (CCP) and its importance in HACCP.

Or

(b) Discuss the benefits of implementing HACCP in a food business.

Part C (5 × 8 = 40)

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

16. (a) Discuss the role of personal hygiene in public health and community well-being.

Or

(b) Write about

(i) kitchen hygiene

(ii) equipment hygiene

17. (a) Give a short notes on 4 main types of food contamination.

Or

(b) What are the reasons for food poisoning and precautions?

18. (a) Explain the role of public health agencies in controlling and preventing forborne disease outbreaks.

Or

(b) Discuss the challenges in preventing and controlling viral foodborne illnesses compared to bacterial ones.

19. (a) Why is hand washing important in food hygiene? What are the 4C's of food hygiene?

Or

(b) Analyze the food storage temperature zone.

20. (a) State the principles of HACCP and CCP. Compare them.

Or

(b) Discuss the advantages and limitations of using Control Points in a HACCP system.

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	91044

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Fire and Industrial Safety

HAZARD IDENTIFICATION RISK ASSESSMENT AND RISK CONTROL

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** the questions.

1. The main purpose of hazard identification is
   (a) To minimize the effect of a consequence
   (b) For better risk management
   (c) To characterize the adverse effects of toxins
   (d) To reduce the probability of occurrence

2. The data which is not required for hazard identification
   (a) Land use
   (b) Contaminant level
   (c) Affected population
   (d) Estimation of risk

3. Risk management is responsibility of the
   (a) Customer (b) Investor
   (c) Developer (d) Project team

4. What is associated with product risk?
   (a) Control of test item
   (b) Negative consequence
   (c) Non availability of test environment
   (d) Test object

5. A top down method of analysing risk is
   (a) FTA (b) FMEA
   (c) Hazards (d) Damages

6. Which analysis uses the graphical representation of hazards?
   (a) Power model (b) FTA
   (c) FMEA (d) First power model

7. The first step in a risk assessment is
   (a) Record your findings
   (b) Evaluate the risk
   (c) Identify the hazard
   (d) Decide who may be harmed

8. Who is the most likely to be at risk from harm in the work place?
   (a) Customers (b) Full time workers
   (c) Visitors (d) People with disabilities

9. A situation which has the potential to cause damage is called as
   (a) Hazard (b) Risk
   (c) Vulnerability (d) None of the above

10. Bhopal gas tragedy is an example of
   (a) Industrial disaster
   (b) Natural disaster
   (c) Volcanic disaster
   (d) None of the above

Part B (5 × 5 = 25)

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

11. (a) What is ALARP and how is it applied in risk assessment?

Or

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

12. (a) Outline the key benefits of conducting a risk analysis.

Or

(b) How does Cost-Benefit Analysis contribute to decision-making in risk management?

13. (a) Explain the HAZOP methodology.

Or

(b) Illustrate the fault tree analysis with an example.

14. (a) How does monitoring and reviewing contribute to effective risk management?

Or

(b) Compare Quantitative and Qualitative risk assessments.

15. (a) How did the Port Hudson disaster impact safety regulations?

Or

(b) Briefly describe the key lessons learned from the Bhopal disaster.

Part C (5 × 8 = 40)

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

16. (a) Discuss the role of human error analysis in risk management.

Or

(b) Explain the unsafe act and unsafe condition with an incident.

17. (a) Write notes on risk identification and risk analysis.

Or

(b) Elaborate root cause analysis.

18. (a) Point out the twelve safety management system elements which are now adopted in many industries.

Or

(b) Compare FTA and ETA.

19. (a) Explain the process of risk reporting and its importance.

Or

(b) Discuss on the preventive measures in HIRA.

20. (a) Discuss the significance of the Seveso disaster in terms of environmental impact.

Or

(b) Describe Mexico disaster and Flixborough disaster.

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C–4787

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91046

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Fire and Industrial Safety

RETAIL MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Which of the following is NOT a primary function of a retailer?

