C–8073	Sub. Code 70111

M.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Industrial Safety & Hygiene

FIRE DESIGN & INSTALLATIONS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What must be used to confirm the operational readiness of a fire protection system?

   (a) Checklist

   (b) Explosion pentagon

   (c) Flammable

   (d) Detectors

2. What component triggers alarms by detecting the presence of fire?

   (a) Hose reels (b) Warehouse

   (c) ATT (d) Detectors

3. Which fire detection system utilizes infrared radiation to sense flames?

   (a) IR flame (b) CO_2

   (c) Staircase (d) Manual call points

4. What is placed a at building exists to allow manual activation of a fire alarm?

(a) Water

(b) Manual call points

(c) Terrace tank

(d) Explosion pentagon

5. Where is water stored at elevated levels for firefighting purposes?

(a) Terrace tank (b) BLEVE

(c) Sensors (d) Tetrahedron

6. What is the main substance used in most fire suppression Systems?

(a) Chemical (b) Detectors

(c) Water (d) IR flame

7. Which term refers to materials capable of igniting and sustaining a fire?

(a) Flammable (b) Hydrant

(c) Tetrahedron (d) Sensors

8. Which system transports water to the upper floors for fire control?

(a) Staircase

(b) Explosion pentagon

(c) Pumping

(d) Hose reels

9. What is an automatic mechanism for detecting fires through smoke, heat, or flames?

(a) Detectors (b) CO2

(c) BLEVE (d) ATT

10. Which component of fire safety ensures proper material handling and storage?

(a) Chemical (b) Checklist

(c) Refilling (d) IR flame

Part B (5 × 5 = 25)

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

11. (a) Explain the significance of auto-ignition temperature in fire prevention.

Or

(b) Describe the explosion pentagon and its impact on fire hazards.

12. (a) Evaluate the suitability of different fire extinguishers for various fire classes.

Or

(b) Discuss the importance of maintaining a fire extinguisher maintenance record and its key components.

13. (a) Explain the components and working of a fire detection system in a building.

Or

(b) Define a detection zone and explain its role in fire alarm systems.

14. (a) Describe the essential components of a fire fighting installation in a commercial building..

Or

(b) Specify the size requirements for hose reels and discuss their application in firefighting.

15. (a) Explain the requirements and regulations for designing a fire exit in a building.

Or

(b) Assess the fire hazards associated with hot work activities and the necessary safety precautions.

Part C

(5 × 8 = 40)

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

16. (a) Classify different types of fires and the appropriate extinguishing methods for each.

Or

(b) Explain the process of fire load calculation and its importance in fire safety planning.

17. (a) Describe the refilling process of fire extinguishers and their impact on functionality.

Or

(b) Develop a checklist for fire extinguisher inspection and explain its significance.

18. (a) Explain the working mechanism of smoke detectors and their role in early fire detection.

Or

(b) Discuss the advantages and limitations of air Sampling detectors in fire safety systems.

19. (a) Illustrate a hydrant pumping arrangement and explain its operational requirements.

Or

(b) Discuss the importance of hydrant maintenance and service in fire safety management.

20. (a) Define upper and lower explosive limits, and explain their relevance in fire prevention.

Or

(b) Describe the safe handling procedures for flammable liquids to prevent fire hazards.

C–8074	Sub. Code 70112

M.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Industrial Safety and Hygiene

SAFETY EQUIPMENTS AND PPE

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which safety measure helps in reducing fire hazards in industrial settings?

   (a) Protection cream (b) Smoke

   (c) Housekeeping (d) Checklist

2. What helps in preventing the inhalation of toxic fumes?

   (a) Storage (b) Smoke

   (c) Canister (d) Eye

3. Which item stores compressed gases Safely'

   (a) Canister (b) Ventilation

   (c) Machine guard (d) Shoe

4. What prevents entanglement in rotating parts of machinery?

   (a) Storage (b) Machine guard

   (c) Safety net (d) Signboards

5. _____ provides necessary information to alert workers about potential dangers.

(a) Ladder (b) Signboards

(c) Fall arrester (d) Noise

6. A _____ prevents accidental movement of equipment during maintenance.

(a) Checklist (b) Oxygen

(c) Hazard (d) Machine guard

7. Which equipment helps in rescuing a worker in a confined space?

(a) Oxygen (b) Storage

(c) Canister (d) Ventilation

8. What protects a worker's lower limbs from falling objects?

(a) Leg (b) Shoe

(c) Machine guard (d) Protection cream

9. The presence of _____ in the air can cause suffocation in confined spaces.

(a) Oxygen (b) Smoke

(c) Checklist (d) Eye

10. What is an essential practice for keeping the workplace clean and organized?

(a) Hazard (b) Housekeeping

(c) Fall arrester (d) Noise

Part B (5 × 5 = 25)

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

11. (a) Differentiate between various types of eye protection and their uses.

Or

(b) Explain the purpose of an eye wash station and guidelines for proper placement.

12. (a) Classify hand injuries and their preventive measures.

Or

(b) Identify common types of leg injuries and methods of prevention.

13. (a) Explain the role of protective creams in skin safety.

Or

(b) Describe the importance and function of identification labels in PPE.

14. (a) Discuss the significance of respiratory PPE in hazardous work conditions.

Or

(b) Explain the risks associated with oxygen deficiency and preventive measures.

