C–5265	Sub. Code
	70111

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Industrial Safety and Hygiene

FIRE DESIGN AND INSTALLATION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Which type of fire extinguisher is NOT suitable for use on electrical fires?

   (a) Water (b) Dry chemical

   (c) CO2 (d) Halon

2. What is the primary cause of BLEVE?

   (a) Chemical reaction

   (b) Electrical spark

   (c) Rapid pressure increase

   (d) Open flame contact

3. Fire extinguishers should be placed so they are no further than:

   (a) 10 feet from any potential hazard

   (b) 20 feet from any potential hazard

   (c) 75 feet from any potential hazard

   (d) 100 feet from any potential hazard

4. What does "NFPA' stand for in the context extinguishers?

(a) National Fire Protection Agency

(b) National Fire Protection Association

(c) National Fire Prevention Association

(d) National Fire Prevention Authority

5. Where should the installation of fire detectors be prioritized within a building?

(a) In the parking area

(b) Near electrical panels

(c) Near sleeping areas and escape routes

(d) In the storage rooms

6. What of the following is NOT a mode of heat transfer?

(a) Conduction (b) Radiation

(c) Transformation (d) Convection

7. What is the function of fire pump house?

(a) To store firefighting equipment

(b) To house the fire department's vehicles

(c) To provide a location for firefighters to rest

(d) To house and protect fire pump and associated equipment.

8. What should be included in a spares checklist for fire detection and alarm system?

(a) Replacement batteries

(b) Extra fire extinguishers

(c) Spare cable

(d) All of the above

9. What is the maximum allowable travel distance to reach a fire exit?

(a) 100 feet

(b) 150 feet

(c) 200 feet

(d) 250 feet

10. What factors determine the capacity of an exit?

(a) The width of the exit door

(b) The number of occupants in the building

(c) The height of the building

(d) The types of flooring material

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

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

11. (a) Define the triangle and briefly explain its signification in under fire behavior.

Or

(b) Discuss fire safety considerations for warehouse and garages.

12. (a) Outline the steps involved in the initial inspection of fire extinguishers prior to installation.

Or

(b) Explain the process for identifying and addressing rejected fire extinguishers, including disposal and replacement.

13. (a) What are the general requirements for the installation and operation of fire detection and alarm systems in buildings and facilities?

Or

(b) What should be included in a maintenance checklist for fire detection and alarm systems to ensure compliance and effectiveness?

14. (a) Discuss testing procedures for fire hydrant systems and their frequency.

Or

(b) Explain the function of hose reels in hydrant systems and their importance in firefighting operations.

15. (a) Explain the concept of occupant load and its significance in determining the capacity and arrangements of exits.

Or

(b) Outline safety measures for the handling and storage of combustible liquids to prevent fire hazards.

Part C (5 × 8 = 40)

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

16. (a) Discuss the classification of fires according to NFPA standards and give examples of extinguishing agents for each class.

Or

(b) Explore fire safety measures tailored for chemical laboratories, highlighting storage protocols for hazardous materials, ventilation system, and emergency response plans.

17. (a) Describe the importance of having spare parts available parts available for fire extinguishers and how they contribute to maintenance efforts.

Or

(b) Discuss the criteria for selecting the right type of fire extinguisher based on the specific fire risks present.

18. (a) Discuss the role of trained personnel in conducting inspections, testing and maintenance of fire detection and alarm systems to ensure proper functioning during emergencies.

Or

(b) Discuss the factors to consider when determining the placement of automatic fire detectors in various areas of a building or facility.

19. (a) Discuss the importance of fire service inlets and their role in connecting firefighting equipment to water supplies.

Or

(b) Discuss the significance of water supplies and pumping arrangements for fire hydrants.

20. (a) Discuss the hazards associated with hot work activities and precautionary steps to mitigate fire risks.

Or

(b) Describe strategies for identifying and controlling special hazards related to flammable materials in different workplace environments.