   (a) Breaking bulk

   (b) Holding inventory

   (c) Manufacturing products

   (d) Providing customer service

2. Retailing as a career offers

   (a) Limited growth opportunities

   (b) Low job satisfaction

   (c) Diverse career paths and potential for advancement

   (d) Predictable work hours and routines

3. The Wheel of Retailing theory suggests that

(a) Retailers tend to evolve from low-cost, low-margin operations to higher-priced, higher-service operations

(b) Retail markets are cyclical, with booms and busts

(c) The success of a retailer depends on its ability to offer the widest variety of products

(d) Retail innovation is driven by technological advancements

4. Which of the following is an example of a non-store retail format?

(a) Department store

(b) Supermarket

(c) E-commerce website

(d) Convenience store

5. The SWOT analysis in retail strategic planning helps to assess

(a) Strengths, Weaknesses, Opportunities and Threats

(b) Sales, Workforce, Operations and Technology

(c) Strategy, Workflows, Organization and Timelines

(d) Sustainability, Welfare, Outreach, and Trends

6. Understanding the consumer decision-making process is crucial for retailers because

(a) It helps them predict economic trends

(b) It guides their product development efforts

(c) It informs their marketing and promotional strategies

(d) It ensures compliance with legal regulations

7. Which factor has significantly contributed to the growth of retail in India

(a) Declining disposable income

(b) Rise of e-commerce

(c) Restrictions on foreign direct investment

(d) Slow urbanization

8. What is a major challenge facing retail development in India?

(a) Lack of consumer demand

(b) Overabundance of skilled labor

(c) Inadequate infrastructure

(d) Excessive government regulation

9. A key challenge for global retailers is

(a) Finding standardized products that appeal to all markets

(b) Adapting to cultural differences and local preferences

(c) Reducing their online presence

(d) Minimizing their supply chain complexity

10. Which of the following is NOT a factor affecting the success of a global retailing strategy

(a) Brand reputation

(b) Local partnerships

(c) Employee turnover

(d) Supply chain efficiency

Part B (5 × 5 = 25)

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

11. (a) Explain the concept of the "marketing-retailer equation" and its significance in the retail industry.

Or

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

12. (a) Explain the Wheel of Retailing theory and how it describes the evolution of retail institutions over time.

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 importance of identifying and understanding consumer needs in retail marketing. How can retailers effectively cater to these needs?

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

Or

(b) Explain the concept of Foreign Direct Investment (FDI) in retail and its impact on the Indian retail sector. What are the challenges and opportunities associated with FDI in retail?

15. (a) What are the key challenges facing global retailers? Discuss the factors that contribute to the success or failure of a global retailing strategy.

Or

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

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

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) Analyze factors influencing the retail environment (technology, economy, socio-cultural trends) and how retailers can leverage them for a competitive advantage.

17. (a) Detail the stages of the retail life cycle and how retailers can overcome challenges at each stage.

Or

(b) Compare and contrast different retail formats in India (department stores, hypermarkets etc.) and analyze their growth factors.

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

Or

(b) Explain different retail pricing strategies (EDLP, high-low, psychological) and their impact on consumer perception and behavior.

19. (a) Discuss challenges facing the Indian retail sector (infrastructure regulations, supply chain) 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 formats disrupting traditional models.

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C–4788

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91032

B.Sc. DEGREE EXAMINATION, APRIL 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 cost of Accident?
2. What is Incentive?
3. Define Hazard Analysis.
4. What is planning?
5. Define Noise.
6. Define Ergonomics.
7. What is Poor House Keeping?
8. What is Static Electricity?
9. What is Leadership?
10. Define Benchmarking.

Part B (5 × 5 = 25)

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

11. (a) Explain about Direct and Indirect Cost of Accident.

Or

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

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

Or

(b) Explain about Non Destructive Testing.

13. (a) Brief about the Ventilation and Lighting in Industry.

Or

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

14. (a) Brief about the Hazards in manual handling.

Or

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

15. (a) Write short notes on 5 s.

Or

(b) Explain about MUDA principle.

Part C (3 × 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 Industrial Hygiene and Welfare Facilities.

18. (a) Draw and Explain ISHIKAWA Diagram.

Or

(b) Explain about KAIZEN.

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C–4789

Sub. Code
91033

B.Sc. DEGREE EXAMINATION, APRIL 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 occupational health?
2. Write about airborne contaminants.
3. What are the uses of soil tests?
4. Write about drilling and blasting.
5. What is hot mix plant?
6. Write the hazards of MEWP.
7. Define : Forklift.
8. Write about crane signals.
9. Write about form work.
10. What is suspended scaffold?

Part B (5 × 5 = 25)

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

11. (a) Explain about lead poisoning.

Or

(b) Write about hand protection ppe.

12. (a) Write about soil types.

Or

(b) Explain in detail about hazards of confined spaces.

13. (a) Write about heating bitumen.