15. (a) Differentiate between active and passive fall protection systems.

Or

(b) Discuss the function of a safety net and its ideal placement in workplaces.

Part C

(5 × 8 = 40)

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

16. (a) Explain the mechanism of hearing and how it can be affected by workplace hazards.

Or

(b) Discuss noise as a workplace hazard and its effects on workers' health.

17. (a) Describe the proper maintenance and care of leg guards for workplace safety.

Or

(b) Explain the factors to consider when selecting hand protection equipment.

18. (a) Discuss the importance of ventilation and proper storage for hazerdous chemicals.

Or

(b) Explain the role of signboards and barricades in ensuring skin protection.

19. (a) Describe the color coding system for canisters and its importance in safety.

Or

(b) Analyze the effects of smoke and fumes on workers and necessary safety measures.

20. (a) Explain the importance of warning signs in fall protection systems and their placement.

Or

(b) Discuss different types of ladders and scaffolding and their applications in construction.

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C–8075	Sub. Code 70113

M.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Industrial Safety and Hygiene

ELECTRICAL AND CHEMICAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What system protects users from electric shock by providing a direct path to the ground?

   (a) Circuit (b) Earthing

   (c) Capacitor (d) Induction

2. What device protects buildings from lightning strikes?

   (a) Lighting rod (b) Overload relay

   (c) Earthing (d) CPR

3. What material prevents unwanted current leakage in electrical devices?

   (a) Transformers (b) Capacitor

   (c) Insulation (d) Earthing

4. What electrical component stores and releases charge?

   (a) Capacitor (b) Circuit

   (c) Transformer (d) Induction

5. What phenomenon generates electricity in a conductor due to a changing magnetic field?

(a) Voltage (b) Transformer

(c) Circuit (d) Induction

6. What law states that voltage is equal to current multiplied by resistance?

(a) Ohms law

(b) Induction

(c) Electrical guarding

(d) Transformer

7. What life-saving technique is used for cardiac emergencies?

(a) Induction (b) CPR

(c) WHMS (d) Electrical guarding

8. What system prevents accidental contact with live electrical parts?

(a) Electrical guarding

(b) Overload relay

(c) WHMS

(d) Insulation

9. What safety label is used for workplace hazardous materials?

(a) CPR (b) CLP Hazard

(c) HAZCHEM (d) WHMS

10. What device protects an electrical system from excessive current?

(a) Overload relay (b) Lighting rod

(c) Insulation (d) Induction

Part B (5 × 5 = 25)

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

11. (a) Classify different types of electrical faults and their effects.

Or

(b) Discuss the causes of electrical overloads and methods to prevent them.

12. (a) Explain the working principle of a lightning arrestor and its importance.

Or

(b) Describe the function of earthing in electrical safety systems.

13. (a) Compare the working mechanisms of fuses and their applications.

Or

(b) Explain the role of a circuit breaker and how it enhances electrical safety.

14. (a) Discuss the objectives and implementation of the Globally Harmonized System (GHS).

Or

(b) Define LD50 and flammable limits, explaining their significance in chemical safety.

15. (a) Interpret the HAZCHEM code and its application in emergency response.

Or

(b) Describe best practices for the general storage of hazardous chemicals to ensure safety.

Part C

(5 × 8 = 40)

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

16. (a) Explain the importance of CPR in electrical shock incidents and outline the steps involved.

Or

(b) Discuss the causes and consequences of arc blasts and methods to prevent them.

17. (a) Explain the effects of electromagnetic forces on electrical components and systems.

Or

(b) Describe the corona effect in electrical transmission and methods to mitigate it.

18. (a) Explain short protection circuits and their role in preventing electrical failures.

Or

(b) Discuss different earthing standards and their importance in electrical safety.

19. (a) Explain atmospheric monitoring techniques and their role in chemical hazard prevention.

Or

(b) Describe the importance of health surveillance for workers handling hazardous chemicals.

20. (a) Discuss the key considerations in the tank design for chemical storage and transport.

Or

(b) Explain risk control measures for handling and storing hazardous chemicals safely.

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C–8076

Sub. Code
70114

M.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Industrial Safety & Hygiene

SAFETY CONCEPTS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. "A group of workers and management that addresses safety issues is called:

   (a) Safety Committee (b) Audit

   (c) Seminar (d) Training

2. A systematic check to evaluate safety compliance is called an:

   (a) Audit (b) Consulting

   (c) Productivity (d) Poster

3. A method to gather employee feedback on safety practices is a:

   (a) Pledge (b) Survey

   (c) Cost (d) Awareness

4. They play a vital role in enforcing safety rules on the floor:

(a) Productivity (b) Consulting

(c) Supervisors (d) Seminar

5. Effective safety management enhances overall: :

(a) Awareness (b) Quality

(c) Survey (d) Incident rate

6. The number of incidents per million man-hours is termed:

(a) Pledge (b) Frequency rate

(c) Audit (d) Competition

7. A verbal or written commitment to safety is called a:

(a) Policy (b) Poster

(c) Pledge (d) Audit .