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C–5266	Sub. Code 70112

M.Sc. DEGREE EXAMINATION, APRIL 2025

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** the questions.

1. Which type of eye protection is suitable for protecting against chemical splashes?

   (a) Safety glasses (b) Safety goggles

   (c) Face shields (d) Eyewash stations

2. What is the Permissible Exposure Level (PEL) for noise in the workplace?

   (a) 80 decibels (dB) (b) 85 decibels (dB)

   (c) 90 decibels (dB) (d) 95 decibels (dB)

3. What are direct hazards to the legs in the workplace?

   (a) Chemical exposure

   (b) Heavy objects falling

   (c) slipping on wet surfaces

   (d) All of the above

4. What is an emergency measure for a hand injury?

(a) Applying heat to the affected area

(b) Washing the wound with water

(c) Applying ice to the affected area

(d) Wrapping the wound with a clean do

5. What preventive measure can protect the skin from chemical substances?

(a) Using protective creams

(b) Avoiding hand washing

(c) Using abrasive materials on the skin

(d) None of the above

6. How can ventilation contribute to skin protection?

(a) By providing fresh air for better skin health

(b) By reducing exposure to harmful fumes and vapors

(c) By minimizing sunlight exposure

(d) By increasing the temperature in the workspace

7. What is one of the hazards associated with oxygen deficiency?

(a) Increased fire risk

(b) Decreased fire risk

(c) Decreased risk of asphyxiation

(d) Increased risk of suffocation

8. What type of respirator uses a color-coded canister to indicate the type of contaminants it filters?

(a) Air purifying respirator

(b) Fresh air breathing apparatus

(c) Self-contained breathing apparatus

(d) Powered air-purifying respirator

9. Who is responsible for ensuring that appropriate PPE is provided and used in the workplace?

(a) Employees

(b) Government agencies

(c) PPE manufacturers

(d) Employers

10. What is the importance of warming signs and color codes in fall protection?

(a) To decorate the workplace

(b) To create a visually appealing environment

(c) To alert workers to the presence of fall hazards

(d) To improve communication between employees

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

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

11. (a) Discuss the essential components and construction of safety helmets.

Or

(b) Explain the significance of safety showers and eye wash stations in industrial settings.

12. (a) Outline common hand injuries and hazards encountered in various industries.

Or

(b) Differentiate between direct and indirect hazards for legs in the workplace.

13. (a) What are the best practices for the storage and transportation of hazardous substances to minimize skin-related risks?

Or

(b) Discuss the significance of machine guards in preventing skin injuries and hazards.

14. (a) Explain the risks associated with exposure to smoke, fumes, gases, and vapors in the workplace.

Or

(b) What are the limitations and potential drawbacks of different types of respiratory protective equipment?

15. (a) Discuss the different types of ladders commonly used in the workplace and their parts.

Or

(b) Explain the importance of warning signs and color codes in identifying hazards related to fall protection.

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

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

16. (a) Detail the introduction and significance of ear protection, including the advantages and disadvantages of ear plugs and ear muffs.

Or

(b) Discuss the various types of eye protectors available and their characteristics.

17. (a) Discuss the role of safety standards and regulations in ensuring effective hand protection in the workplace.

Or

(b) Discuss the role of safety audits and risk assessments in identifying the need for leg protection measures.

18. (a) Discuss the role of personal hygiene practices in preventing skin-related issues in the workplace.

Or

(b) Discuss the importance of emergency response procedures in case of skin-related incidents.

19. (a) Discuss the importance of establishing a comprehensive respiratory protection program, including training, fit-testing, and medical evaluations.

Or

(b) Discuss the role of employee involvement and feedback in improving respiratory protection programs.

20. (a) Describe the statutory regulations and national standards governing the use of PPE.

Or

(b) Discuss the function and installation requirements of safety nets in fall protection systems.