Or

(b) Explain in detail guidelines for using back hoe loader.

14. (a) Explain in detail about placement of concrete.

Or

(b) What are the advantages and disadvantages of trestle scaffolds?

15. (a) Write about static loads.

Or

(b) Explain in detail about treatment of electric shock.

Part C (3 × 10 = 30)

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

16. (a) Explain briefly about electrical installations.

Or

(b) Write about hazards and control measures of welding, grinding and gas cutting.

17. (a) Write about safe use of ladders.

Or

(b) How to secure ladders?

18. (a) Write about traffic management during construction.

Or

(b) Give a brief notes on mucking plant and equipment.

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	91034

B.Sc. DEGREE EXAMINATION, APRIL 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 welfare?
2. Write about employment of young persons.
3. What is bio medical waste?
4. Write about causes of air pollution.
5. What is toxicity?
6. Write the hazards of pesticides.
7. Define: Pressure vessel.
8. Write about hazardous waste.
9. Write about OSHAS.
10. What the structure of ISO 14001?

Part B (5 × 5 = 25)

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

11. (a) Explain about the provisions relating to hazardous processes.

Or

(b) Write the objectives of Tamilnadu factories rules 1950.

12. (a) Write about prevention and control of air pollution.

Or

(b) How to get the no objection certificate from pollution control board?

13. (a) Write the responsibilities of occupier in chemical industry.

Or

(b) How to prepare onsite and offsite emergency plans?

14. (a) Write about gas cylinder rules.

Or

(b) Explain the features of BOCW Act 1996.

15. (a) Write about William – Steiger act 1970.

Or

(b) Write about ANSI.

Part C (3 × 10 = 30)

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

16. (a) Explain briefly about HASAWA 1974.

Or

(b) Write about mines act 1952.

17. (a) Write about main points of potroleum rules.

Or

(b) Explain the electricity act and rules.

18. (a) Write about notification of major accidents.

Or

(b) List any ten hazardous chemicals and toxic chemicals.

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

1. What is the significance of Form No. 14 under the BOCW Act 1996?

2. Differentiate between a disabling injury and a non-disabling injury.

3. What is the core idea behind Heinrich's Industrial Safety Principles?

4. Briefly describe the "Pure Chance Theory" of accident causation.

5. What are the primary objectives of accident prevention and control?

6. Explain the concept of "Engineering Control" with a workplace example.

7. Why is it crucial to analyse the collected evidence and facts during an accident investigation?

8. Mention two advantages of using the "'Barrier Analysis" method.

9. Define "Severity Rate" as per IS 3786:1993.

10. What is meant by "Scheduled Charges for Disabilities"?

Part B $(5 \times 5 = 25)$

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

11. (a) Explain the process of reporting an accident to the government sector.

Or

(b) Discuss the importance of a well-defined accident reporting system within an organization.

12. (a) Describe the "Symptoms Versus Causes Theory" in accident causation.

Or

(b) Explain the "Biased Liability Theory" and its implications.

13. (a) Discuss the role of Personal Protective Equipment (PPE) in minimizing the impact of workplace hazards.

Or

(b) Explain the importance of regular safety inspections and audits in accident prevention.

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

Or

(b) Explain the "Accident Analysis and Barrier Function (AEB)" method.

15. (a) Explain the different classifications of industrial accidents as per IS3786:1993.

Or

(b) A factory employs 500 workers who work an average of 8 hours per day for 250 days a year. During the year, there were 10 accidents resulting in lost time. Calculate the frequency rate of accidents.

Part C $(3 \times 10 = 30)$

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

16. (a) Discuss the legal and ethical responsibilities of employers in ensuring a safe working environment for their employees.

Or

(b) Explain the "SHELL Model" and its application in analysing human error in accidents.

17. (a) Develop a comprehensive strategy for promoting a positive safety culture within a manufacturing organization.

Or

(b) Explain how the "Systematic Cause analysis Technique (SCAT)" can be used to identify the root causes of accidents.

18. (a) "Frequency and Severity Rates, while useful, are not sufficient to provide a complete picture of workplace safety". Discuss this statement and suggest other relevant metrics.

Or

(b) A company had a frequency rate of 5 and a severity rate of 50. Interpret these rates and explain what they indicate about the company's safety performance. What further information would you need to make a more informed assessment?

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B.Sc. DEGREE EXAMINATION, APRIL 2025.