8. Promoting safety consciousness among workers is referred to as:

(a) Awareness (b) Job safety

(c) Productivity (d) Policy

9. Learning programs to teach safe work methods are termed:

(a) Training (b) Consulting

(c) Seminar (d) Poster

10. Increased safety leads to increased:

(a) Quality (b) Frequency rate

(c) Productivity (d) Survey

Part B (5 × 5 = 25)

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

11. (a) Discuss the components of an effective safety policy in an organization.

Or

(b) Describe how safety surveys are conducted' and interpreted.

12. (a) Evaluate how accident perusal contributes to future prevention strategies.

Or

(b) List the various types of safety records maintained in an industry.

13. (a) Examine the role of departmental accident reports in safety management.

Or

(b) Describe the key elements in documenting accidents accurately.

14. (a) Recommend best practices for compiling injury experience reports.

Or

(b) Distinguish between permanent total disability and other injury types.

15. (a) Analyze the effectiveness of a safety campaign in raising awareness.

Or

(b) Evaluate how a safety incentive scheme motivates employee behavior.

Part C

(5 × 8 = 40)

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

16. (a) Explain how the incident recall technique aids in hazard identification.

Or

(b) Develop a disaster control plan for an industrial plant.

17. (a) Analyze-how audit indications can be effectively implemented for corrective actions.

Or

(b) Discuss the importance of departmental liaison in executing safety plans.

18. (a) Illustrate the domino sequence of an accident with an industrial example.

Or

(b) Assess the functional role of a safety committee in enforcing safety measures.

19. (a) Explain the implications of permanent partial disabilities on employee safety records.

Or

(b) Demonstrate how to calculate key accident indices with hypothetical data.

20. (a) Suggest creative ways to improve safety awareness among workers.

Or

(b) Evaluate the combined impact of motivation and communication on safety behavior.

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C–8077	Sub. Code 70116A

M.Sc. DEGREE EXAMINATION, APRIL 2026.

First Semester

Industrial Safety and Hygiene

ENVIRONMENTAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which industry is known for excessive water usage and dye pollution?

   (a) Oil (b) Steel

   (c) Textile (d) Cement

2. Which industry contributes to leather waste pollution?

   (a) Textile (b) Tanneries

   (c) Paint (d) Ceramic

3. Which symbol warns of infectious medical waste?

   (a) Radioactive (b) Recycle

   (c) Biohazard (d) Flammable

4. Which category does municipal garbage fall under?

   (a) Hazardous waste (b) Liquid waste

   (c) Solid waste (d) Toxic

5. What equipment separates particles from gas streams using vortex action?

(a) Bag filters

(b) Scrubbers

(c) Cyclone separator

(d) Condensers

6. Which framework ensures environmental protection and regulation?

(a) Forest Act (b) Factory Act

(c) Motor Act (d) Pollution law

7. What process in the textile industry causes water pollution?

(a) Bleaching (b) Wearing

(c) Dying (d) Ginning

8. Which term refers to products that have minimal impact on the environment?

(a) Toxic (b) Eco friendly

(c) Recyclable (d) Organic

9. What practice involves using an item more than once before disposal?

(a) Recycle (b) Reuse

(c) Dump (d) Burn

10. Which device removes dust particles from air using fabric filters

(a) Bag filters (b) Cyclone

(c) Vent (d) Condenser

Part B (5 × 5 = 25)

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

11. (a) Describe the key features of clean coal oombustion technology.

Or

(b) Compare the environmental effects of UV and IR radiations.

12. (a) List the major water pollutants found in industrial effluents.

Or

(b) Discuss the health impacts caused by contaminated water.

13. (a) Define bio-hazards and give two real-world examples.

Or

(b) Explain how recycling and reuse help in sustainable waste management.

14. (a) Describe the function and industrial use of gas chromatographs.

Or

(b) Interpret how atomic absorption spectrometry detects metal pollutants.

15. (a) Suggest methods to control waste generated in paper industries.

Or

(b) Propose a waste management strategy for thermal power plains.

Part C

(5 × 8 = 40)

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

16. (a) Explain the causes of ozone layer depletion and suggest preventive measures.

Or

(b) Discuss the health and environmental impact of stack emissions from chemical factories.

17. (a) Evaluate different stages involved in water treatment processes.

Or

(b) Illustrate various methods used for disposal of industrial water pollutants.

18. (a) Describe the dilution process and its application in effluent management.

Or

(b) Compare toxic and radioactive hazards with suitable industrial examples.

19. (a) Analyze the functions and regulatory roles of the Pollution Control Board.

Or

(b) Explain the design and working of cyclone separators with neat sketches.

20. (a) Recommend effective waste control measures for tannery operations.

Or

(b) Justify the need for promoting eco-friendly energy sources in modem industries.