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C–5267	Sub. Code
	70113

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Industrial Safety and Hygiene

ELECTRICAL AND CHEMICAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which component of an electrical circuit opposes the flow of electric current?

   (a) Capacitor (b) Inductor

   (c) Resistor (d) Transformer

2. What are the two primary types of electrical faults?

   (a) Underloads and overloads

   (b) Open circuits and short circuits

   (c) Capacitive faults and inductive faults

   (d) Ground faults and arc faults

3. What are the typical consequences of electrical bums?

   (a) Hypothermia (b) Frostbite

   (c) Muscle strains (d) Tissue damage

4. What is the corona effect related to in electrical systems?

(a) Over voltage protection

(b) Insulation failure

(c) Electromagnetic forces

(d) High-voltage transmission lines

5. What is the recommended safe distance from electrical lines for personnel?

(a) 1 foot (b) 5 feet

(c) 10 feet (d) 20 feet

6. Circuit breakers and overload relays arc primarily used for:

(a) Controlling voltage fluctuations

(b) Protecting against electrical shocks

(c) Protecting against overloads and short circuits

(d) Preventing power surges

7. Which of the following is NOT a route of entry for chemicals into the human body?

(a) Inhalation

(b) Injection

(c) Ingestion

(d) Absorption through the skin

8. What is the purpose of WI-IMIS symbols?

(a) To indicate the quality of chemicals

(b) To provide information on chemical reactions

(c) To communicate hazards associated with chemicals

(d) To indicate chemical purity

9. 'What does the term "Green Chemistry' refer to?

(a) Chemistry involving the color green

(b) Chemistry aimed at minimizing environmental impact

(c) Chemistry focused on producing green-colored compounds

(d) Chemistry associated with plant-based products

10. What is the purpose of inventory and tracking of chemicals?

(a) To increase chemical consumption

(b) To monitor chemical usage and availability

(c) To reduce chemical waste

(d) To simplify chemical disposal procedures

Part B (5 × 5 = 25)

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

11. (a) Discuss the relationship between current, voltage, and power in electrical systems.

Or

(b) Explain the basic steps of performing CPR.

12. (a) Differentiate between primary and secondary electrical hazards and provide examples of each.

Or

(b) Explain the function and benefits of miniature circuit breakers in electrical safety.

13. (a) Describe physical hazards associated with chemicals, including corrosion and physical instability.

Or

(b) Discuss the risks associated with proximity to overhead and underground electrical lines.

14. (a) Discuss the use of LC5O and LD5O values in assessing chemical toxicity.

Or

(b) Explain the importance of atmospheric monitoring for detecting chemical hazards in the workplace.

15. (a) Provide examples of green chemistry practices and their benefits.

Or

(b) Explain the importance of maintaining an inventory of hazardous chemicals.

Part C (5 × 8 = 40)

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

16. (a) Compare and contrast international electrical safety standards with Indian regulations.

Or

(b) Identify different sources of static electricity and discuss the safety concerns associated with its accumulation and discharge.

17. (a) Describe the purpose and scope of the National Electrical Safety Code.

Or

(b) Explain the role of Personal Protective Equipment (PPE) in mitigating electrical hazards for workers.

18. (a) Discuss how over voltage and under voltage can be detrimental to electrical systems and equipment.

Or

(b) List different types of PPE recommend for electrical workers and their specific functionalities.

19. (a) Explain the potential health effects of chemical exposure, including acute and chronic effects on various organ systems.

Or

(b) Discuss the implementation of the Globally Harmonized System (GHS) for chemical classification and labeling.

20. (a) Discuss the types of personal protective equipment (PPE) used for handling hazardous chemicals.

Or

(b) Describe safety features and regulatory requirements for chemical storage tank design and installation.

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C–5268	Sub. Code
	70114

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Industrial Safety and Hygiene

SAFETY CONCEPTS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. How does Job Safety Analysis contribute to safety management?