Fourth Semester

Fire and Industrial Safety

FIRE DESIGN ENGINEERING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Why chimney fires are dangerous?
2. Write the legal requirements for fire risk assessment.
3. Is there any danger in dropping a fire extinguisher.
4. What chemical is in fire sprinklers?
5. How do fire hydrants work?
6. Which fire extinguisher used in kitchen?
7. If you discover a fire, what action you should take?
8. How do you know a fire extinguisher is unsafe?
9. Differentiate smoke detector and fire alarm.
10. Name five areas of consideration in designing.

Part B (5 × 5 = 25)

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

11. (a) Classify the level of Fire Hazards.

Or

(b) Write about methods of heat transfer.

12. (a) Write about installation of fire extinguisher.

Or

(b) Give the technical details of sand and water buckets.

13. (a) Write about hydrant fitting methods.

Or

(b) Explain about installation of fire pump room.

14. (a) Why does CO_2 cartridge get cold? Why do CO_2 extinguisher have a horn?

Or

(b) Why does a foam fire suppression system work?

15. (a) How does fire alarm control panel work?

Or

(b) Can smoke alarms be fitted on walls? Can smoke alarms be interconnected wirelessly?

Part C (3 × 10 = 30)

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

16. (a) Write a short note on wiring methods for addressable fire alarm system.

Or

(b) Explain the installation of foam flooding.

17. (a) Write about fire water storage tank specifications.

Or

(b) Explain about NBC classification based on occupancy.

18. (a) Write a short note on installation of MCP.

Or

(b) Write about coding writing in fire panel.

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91043

B.Sc. DEGREE EXAMINATION, APRIL 2025.

Fourth Semester

Fire and Industrial Safety

PROCESS SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What is PHA?
2. Define Process Safety.
3. Write about Process Chemistry.
4. Give the uses of Check list analysis.
5. What is Quality Control.
6. What is audit?
7. Write the types of Incident.
8. What are the contents of internal accident record.
9. Who is contractor and who is client?
10. Write the hazards of hot work?

Part B (5 × 5 = 25)

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

11. (a) Explain the electrical classifications.

Or

(b) Write about maximum intended inventory.

12. (a) Explain about what if analysis.

Or

(b) Give the description of operating procedure.

13. (a) Write about safety training needs.

Or

(b) Differentiate Quality assurance and Quality control.

14. (a) Write about incident investigation questionnaire.

Or

(b) Explain about Trade Secrets.

15. (a) Give the objectives of emergency planning.

Or

(b) Write the duties of work incident controller.

Part C (3 × 10 = 30)

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

16. (a) Explain about Incident investigation methodologies.

Or

(b) Write about Mechanical integrity.

17. (a) Draw and Explain block flow diagram.

Or

(b) Write about relief system design.

18. (a) Explain about Fault Tree Analysis.

Or

(b) Explain the elements of operating procedure.

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91044

B.Sc. DEGREE EXAMINATION, APRIL 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. What is Risk Register?
2. What is Safety Instrumentation?
3. Write about various PHA methods?
4. Define Qualitative Risk Analysis.
5. Write about FMECA Detection.
6. What is Risk Priority Number?
7. Define Computer Hazop?
8. What is layer of protection analysis?
9. Define Safety Life Cycle?
10. Write about electrical area classification?

Part B (5 × 5 = 25)

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

11. (a) Explain Fault Tolerance and Plant Aging.

Or

(b) Write about Functional Safety.

12. (a) Explain about Risk Assessment and Management.

Or

(b) Write about HAZID.

13. (a) Explain about Human Reliability Analysis.

Or

(b) Write about what if analysis.

14. (a) Explain about FMEA methodology,

Or

(b) Write about SIL certifications and standards.

15. (a) Explain about flammable gas detection.

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 plant hazard preliminaries.

Or

(b) Write about FMCEA methodology.

17. (a) Explain about Check List Analysis.

Or

(b) Write about PHA.

18. (a) Explain about safety instrumentation systems.

Or

(b) Write about Quantitative Risk Analysis.

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C–4795

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91045

B.Sc. DEGREE EXAMINATION, APRIL 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 and 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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	91051

B.Sc. DEGREE EXAMINATION, APRIL 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. Write the merits of explosion-proof equipment.
2. Write the functions of online monitoring expert systems.
3. Brief the term NEC.
4. Why hazardous waste management is important?
5. Define corona discharge.
6. Mention the permissible hot spot temperature.
7. Define the term purging.
8. Draw any two safety signs
9. Define electrical spark.
10. What do you mean by ionizing radiation?