C–8079	Sub. Code 70121

M.Sc. DEGREE EXAMINATION, APRIL 2026

Second Semester

Industrial Safety and Hygiene

CONSTRUCTION SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. A sudden, unplanned event causing injury or damage is called a

   (a) Safety belt

   (b) OSHA

   (c) Accident

   (d) Demolition

2. Narrow underground excavations at construction sites are known as

   (a) Drilling

   (b) Grinding

   (c) Trenches

   (d) Winches

3. The process of tearing down structures is referred to as

(a) Confined spaces

(b) Demolition

(c) Hoisting

(d) Concrete mixer

4. The act of lifting or lowering a load by mechanical means is

(a) Hoisting

(b) First aid

(c) Chain pulley

(d) OSHA

5. A vehicle-mounted lifting device used on site is a

(a) Education

(b) Bridge

(c) Mobile crane

(d) Safety belts

6. Equipment used to move materials in a continuous flow is

(a) Conveyors

(b) Concrete mixer

(c) Drilling

(d) Winches

7. Immediate care given to an injured person is known as

(a) First aid

(b) OSHA

(c) Accident

(d) High rise

8. The regulatory authority for construction safety in the US is

(a) OSHA

(b) Supervision

(c) Winches

(d) Demolition

9. A method of making holes using rotary tools is called

(a) Drilling

(b) Blasting

(c) Chain pulley

(d) Trenches

10. A material removal process using abrasive wheels is

(a) Concrete mixer

(b) Grinding

(c) Hoisting

(d) Education

Part B (5 × 5 = 25)

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

11. (a) Identify the major problems impeding safety in construction projects.

Or

(b) Explain the primary causes of fatal accidents on construction sites.

12. (a) Describe safe excavation practices followed in construction.

Or

(b) Discuss the procedure for proper scaffold inspection.

13. (a) Illustrate how fall protection systems are implemented on-site.

Or

(b) List the measures to ensure safe access-and egress in elevated areas.

14. (a) Summarize safety guidelines for using hoisting cranes.

Or

(b) Differentiate between a builder's hoist and a passenger hoist with examples.

15. (a) Explain safety precautions while handling trusses and girders.

Or

(b) Justify the need for planned and controlled demolitions.

Part C (5 × 8 = 40)

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

16. (a) Assess the role of education and training in improving safety at construction sites.

Or

(b) Explain the importance and components of an effective permit-to-work system.

17. (a) Describe safety procedures to be followed during a blasting operation.

Or

(b) Evaluate the risks and control measures while working on contaminated sites.

18. (a) Discuss the key functions and safety regulations enforced by OSHA.

Or

(b) Compare safety belts and nets in terms of design, function, and effectiveness.

19. (a) Illustrate the safe operation and inspection of chain pulley and bullock systems.

Or

(b) Analyze the role of conveyors in improving construction site safety and efficiency.

20. (a) Identify various fire hazards in construction and propose mitigation strategies.

Or

(b) Examine common health hazards during demolition and ways to minimize them.

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C–8080	Sub. Code 70122

M.Sc. DEGREE EXAMINATION, APRIL 2026

Second Semester

Industrial Safety and Hygiene

EHS LAWS AND ACTS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which law ensures safety, health and welfare of workers in factories?

   (a) Mines Act

   (b) Factories Act

   (c) Petroleum

   (d) Electricity rule

2. Which process involves systematic inspection for compliance?

   (a) Penalties

   (b) Audit

   (c) Standards

   (d) Act

3. What is imposed for non-compliance with EHS laws?

(a) Workers

(b) Onsite

(c) Penalties

(d) Pesticide Act

4. Which plan deals with emergency response at industrial sites?

(a) OSHOS

(b) Act

(c) Onsite

(d) Gas cylinder rules

5. Which act governs storage and handling of flammable liquids?

(a) Petroleum

(b) Water Act

(c) Environment

(d) ANSI

6. Which act regulates the use and sale of harmful agricultural chemicals?

(a) Mines Act

(b) Pesticide Act

(c) ISO

(d) Electricity rule

7. Which body provides workplace safety regulations in the US?

(a) OSHOS

(b) Audit

(c) Workers

(d) Explosives Act

8. Which international body develops EHS management system standards?

(a) Act

(b) ISO

(c) Standards

(d) Penalties

9. Which organization issues safety and industrial standards in the US?

(a) Indian boiler Act

(b) ANSI

(c) Onsite

(d) Factories Act

10. Which legislation governs the health and safety of mine workers?

(a) Workers

(b) Gas cylinder rules

(c) Mines Act

(d) Explosives Act

Part B (5 × 5 = 25)

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

11. (a) List the health-related provisions commonly included in EHS chapters.

Or

(b) Identify important sections under the Tamil Nadu Factory Rule.

12. (a) Summarize the main goals and scope of the Water Act 1974.

Or

(b) Evaluate the importance of audits in environmental control systems.

13. (a) Design an effective offsite emergency plan for hazardous chemical handling.

Or

(b) Analyze the effects of toxic chemicals on human health and the environment.

14. (a) Describe the compliance requirements under the Indian Boiler Act.

Or

(b) Discuss how motor vehicle rules contribute to workplace transport safety.

15. (a) Compare ANSI rules with Indian standards for occupational safety.

Or

(b) Explain the primary objective and benefits of ISO 14000 certification.

Part C (5 × 8 = 40)

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

16. (a) Explain the role of special provisions in ensuring workplace safety.

Or

(b) Evaluate the effectiveness of penalties and procedures in enforcing EHS laws.

17. (a) Analyze the impact of noise pollution rules on industrial operations.

Or

(b) Discuss the objectives and implications of the Batteries Act 2001.

18. (a) Examine the regulations governing the import of hazardous chemicals in India.

Or

(b) Assess the legal responsibilities of an occupier in a hazardous industry.

19. (a) Describe safety protocols under petroleum handling rules.

Or

(b) Evaluate the importance of the Explosives Act in accident prevention.

20. (a) Discuss how ISO 14000 contributes to environmental management systems.