   (a) By ignoring potential hazards

   (b) By analyzing job tasks and identifying potential hazards

   (c) By avoiding safety inspections

   (d) By blaming employees for accidents

2. What is the primary goal of the modem safety concept?

   (a) Maximizing profits

   (b) Minimizing accidents and injuries

   (c) Increasing production speed

   (d) Reducing employee turnover

3. Why is liaison with departments important in safety audit?

(a) To increase safety incidents

(b) To avoid safety regulations

(c) To ensure cooperation and coordination in implementing safety measures

(d) To disregard safety policies

4. How is the implementation of audit indications typically handled?

(a) By ignoring audit recommendations

(b) By immediately implementing corrective actions

(c) By minimizing corrective actions

(d) By avoiding corrective actions

5. Which of the following is NOT a component of accident documentation?

(a) Accident reports

(b) Investigation findings

(c) Safety training schedules

(d) Corrective actions

6. What is the purpose of accident investigation and analysis?

(a) To blame individuals for accidents

(b) To ignore safety protocols

(c) To identify root causes and prevent recurrence of accidents

(d) To increase accidents

7. What is Permanent Total Disability (PTD)?

(a) An injury that requires temporary medical leave

(b) An injury that results in permanent inability to work

(c) An injury that results in partial loss of work capacity

(d) An injury that requires temporary light duty

8. What does ANSI (Z 16.1) recommend practices for?

(a) Financial management

(b) Safety performance monitoring

(c) Marketing strategies

(d) Employee recruitment

9. What is the first step in organizing safety training?

(a) Conducting safety inspections

(b) Identifying training needs

(c) Increasing safety incidents

(d) Avoiding safety regulations

10. How can safety incentive schemes encourage safety compliance?

(a) By disregarding safety protocols

(b) By increasing safety incidents

(c) By offering rewards or incentives for demonstrating safe behaviors and practices

(d) By avoiding safety regulations

Part B (5 × 5 = 25)

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

11. (a) Discuss key management functions such as planning, organizing, leading, and controlling.

Or

(b) Explain the evolution of safety regulations and standards over time.

12. (a) Describe the components of an audit report and its structure.

Or

(b) Describe the different types of safety audits commonly conducted in organizations.

13. (a) Differentiate between reportable and non-reportable accidents.

Or

(b) Discuss the principles of accident prevention in the workplace.

14. (a) Discuss how the Safe "T" Score is calculated and interpreted.

Or

(b) Explain the concept of frequency severity incidence as a measure of safety performance.

15. (a) Compare classroom-based training and e-learning.

Or

(b) Discuss methods for assessing employee skills, knowledge, and competency gaps.

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

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

16. (a) Describe the role of training and drills in preparing for and responding to disasters.

Or

(b) Discuss the importance of integrating safety into the planning process for optimizing productivity.

17. (a) Describe strategies for incorporating feedback from external sources into safety improvement initiatives.

Or

(b) Discuss the process for documenting and resolving non-conformities to improve safety performance.

18. (a) Describe strategies for implementing proactive safety measures to prevent accidents.

Or

(b) Describe how understanding the cost of accidents can justify investments in safety programs and initiatives.

19. (a) Explain strategies for preventing and managing various disabilities in the workplace.

Or

(b) Discuss the recommended practices outlined in ANSI (Z16.l) for compiling and measuring work injury experience.

20. (a) Describe how to integrate safety promotion into daily operations and organizational activities.

Or

(b) Discuss the roles and responsibilities of government agencies in safety training.

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C–5269	Sub. Code 70116A

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Industrial Safety and Hygiene

ENVIRONMENTAL SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. What is the major source of carbon monoxide (CO) in urban areas?