Part B (5 × 5 = 25)

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

11. (a) Discuss the classification of hazardous industrial zones.

Or

(b) Discuss the design features of increased safety equipment.

12. (a) Write short notes on 'OSHA'.

Or

(b) Discuss the structural emissions due to failure in detail.

13. (a) Write the description of type 'P' installation in detail.

Or

(b) Discuss the common faults in electrical equipment.

14. (a) Brief the dust ignition proof enclosure.

Or

(b) Write short notes on restricted breathing.

15. (a) Classify barriers and its merits and demerits.

Or

(b) Write short notes on intrinsic safety principle.

Part C (3 × 10 = 30)

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

16. (a) Discuss the types of industrial equipment enclosures for various hazardous gases.

Or

(b) Elaborate on the design regulations for explosion-proof equipment.

17. (a) Discuss the construction and working of oil-immersed equipment.

Or

(b) Discuss the various protection methods in hazardous area in detail.

18. (a) Describe the contents of the NFPA standard in detail.

Or

(b) Discuss the roles and responsibilities of safety officers in the high hazardous area.

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C–4797	Sub. Code
	91052

B.Sc. DEGREE EXAMINATION, APRIL 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. Illustrate the bathtub Hazard curve.
2. Define stress.
3. What is Preliminary hazard analysis?
4. Write short notes on Fault Tree Analysis.
5. What is meant by offshore industry accidents?
6. Write a note on the ocean ranger accident.
7. Organizational factors — discuss shortly.
8. Distinguish group factors and individual factors.
9. What is well control incident database?
10. Define safety management.

Part B (5 × 5 = 25)

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

11. (a) Explain in brief about common causes of work injuries.

Or

(b) Discuss in detail about human error occurrence reasons.

12. (a) Explain hazards and operability analysis.

Or

(b) What is meant by failure mode and effect analysis?

13. (a) Seacrest drillship accident — Explain briefly.

Or

(b) Elaborately discuss about Alexander 1. Kielland accident.

14. (a) Write a note on the categorization of accident causation in the oil industry.

Or

(b) Explain in brief about oil field fatality analysis.

15. (a) Differentiate between onshore and offshore gas industry accidents.

Or

(b) Explain the following :

(i) mitigation and

(ii) lesson learning.

Part C (3 × 10 = 30)

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

16. (a) What are safety management principles? Explain the product safety organization tasks.

Or

(b) Explain in detail about root cause analysis.

17. (a) Elaborately discuss the offshore industry accident reporting approach.

Or

(b) Briefly discuss about the general human factors that affect safety.

18. (a) Explain the following :

(i) Lesson Learning and

(ii) Early Warning.

Or

(b) What general safety measures must be followed in the oil and gas industry?

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C–4798	Sub. Code
	91053

B.Sc. DEGREE EXAMINATION, APRIL 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** the questions.

1. What is the blueprint stage?

2. Identify the uses of treatment tanks.

3. How to select the plant locations?

4. State the importance of plant inspection.

5. Mention the advantages and disadvantages of analytical methods of industrial design.

6. Name the lifting devices.

7. Write the need for exhaust ventilation.

8. What is an employee assignment?

9. What is team lifting and carrying?

10. Shortly discuss slewing mechanisms.

Part B (5 × 5 = 25)

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

11. (a) State the need for and importance of fire service rooms.

Or

(b) Explain in detail about fertilizers.

12. (a) Discuss briefly about the safe location of chemical storage.

Or

(b) Write short notes on Radiography testing.

13. (a) Briefly discuss about CORELAP.

Or

(b) Explain in detail about materials flow analysis.

14. (a) What is hood and duct? Explore its design with relevant information.

Or

(b) What are all the cleaning methods that need to be followed in the working environment?

15. (a) Describe and explain arresting gears.

Or

(b) Explore the applications and importance Alloy chain slings.

Part C (3 × 10 = 30)

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

16. (a) Briefly discuss about Metal Powders Manufacturing.

Or

(b) State the significance, benefits, and limitations of LPG.

17. (a) Explore the following

(i) ALDEP

(ii) TQM.

Or

(b) State and explain the role of preventive maintenance in safety and health.

18. (a) Describe and discuss in detail about the mechanical material handling.

Or

(b) Briefly discuss about the selection of plant location and waste disposal location.