Or

(b) Compare OSHAS 18000 with other occupational health and safety standards.

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C–8081

Sub. Code
70123

M.Sc. DEGREE EXAMINATION, APRIL 2026

Second Semester

Industrial Safety & Hygiene

INDUSTRIAL HYGIENE I :
HAZARD IDENTIFICATION AND ASSESSMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What term refers to the science of preserving health in the workplace?

   (a) Hygiene

   (b) PPE

   (c) HVAC

   (d) BEI

2. What is the basic structural and functional unit of all living organisms?

   (a) Bone

   (b) Muscle

   (c) Cell

   (d) Nerves

3. Which tissue is primarily responsible for movement in the body?

(a) Bone

(b) Muscle

(c) Nerves

(d) Skin

4. What part of the bode supports and protects internal organs?

(a) Lungs

(b) PPE

(c) Cell

(d) Bone

5. Which part of the body transmits electrical signals?

(a) Muscle

(b) Nerves

(c) BEI

(d) Ventilation

6. Which disease is commonly caused by exposure to infected blood or fluids?

(a) Leptospirosis

(b) Hepatitis

(c) HIV

(d) MSD

7. Which virus weakens the immune system and is transmitted through body fluids?

(a) HIV

(b) HVAC

(c) BEI

(d) WRLUD

8. What labeling system is used for identifying hazardous chemicals?

(a) BEI

(b) HAZCHEM

(c) PPE

(d) X-ray

9. What is the abbreviation for injuries caused by repetitive stress to the musculoskeletal system?

(a) WRLUD

(b) PPE

(c) MSD

(d) BEI

10. What is the term for upper limb injuries from repetitive work?

(a) MSD

(b) WRLUD

(c) HTV

(d) X-ray

Part B (5 × 5 = 25)

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

11. (a) Define the purpose and scope of industrial hygiene in a workplace.

Or

(b) Describe the structure and function of a typical human cell.

12. (a) Classify different types of industrial hazards with suitable examples.

Or

(b) Explain how blood-borne diseases are-transmitted in occupational settings

13. (a) Discuss the principles of toxicology and its role in workplace safety.

Or

(b) Identify toxic materials commonly encountered in industries and their effects

14. (a) Explain the steps involved in conducting a risk assessment.

Or

(b) Analyze how environmental and personal factors affect worker performance.

15. (a) Describe the basic methods used in industrial hygiene sampling.

Or

(b) Justify the need for indoor air testing in enclosed workspaces.

Part C (5 × 8 = 40)

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

16. (a) Explain the protective functions of skin in industrial environments

Or

(b) Describe the role of sense organs in detecting workplace hazards.

17. (a) Compare the biological effects of nonionizing radiation with ionizing radiation.

Or

(b) Analyze the causes and physiological effects of thermal stress on workers.

18. (a) Evaluate the health impacts of air toxicity in confined workplaces.

Or

(b) Justify the importance of setting exposure limits for hazardous substances.

19. (a) Explain the development, symptoms, and prevention of carpal tunnel syndrome.

Or

(b) Design a job layout to reduce physical strain and improve productivity.

20. (a) Discuss the role of HVAC systems in maintaining industrial air quality.

Or

(b) Describe procedures for sampling vapors in occupational hygiene surveys.

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C–8082	Sub. Code 70124

M.Sc. DEGREE EXAMINATION, APRIL 2026

Second Semester

Industrial Safety and Hygiene

HAZARDOUS WASTE MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which type of waste typically includes household garbage and construction debris?

   (a) Hazardous

   (b) Solid waste

   (c) Biomedical

   (d) Fly ash

2. Waste that poses a potential threat to human health or the environment is termed as

   (a) Thermal conversion

   (b) Nuclear waste

   (c) Hazardous

   (d) Plastic

3. Waste generated from atomic reactors and nuclear power plants is known as

(a) Nuclear waste

(b) Biomedical

(c) Solid waste

(d) Open dumps

4. A byproduct from coal combustion in thermal power plants is called

(a) Plastic

(b) Fly ash

(c) Reuse

(d) Recycling

5. The process of collecting representative samples of waste for analysis is called

(a) Waste sampling

(b) Labelling

(c) Transport

(d) Reuse

6. The process of converting waste into new products is referred to as

(a) Open dumps

(b) Reuse

(c) Recycling

(d) Solidification

7. Proper _____ is required for identifying hazardous waste containers.

(a) Transport

(b) Solid waste

(c) Labelling

(d) Landfill

8. The movement of waste materials from one site to another is termed as

(a) Landfill closure

(b) Thermal conversion

(c) Transport

(d) Plastic

9. A common method of waste disposal by burying it in the ground is called

(a) Landfill

(b) Solidification

(c) Reuse

(d) TCLP test

10. Which type of waste originates from hospitals and clinics?

(a) Electronic waste

(b) Biomedical

(c) Solid waste

(d) Nuclear waste

Part B (5 × 5 = 25)

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

11. (a) List the different types of solid waste commonly encountered in urban areas.

Or

(b) Identify major sources contributing to hazardous waste in industries.

12. (a) Summarize how waste generation rates vary with population and economic activity.

Or

(b) Describe the typical physical and chemical composition of municipal solid wastes.

13. (a) Explain how waste is handled at its point of origin in residential zones.