   (a) industrial emissions

   (b) Residential heating

   (c) Automobile exhaust

   (d) Waste incineration

2. Which of the following is not a primary air pollutant?

   (a) Sulfur dioxide (SO_2)

   (b) Carbon monoxide (CO)

   (c) Ozone (O_3)

   (d) Particulate matter (PM)

3. What is a common health hazard associated with water polluted by heavy metals?

(a) Skin irritation

(b) Neurological disorders

(c) Respiratory problems

(d) Gastrointestinal infections

4. What is a common method for the disposal of treated industrial effluents?

(a) Direct discharge into water bodies

(b) Landfill disposal

(c) Incineration

(d) Ocean dumping

5. Which method of hazardous waste disposal involves the controlled burning of waste materials?

(a) Composting (b) Landfilling

(c) Incineration (d) Ocean dumping

6. Which of the following is not a common technological option for the treatment of hazardous waste?

(a) Chemical stabilization

(b) Thermal treatment

(c) Biological remediation

(d) Open dumping

7. Which instrument is used to measure the intensity of light?

(a) pH meter

(b) Gas chromatograph

(c) Lux meter

(d) Atomic absorption spectrometer

8. Which device is commonly used to remove particulate matter from gas streams using a fabric filter?

(a) Gravitational settling chamber

(b) Cyclone separator

(c) Scrubber

(d) Bag filter

9. What is a common pollutant associated with the paper industry?

(a) Sulfur dioxide (SO_2)

(b) Nitrogen oxides (NO_x)

(c) Chlorine compounds

(d) Particulate matter (PM)

10. Which industry is more likely to implement eco-friendly energy sources such as solar or wind power?

(a) Cement industry

(b) Petroleum industry

(c) Thermal power plants

(d) Textile industry

Part B (5 × 5 = 25)

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

11. (a) Explain the mechanisms by which air pollutants are formed and dispersed in the atmosphere..

Or

(b) Discuss the role of deforestation in increasing atmospheric carbon dioxide levels and contributing to climate change.

12. (a) Explain the importance of water sampling and analysis in assessing water quality.

Or

(b) Discuss the environmental and health impacts of effluents from textile industries.

13. (a) Discuss methods of collection and disposal of solid hazardous waste.

Or

(b) Explain the process of incineration and vaporization for hazardous waste treatment.

14. (a) Discuss the principles of operation and units of measurement used by lux meters.

Or

(b) Discuss the principles of atomic absorption spectroscopy and its applications..

15. (a) Explain the types of pollutants typically generated by process industries and their environmental impacts.

Or

(b) Discuss the environmental risks associated with petroleum refining and processing.

Part C (5 × 8 = 40)

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

16. (a) Describe the role of the ozone layer in protecting the Earth from harmful UV radiation and the consequences of ozone depletion on human health and the environment.

Or

(b) Describe the challenges and limitations of clean coal combustion technology in achieving sustainable and environmentally friendly energy production.

17. (a) Discuss common treatment methods and technologies used to treat wastewater from various sources, including municipal, industrial, and agricultural sources.

Or

(b) Explain the sources and impacts of different types of water pollutants on aquatic ecosystems and human health.

18. (a) Describe preventive measures and personal protective equipment to minimize health risks associated with hazardous waste handling.

Or

(b) Describe the challenges and Opportunities in implementing effective hazardous waste management practices in India.

19. (a) Discuss the role of Pollution Control Boards in regulating environmental quality.

Or

(b) Explain how gas analyzers are used to measure and monitor concentrations of various gases in the atmosphere.

20. (a) Discuss the importance of eco-friendly energy sources for pollution control and environmental Sustainability.

Or

(b) Discuss pollution control technologies and measures implemented by thermal power plants.

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C–5270	Sub. Code 70116B

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Industrial Safety and Hygiene

WORK STUDY AND ERGONOMICS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. How can the latest devices contribute to work improvement in hazardous workplaces?