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C–4799	Sub. Code
	91054

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Fire and Industrial Safety

SAFETY IN LOGISTICS AND WAREHOUSE SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. What is a logistics system?

2. Differentiate maximum and minimum inventory control systems.

3. Name two essential slogans for the driver cabin.

4. How to select the drivers?

5. What is safe driving?

6. Write short notes on workers on foot.

7. What are EOT cranes?

8. Shortly discuss about safe working load.

9. What are firewalls?

10. Name the types of portable fire extinguishers.

Part B (5 × 5 = 25)

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

11. (a) Describe and discuss the role of a warehouse manager.

Or

(b) Briefly discuss about logistics system designs.

12. (a) Explain in detail about the driving test driver's responsibility.

Or

(b) Write the need and significance of emergency planning.

13. (a) Discuss briefly about grease rack operation.

Or

(b) State and explain the employee's load with necessary information.

14. (a) Explain the safety precautions for cranes.

Or

(b) Elaborately discuss the chain sling.

15. (a) State and explain the need for and importance of fire alarm systems.

Or

(b) Need and necessity of warehouse safety – discuss briefly.

Part C

$(3 \times 10 = 30)$

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

16. (a) Briefly discuss the need for warehousing management and mention the types of warehouses.

Or

(b) State and explain the motor vehicle transport workers act.

17. (a) Explain the steps involved in servicing and maintenance of equipment.

Or

(b) How to take care of chains and wire rope? Discuss briefly.

18. (a) Briefly discuss about special safety measures for the control of fire.

Or

(b) Describe the following

(i) Role of Warehouse Manager

(ii) Portable Fire Extinguishers.

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C–4800	Sub. Code 91055A

B.Sc. DEGREE EXAMINATION, APRIL 2025.

Fifth Semester

Fire and Industrial Safety

SAFETY IN TEXTILES INDUSTRIES

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define viscose Rayon.
2. Why guarding is required?
3. What are loom sheds?
4. What is non-oven fabric?
5. What is scouring?
6. Write the hazards in bleaching.
7. Outline some remedial measures for noise hazard.
8. Define PPE with examples.
9. Define effluent.
10. How the wastes are disposed in textile industry?

Part B (5 × 5 = 25)

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

11. (a) Write the importance of rotor spinning.

Or

(b) Write a short note on jute fabric manufacturing.

12. (a) Construct the sizing defects and the remedial measures for defeat prevention.

Or

(b) Briefly explain about loom shed.

13. (a) Summarize the hazards involved in dyeing operation.

Or

(b) Explain about batch scouring and contentious scouring.

14. (a) Discuss briefly about control measures.

Or

(b) Write the health hazards related in textile industry related to dust.

15. (a) List out the rules applicable for textile industry.

Or

(b) Write the roles and responsibilities of safety officer.

Part C

$(3 \times 10 = 30)$

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

16. (a) Explain in detail about the safety precaution to be taken while working with flyer frames and ring frames.

Or

(b) Briefly explain about Sizing Process and non-Woven.

17. (a) Model a flow chart representing the stages in textile processing.

Or

(b) Outline the labour welfare facilities.

18. (a) Briefly explain about effluent treatment and waste disposal in textile industry.

Or

(b) Illustrate the risk in weaving and knitting.

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C–4801	Sub. Code
	91055D

B.Sc. DEGREE EXAMINATION, APRIL 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. Define the term competent person.
2. List the responsibilities of port authorities.
3. What do you mean by hazardous cargo?
4. Define electricity management.
5. Mention the types of ropes.
6. What is called stacking?
7. Write the safety precautions for handling forklift truck
8. What are the unsafe acts in transportation?
9. List a few dock workers rules.
10. Define safety report.

Part B (5 × 5 = 25)

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

11. (a) Write short notes on 'Heavy packages act 1951'.

Or

(b) Give a short note on dock worker training.

12. (a) Discuss the safety precautions of IC engines safety in detail.

Or

(b) Discuss the objectives of electricity management.

13. (a) Describe the testing and examinations of lifting appliances.

Or

(b) Write about the construction methods of the rigging of derricks.

14. (a) Discuss the safe handling of portioners and transtainers.

Or

(b) Point out the functions of dock railways.

15. (a) Prepare an emergency action plan for explosions.

Or

(b) Write short notes on the handling of hatch coverings.

Part C (3 × 10 = 30)

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

16. (a) Discuss the history dock safety status in India.