Or

(b) Illustrate the process flow of municipal solid waste collection systems.

14. (a) State the main objectives of waste processing in integrated waste management.

Or

(b) Discuss the role of material separation in effective recycling strategies.

15. (a) Compare different disposal options used for managing urban solid waste.

Or

(b) Analyze how landfills contribute to environmental degradation.

Part C (5 × 8 = 40)

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

16. (a) Describe the procedures and challenges in handling municipal solid waste.

Or

(b) Analyze the role of various stakeholders in effective waste management systems.

17. (a) Explain the major hazardous characteristics used for waste classification.

Or

(b) Illustrate the steps and significance of conducting a TCLP test.

18. (a) Propose methods for optimizing waste allocation across treatment and disposal systems.

Or

(b) Evaluate the importance of checking chemical compatibility among hazardous wastes.

19. (a) Discuss the advantages and limitations of incineration as a treatment method.

Or

(b) Compare various technologies used for biomedical waste treatment.

20. (a) Differentiate among the types of landfills based on design and function.

Or

(b) Assess the criteria involved in selecting a suitable site for a landfill.

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C–8083

Sub. Code
70127

M.Sc. DEGREE EXAMINATION, APRIL 2026

Second Semester

Industrial Safety & Hygiene

HOUSEKEEPING MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the primary department responsible for cleanliness and order in facilities?

   (a) Restaurant

   (b) Guest room

   (c) Housekeeping

   (d) Laundry

2. Which industry most closely integrates with housekeeping for customer comfort?

   (a) Pest control

   (b) Hospitality

   (c) Trolley

   (d) Inspection

3. Which facility type offers paid accommodation for travelers?

(a) Lodging

(b) Restaurant

(c) Linen

(d) Security

4. Which activity removes dirt and impurities from surfaces?

(a) Cleaning

(b) Polishes

(c) Pest control

(d) Laundry

5. Which equipment is most commonly used to remove dust from carpets?

(a) Deodorant

(b) Detergent

(c) Vacuum cleaner

(d) Trolley

6. What is a mechanized process used for removing tough dirt from floors?

(a) Linen

(b) Guest room

(c) Floor scrubbing

(d) Security

7. What tool is used by housekeeping staff to transport cleaning supplies?

(a) Trolley

(b) Detergent

(c) Deodorant

(d) Storage

8. Which item is used to neutralize odors and freshen rooms?

(a) Vacuum cleaner

(b) Deodorant

(c) Laundry

(d) Inspection

9. What cleaning agent is used to break down grease and grime?

(a) Pest control

(b) Detergent

(c) Linen

(d) Restaurant

10. Which substance enhances the shine of surfaces and furniture?

(a) Polishes

(b) Cleaning

(c) Guest room

(d) Trolley

Part B (5 × 5 = 25)

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

11. (a) State the importance of housekeeping.

Or

(b) What strategies can be used to handle upset guests professionally?

12. (a) What is a polishing machine? And state the uses of it.

Or

(b) What are deodorants and detergents?

13. (a) State the need to clean guest rooms weekly.

Or

(b) Mention the method of cleaning public restaurants and its significance.

14. (a) How to handle guest laundry?

Or

(b) Write short notes on laundry work.

15. (a) Identify the best method for preventing theft in hospitality.

Or

(b) Describe the steps involved in creating security controls in workplace safety.

Part C

(5 × 8 = 40)

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

16. (a) Briefly discuss the hospitality industry and state its significance.

Or

(b) Describe the duties and responsibilities of housekeeping employees.

17. (a) Explain floor scrubbing and its need with relevant data.

Or

(b) Name the solvents and disinfectants most widely used in housekeeping and explain briefly about them.

18. (a) Name the various types of furniture and briefly discuss the cleaning methods for stainless steel and copper furniture.

Or

(b) What is food service, and briefly discuss the method of food service and its importance.

19. (a) Discuss the key characteristics to consider when selecting high quality linen for different purposes.

Or

(b) Briefly discuss about buying of linen and inspecting of linen.

20. (a) What are the common hiding spots for cockroaches, and how can housekeeping staff identify them and discuss the control methods?

Or

(b) Narrate the advantages and disadvantages of housekeeping management.

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C–8084	Sub. Code 70131

M.Sc. DEGREE EXAMINATION, APRIL 2026.

Third Semester

Industrial Safety & Hygiene

INDUSTRIAL HYGIENE II : EVALUATION AND CONTROL OF HAZARDS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What defines the maximum safe concentration of a hazardous substance? :

   (a) Exposure limit (b) OSHA

   (c) Hygiene (d) Design

2. Which U.S. agency sets workplace health and safety standards?

   (a) OSHA (b) Control

   (c) Decibel (d) Isolation

3. What protects hearing in high-decibel work environments?

   (a) Waste disposal (b) Noise safety

   (c) Fog (d) Radiation

4. What is a visible airborne pollutant formed by incomplete combustion?

(a) Smoke (b) Acid fumes

(c) Fog (d) Training

5. What suspension of fine particles in air can reduce visibility and irritate lungs?

(a) Fog (b) Ventilation

(c) Stress (d) OSHA

6. What toxic emission is commonly released during industrial chemical reactions?

(a) Decibel (b) Acid fumes

(c) Design (d) Frequency

7. What unit is used to measure sound intensity?

(a) Decibel (b) Fog

(c) Control (d) Training

8. What describes the pitch or cycles per second of a sound wave?

(a) Frequency (b) OSHA

(c) Hygiene (d) Assessment

9. What invisible hazard is released from sources like X-rays and nuclear material?

(a) Radiation (b) Noise safety

(c) Toxins (d) Smoke

10. What is the final step in reducing or eliminating workplace hazards?

(a) Training (b) Control

(c) Frequency (d) Stress

Part B (5 × 5 = 25)

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

11. (a) What is environmental safety management:

Or

(b) Why is a periodic medical examination required for workers?