   (a) By increasing production speed only

   (b) By reducing the need for safety equipment

   (c) By minimizing human exposure to hazards

   (d) By eliminating the need for skilled workers

2. Which factor is NOT typically included in productivity, quality, and safety considerations?

   (a) Employee training

   (b) Equipment maintenance

   (c) Customer satisfaction

   (d) Market demand

3. What is the primary principle behind motion economy in ergonomics?

(a) Minimizing employee breaks

(b) Reducing energy consumption

(c) Optimizing movement efficiency

(d) Maximizing production speed

4. What is one of the factors contributing to worker fatigue and physical strain?

(a) Adequate rest breaks

(b) Ergonomic seating arrangements

(c) Heavy lifting and repetitive motions

(d) Proper lighting conditions

5. Which of the following is a standard governing the quality of personal protective equipment?

(a) ISO 9001 (b) ASTMD6319

(c) OSHA 1910. 120 (d) ANSI Z87.1

6. What is an important consideration when procuring personal protective equipment?

(a) Cost-effectiveness

(b) Color scheme

(c) Employee height

(d) Company logo

7. What do statutory provisions regarding safety typically involve?

(a) Bypassing safety regulations

(b) Promoting unsafe working conditions

(c) Legal requirements for workplace safety

(d) Encouraging employee risk-taking

8. Which factor is essential in equipment and instrument selection for a process?

(a) Material color

(b) Equipment cost

(c) Instrument weight

(d) Market competition

9. What is body size and posture important in man-machine systems?

(a) To determine employee salary

(b) To optimize workflow

(c) To ensure ergonomic compatibility and prevent strain

(d) To increase production costs

10. What are adjustment range and penalties in man-machine systems?

(a) Factors influencing employee turnover

(b) Factors influencing employee satisfaction

(c) The range of adjustments available for equipment and the consequences of improper use

(d) Factors influencing market demand

Part B (5 × 5 = 25)

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

11. (a) Discuss how human factors influence productivity and safety in the workplace.

Or

(b) Provide examples of work study applications in hazardous industries.

12. (a) Explain how ergonomic design contributes to overall workplace productivity.

Or

(b) Provide examples of how motion economy principles are implemented in various industries.

13. (a) Describe the concept of invisible protective barriers and their role in enhancing worker safety.

Or

(b) Explain the importance of ergonomic considerations in the design of personal protective equipment.

14. (a) Discuss the importance of in-built safety features in industrial equipment.

Or

(b) Explain the significance of machine layout in optimizing workflow and safety.

15. (a) Describe the standards used in the selection and design of man-machine systems.

Or

(b) Discuss the types of controls used in man-machine systems and their applications.

Part C (5 × 8 = 40)

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

16. (a) Discuss potential challenges that may arise when substituting traditional methods with the latest devices.

Or

(b) Discuss the factors considered during methods and movements analysis..

17. (a) Describe how the layout of electrical panels and switch gears can be optimized using ergonomic principles.

Or

(b) Discuss the physiological and psychological effects of ergonomic design on workers health and wellbeing.

18. (a) Discuss challenges associated with the selection, use, and maintenance of personal protective equipment.

Or

(b) Identify relevant national standards organizations and their role in establishing PPE standards.

19. (a) Provide case studies of successful process and equipment design implementations.

Or

(b) Discuss relevant statutory provisions related to equipment design and safety.

20. (a) Discuss strategies for reducing posture strain through ergonomic design principles.

Or

(b) Provide guidelines for designing man-machine interfaces that promote safe postures and reduce the risk of injuries.

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C–5271	Sub. Code 70121

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Industrial Safety and Hygiene

CONSTRUCTION SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is the Primary cause of accidents in construction Sites?