Or

(b) Describe the safety in chipping and painting operations on board ships.

17. (a) Elaborate on the safe storage methods of hazardous goods.

Or

(b) Explain the different types of lifting appliance and its applications.

18. (a) Elaborate on the safe loading and unloading both on board the ship and on shore.

Or

(b) Discuss the features of dock workers regulations 1990.

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C–4802

Sub. Code
91061

B.Sc. DEGREE EXAMINATION, APRIL 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 safety budgeting?
2. Define accident.
3. List out modes of communications.
4. What is safety policy?
5. What is induction training?
6. Define safety education.
7. Write few safety promotional methods.
8. What is a safety suggestion schemes?
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 history of safety management in India.

12. (a) Explain in detail about Haddon's Principles.

Or

(b) Discuss in detail about Effective system of communication for SHE.

13. (a) Explain in detail about modern methods of safety training.

Or

(b) Explain about safety induction training.

14. (a) List out some importance of employee participation in safety.

Or

(b) Explain about modern methods and techniques of safety promotion.

15. (a) Explain in detail about Ethical Issues in safety.

Or

(b) Explain in detail about Psychological aspects of safety.

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 need for safety, legal, Economic and social consideration for safety.

17. (a) Explain in detail about Training methods and strategies.

Or

(b) Explain in detail about history of trade unions in India.

18. (a) Explain in details about Knowledge and responsibility Vis-a-Vis safety performance.

Or

(b) Discuss in details about principles and modals of accident prevention and near miss incidents.

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C–4803

Sub. Code
91062

B.Sc. DEGREE EXAMINATION, APRIL 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. What is hazard monitoring?
2. Define risk estimation.
3. Where we are used Accelerated Rate Calorimeter?
4. Define Safety Audit.
5. What is jet fire?
6. Expand: ETA, FTA, FMEA.
7. Define BLEVE.
8. What is chemical inventor analysis?
9. Mention the reason for Mexico disaster.
10. What is reactor in nuclear power plant?

Part B (5 × 5 = 25)

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

11. (a) Explain in detail about Preliminary Hazards Analysis (PHA).

Or

(b) Write about checklist analysis.

12. (a) Explain about Thermo Calorimeter.

Or

(b) What are the safety precautions to be followed during Explosive test?

13. (a) Explain in detail about ETA.

Or

(b) Explain about Reliability Software's on FMEA for mechanical and Electrical systems.

14. (a) Explain about hazard identification based on the properties of chemicals.

Or

(b) Explain about plotting the damage distance on Plot Plant / Layout.

15. (a) Explain in detail about Mexico Disaster case study.

Or

(b) Explain in detail about Seveso Disaster.

Part C (3 × 10 = 30)

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

16. (a) Explain in details about HAZOP Studies.

Or

(b) Explain about OH & S Audit in workplace.

17. (a) Explain in detail about Differential Scanning Calorimeter (DSC).

Or

(b) Write about FMEA.

18. (a) Explain in details about Logics of consequences analysis.

Or

(b) Discuss in details about Bhopal Disaster.

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C–4804	Sub. Code
	91063

B.Sc. DEGREE EXAMINATION, APRIL 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. What is learning?

2. Define motivation.

3. Define communication.

4. What is group dynamics?

5. What is safety culture?

6. Define observation.

7. What is ergonomics?

8. What is a work bench?

9. Define job risk factors.

10. What the methods are reducing the posture strain?

Part B (5 × 5 = 25)

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

11. (a) Explain in detail about Learning and Types of Learners.

Or

(b) Write about personality and its types.

12. (a) Explain in detail about group decision making techniques.

Or

(b) Discuss in detail about groups in organizations.

13. (a) Explain in detail about seven lessons from behaviour based safety for increasing PPE use.

Or

(b) Explain about addressing ergonomics hazards through behaviour based observation and feedback.

14. (a) Explain about applications of ergonomic principles in the shop floor.

Or

(b) Explain about seating arrangements in work place.

15. (a) Give some guide lines for safe design and safe postures.

Or

(b) Explain in detail about evaluation and methods of reducing posture strain.

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 Formation

(ii) Group Influence.

17. (a) Explain in detail about ABC behaviour model.

Or

(b) Write about organizational behaviour modification.

18. (a) Explain in detail about Man-Machine interface controls and types of controls.

Or

(b) Discuss in details about measurement characteristics and strategies for enhanced performance.

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