12. (a) Write short notes on ILO standards.

Or

(b) Narrate the economic and environmental consequences of improper Waste disposal.

13. (a) Explain the design and development of the training program for workers.

Or

(b) Shortly discuss about health hazards.

14. (a) Define OSHA & shortly discuss bout the process safety management.

Or

(b) Criticize the role of the safety department.

15. (a) How to dispose of radioactive waste.

Or

(b) What are acid fumes? State the source and control methods of it.

Part C (5 × 8 = 40)

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

16. (a) Briefly discuss pre employment.

Or

(b) Explain in detail about the medical surveillance for control of occupational diseases.

17. (a) Describe in detail about Industrial Hygiene and its control methods.

Or

(b) Elaborately discuss the special control measures in industrial hygiene.

18. (a) Briefly discuss about the techniques of training.

Or

(b) Explain in detail about the exposure limit with relevant information.

19. (a) List the elements of PSM principles and briefly discuss about it.

Or

(b) Describe the importance of industrial safety.

20. (a) Define noise. Identify the sources of noise and discuss the measurement and control of noise.

Or

(b) Name the different air pollutants in industries and briefly discuss the control methods.

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C–8085

Sub. Code
70132

M.Sc. DEGREE EXAMINATION, APRIL 2026

Third Semester

Industrial Safety & Hygiene

HAZARD AND RISK ANALYSIS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is tested to trace the path leading to a failure or accident?

   (a) Failure Tree Analysis

   (b) HAZOP

   (c) Cost

   (d) HAZAN

2. What structured approach is used for risk identification and evaluation?

   (a) Risk Matrix

   (b) HIRA

   (c) Deviation Chart

   (d) Benefit

3. What visual tool helps prioritize risk based on severity and likelihood?

(a) Accident

(b) Risk Matrix

(c) Risk Control

(d) Analysis

4. What is conducted to identify potential hazards in a physical location?

(a) Site Assessment

(b) Case Study

(c) Warning system

(d) ALARP

5. What refers to strategies to eliminate or minimize risks?

(a) FMEA

(b) HAZOP

(c) Risk Control

(d) Port Hudson

6. What is often used to understand the causes and effects of past accidents?

(a) Case Study

(b) Risk Matrix

(c) Hazard

(d) Cost

7. Which industrial disaster occurred in India involving gas leakage?

(a) Bhopal

(b) Feyzin disaster

(c) HIRA

(d) Analysis

8. Which disaster involved a catastrophic BLEVE event in France?

(a) Port Hudson

(b) Feyzin disaster

(c) HAZAN

(d) Benefit

9. Which U.S. site experienced a major chemical release incident?

(a) FMEA

(b) Port Hudson

(c) Risk Control

(d) ALARP

10. What unplanned event results in injury, damage or loss?

(a) Risk

(b) Hazard

(c) Accident

(d) HAZOP

Part B (5 × 5 = 25)

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

11. (a) Name the hazardous event and discuss it briefly.

Or

(b) State the need for and significance of a safety warning system.

12. (a) Describe the key steps involved in the risk analysis process and explain their significance.

Or

(b) Write short notes on root cause analysis.

13. (a) Discuss briefly the main objectives of HAZOP methodology.

Or

(b) What is a risk priority number?

14. (a) State the purpose of risk assessment.

Or

(b) Distinguish between quantitative and qualitative risk assessment.

15. (a) List the importance of past accident analysis.

Or

(b) Explore the effects of the Bhopal disaster briefly.

Part C (5 × 8 = 40)

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

16. (a) Define hazard and risk and explain the process of hazard characterization in risk assessment.

Or

(b) Describe in detail about human error analysis.

17. (a) Briefly discuss risk identification and risk analysis.

Or

(b) Elaborately discuss about cost-benefit analysis.

18. (a) Explain in detail about Fault Tree Analysis.

Or

(b) What is FMEA? Narrate the procedure of FMEA with relevant information.

19. (a) Narrate the important methodologies used to evaluate hazards and risks and discuss them briefly.

Or

(b) Describe in detail about control measures of risk.

20. (a) Briefly discuss about Seveso.

Or

(b) Elaborately discuss about Pasadena and list the major impacts.

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C–8086

Sub. Code
70133

M.Sc. DEGREE EXAMINATION, APRIL 2026

Third Semester

Industrial Safety & Hygiene

SAFETY AUDIT AND INSPECTION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What acronym represents a structured health and safety management system?