   (a) Weather

   (b) Human error

   (c) Equipment failure

   (d) Natural disasters

2. Which, of the following is a key aspect of hazard management in construction?

   (a) Ignoring hazards

   (b) Safety Inspections

   (c) Increase work hours

   (d) Less training

3. Which type of hazard is common in construction work and involves the risk of falling objects?

   (a) Electrical (b) Falling

   (c) Chemical (d) Bio

4. What is the Primary goal of hazard prevention in construction?

(a) Cost reduction (b) Safety

(c) Production speed (d) Aesthetics

5. Which equipment is essential for Protecting the head from falling objects on construction site

(a) Goggles (b) Hard Hats

(c) Work Boots (d) None of the above

6. What should be worn to protect the eyes from dust debris and chemical splashes

(a) Earbuds (b) Goggles

(c) Coat (d) Boots

7. Which of the following is necessary for ensuring Visibility on a Construction site,

(a) High Vis dress (b) Socks

(c) Gloves (d) Flags

8. What footwear should be worn to protect against sharp objects and heavy items falling on feet?

(a) Sports shoe (b) Sandle

(c) Leather Cover (d) Work boots

9. Which equipment used to protect hearing in a noisy construction environment?

(a) Headphone (b) Earbuds

(c) Cotton (d) None of the above

10. What should be worn to protect the respiratory System from inhaling harmful dust?

(a) Mask (b) Gloves

(c) Shoe (d) Goggles

Part B (5 × 5 = 25)

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

11. (a) Classify the types of accidents related to the construction of Five-star hotels.

Or

(b) State the importance of training in construction.

12. (a) Shortly discuss about scaffolding.

Or

(b) Mention the structure and foundations of high-rise buildings.

13. (a) Enumerate the requirements for safe work platforms.

Or

(b) What is a safety net, and what are the uses of safety nets in construction?

14. (a) Shortly, discuss the inspection and testing of tower cranes.

Or

(b) Define grinding and mention the application of dozers in construction.

15. (a) How to do the demolition using explosives safely?

Or

(b) State the keys for safe demolition.

Part C (5 × 8 = 40)

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

16. (a) State the basic law of construction and explain the construction regulations.

Or

(b) What is a Work permit in construction? Elaborately discuss the types of work permits.

17. (a) How do you do the dismantling safely? Explain this with a suitable example.

Or

(b) Elaborately discuss the steps involved in road work and mention safety methods.

18. (a) Briefly discuss about winches and chain pulley blocks.

Or

(b) Enumerate the uses of conveyors and mobile cranes in construction work.

19. (a) Discuss briefly the applications of loaders and motor graders in the construction industry.

Or

(b) Name the construction machinery and briefly discuss it.

20. (a) Explain the following :

(i) Trusses and

(ii) Beams.

Or

(b) Describe any one interesting experience at the construction site against the fire accidents.

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C–5272	Sub. Code
	70122

M.Sc. DEGREE EXAMINATION, APRIL 2025

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. _____ Protocol is the international treaty made to protect the ozone layer from CFCs.

   (a) Paris (b) Montreal

   (c) Cartagena (d) Nagoya

2. India's first State/UT to release a Climate Change Action plan is:

   (a) Uttarakhand (b) Haryana

   (c) Delhi (d) Pondicherry

3. In India, the Environmental Protection Act was introduced in the year

   (a) 1988 (b) 1972

   (c) 1986 (d) 1989

4. "Ramsar Convention" is related to

(a) Climate Change

(b) Pesticide

(c) Wetland

(d) None of the above

5. Factories Act

(a) 1948 (b) 1950

(c) 1965 (d) 2000

6. The Noise Pollution Rules

(a) 2020 (b) 2000

(c) 2004 (d) 1940

7. Water Act

(a) 1980 (b) 1974

(c) 1950 (d) 1990

8. Air Act

(a) 1981 (b) 2000

(c) 2010 (d) 1950

9. The Explosives Act

(a) 1900 (b) 1920

(c) 1955 (d) 1983

10. William Steiger Act

(a) 1970 (b) 1950

(c) 2000 (d) 2010

Part B (5 × 5 = 25)

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

11. (a) Define staff and list the roles and responsibilities.

Or

(b) State the special provisions in the Factories Act 1948.