   (a) EIA

   (b) OHSMS

   (c) EMS

   (d) Audit

2. What international standard specifies requirements for occupational safety management?

   (a) ISO 45001

   (b) Eco labelling

   (c) Scope

   (d) Follow up

3. What acronym refers to a system managing environmental responsibilities?

(a) Audit

(b) EMS

(c) OH&S policy

(d) Monitoring

4. What process evaluates risks, performance or compliance levels?

(a) Assessment

(b) Workplace

(c) Safety

(d) Report

5. What process identifies environmental effects of a proposed project?

(a) EIA

(b) EMS

(c) Scope

(d) Observation

6. What guides the direction and goals of a safety program?

(a) Audit

(b) Objectives

(c) Monitoring

(d) Inspection

7. What is noted during inspections to support evaluation and reporting?

(a) Observation

(b) Report

(c) Evidence

(d) Eco labelling

8. What label assures environmentally friendly products and processes?

(a) Eco labelling

(b) ISO 45001

(c) EIA

(d) Audit

9. What outlines the organization's commitment to health and safety?

(a) OH&S policy

(b) Report

(c) EIA

(d) Onsite

10. What defines the boundaries and coverage of an audit?

(a) Scope

(b) EMS

(c) Safety

(d) Objectives

Part B (5 × 5 = 25)

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

11. (a) Identify the roles and responsibilities of the inspection team.

Or

(b) How to do the safety inspection?

12. (a) What is collecting audit evidence?

Or

(b) List the objectives of Audits.

13. (a) Shortly discuss the aim of OH&S.

Or

(b) Criticize the leadership and worker participation.

14. (a) Define EMS. Discuss shortly.

Or

(b) Mention the three levels of documentation for an ISO 14000.

15. (a) What is ECO labelling?

Or

(b) List the benefits of EIA.

Part C

(5 × 8 = 40)

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

16. (a) Briefly discuss the importance of workplace inspection planning.

Or

(b) Describe in detail the follow-up & Monitoring.

17. (a) Explain in detail about pre-audit activities.

Or

(b) Elaborately discuss about audit findings and collecting audit evidence.

18. (a) Explain the following :

(i) success factors

(ii) leadership.

Or

(b) What is ISO 45001? Explain the organizational roles and responsibilities of OH&S.

19. (a) Briefly discuss the Environmental policy with relevant data.

Or

(b) Elaborately discuss the steps in ISO 14001.

20. (a) Explain the stages of LCA.

Or

(b) Describe the following :

(i) EIA

(ii) EMS.

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C–8087

Sub. Code
70134

M.Sc. DEGREE EXAMINATION, APRIL 2026

Third Semester

Industrial Safety & Hygiene

SAFETY AT OIL, GAS AND NUCLEAR SECTOR

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What probabilistic method is used for reliability analysis in nuclear systems?

   (a) PPE

   (b) Markov method

   (c) Turbine

   (d) Explosion

2. Which U.S. nuclear accident occurred in 1979 due to a partial reactor meltdown?

   (a) Chernobyl

   (b) Three Mile Island

   (c) Gamma rays

   (d) Reactor

3. What technique helps analyze causes of failure in complex systems?

(a) Upstream

(b) FTA

(c) Dose

(d) Control Rod

4. What is a byproduct of nuclear fission and can affect reactor safety?

(a) Heat

(b) PPE

(c) FTA

(d) Exposure

5. What is the central part of a nuclear reactor where fission occurs?

(a) Control Rod

(b) Core

(c) Turbine

(d) Dose

6. What device regulates the fission rate in a nuclear reactor?

(a) PPE

(b) Control Rod

(c) Gamma rays

(d) Markov method

7. What personal equipment is essential in both oil & gas and nuclear sectors?

(a) Explosion

(b) PPE

(c) Heat

(d) Core

8. What type of substances emit ionizing radiation and require strict handling?

(a) Radioactive

(b) Reactor

(c) Concrete wall

(d) Chernobyl

9. What is measured to track the quantity of radiation absorbed by the body?

(a) Dose

(b) Upstream

(c) Exposure

(d) FTA

10. What structure houses the nuclear reactions in a power plant?

(a) Reactor

(b) HAZOP

(c) Control Rod

(d) PPE

Part B (5 × 5 = 25)

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

11. (a) What is upstream and downstream?

Or

(b) Illustrate the bath tub hazard curve and discuss shortly.

12. (a) How can ISA be used to predict failures in multi-system interactions before they lead to accidents?

Or

(b) Shortly discuss about fault tree analysis.

13. (a) Who regulates offshore safety?

Or

(b) How to reduce the fatal oil and gas industry accidents?

14. (a) Explain the fire protection system.

Or

(b) Operational safety — discuss shortly.

15. (a) Criticize exposure limits in radiation control.

Or

(b) What is radiation shielding?

Part C

(5 × 8 = 40)

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

16. (a) Briefly discuss about safety management principles in oil and gas safety.

Or

(b) Explain in detail about accident caution theory with relevant information.

17. (a) Describe HAZOP.

Or

(b) Elaborately discuss about failure mode of effective analysis.

18. (a) Briefly discuss about offshore worker situation awareness concept.

Or

(b) Criticize the most common causes of industrial explosions and how they can be systematically prevented.

19. (a) Discuss the evolution of nuclear reactor safety designs from early models to modern generations.

Or

(b) Briefly discuss the causes of the Chernobyl accident and discuss the impact of it.

20. (a) Elaborately discuss about control of radiation.

Or

(b) Explain the waste management methods and disposal practices with relevant data.

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