12. (a) What is biowaste? Mention the minimization methods of biowaste.

Or

(b) Enumerate the functions and powers of boards.

13. (a) List the storage methods of hazardous chemicals.

Or

(b) Mention the need for and significance of safety data sheets.

14. (a) Shortly discuss the workman compensation Act.

Or

(b) Narrate the gas cylinder rules.

15. (a) Occupational safety — discuss shortly.

Or

(b) State the need for international acts and standards.

Part C (5 × 8 = 40)

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

16. (a) Define welfare and narrate the factory's act related to welfare.

Or

(b) Explore the penalties and procedures in the Factories Act 1948.

17. (a) Briefly discuss the noise pollution regulation and control measures.

Or

(b) Describe the prevention and control methods of water pollution.

18. (a) Describe the duties of authorities.

Or

(b) Name the hazardous chemicals and briefly discuss their storage and handling methods.

19. (a) Define and explain SMPV.

Or

(b) Describe in detail about Explosives Act 1983.

20. (a) Briefly discuss about THE WILLIAM STEIGER ACT OF 1970.

Or

(b) Explain in detail about OSHAS 1800.

———————

C–5273	Sub. Code 70123

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Industrial Safety and Hygiene

INDUSTRIAL HYGIENE : I HAZARD IDENTIFICATION AND ASSESSMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Threshold Limit Values and Biological Exposure Indices are developed as guidelines to assist in the control of _____ hazards.

   (a) Health (b) Worker

   (c) Operator (d) Consumer

2. _____ lung disorders have been defined as diseases of the lung arising out of or in the course of employment.

   (a) Physical (b) Occupational

   (c) Biological (d) Chemical

3. The sign of asbestosis is _____ of repetitive end respiratory crackles.

   (a) Presence (b) Absence

   (c) Beneficial (d) Adverse

4. The safety director is responsible for the _____ program.

(a) Working (b) Hazardous

(c) Safety (d) None of above

5. Safety management system should be fully _____, accessible, comprehensible to those that need to use it.

(a) Working (b) Hazardous

(c) Documented (d) Improving

6. Human factors are a significant component of the causes of _____ in the workplace.

(a) Accidents (b) Risk

(c) Work (d) Knowledge

7. _____ cause factors include hazardous weather, volcanic ash, sand, dust, and birds.

(a) Physical (b) Chemical

(c) Biological (d) Environmental

8. Distracted _____ is the most common cause of road accidents.

(a) Skill (b) Driving

(c) Data (d) None of above

9. Unsafe acts may be the result of lack of _____or skill on the part of the employee, certain bodily defects and wrong attitudes.

(a) Knowledge (b) Innovative

(c) Reuse (d) Recycle

10. Organizations should also _____ and evaluate the workers at regular intervals.

(a) Monitor (b) Repair

(c) Share (d) Skill

Part B (5 × 5 = 25)

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

11. (a) Name the significant systems in the human body.

Or

(b) How to take care of skin? List the major functions of skin.

12. (a) Mention the evolution methods of industrial noise.

Or

(b) What is dilution ventilation? And mention the types of ventilation systems.

13. (a) Write short notes on Excretion.

Or

(b) How does the body react to a toxin?

14. (a) Define ergonomics and what is industrial ergonomics.

Or

(b) List the types of administrative controls in industrial ergonomics.

15. (a) How to check indoor air quality? Mention the purity level of Air.

Or

(b) Write short notes on microorganisms.

Part C (5 × 8 = 40)

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

16. (a) Narrate the functions of the digestive system in the human body.

Or

(b) How many structures are in the body? Discuss the body structure system.

17. (a) Explain the following :

(i) Ionizing Radiation and

(ii) Nonionizing radiation.

Or

(b) HIV — Discuss briefly.

18. (a) Classify toxic materials in the Air and discuss them briefly.

Or

(b) Explain in detail about the stages of toxicology evaluation.

19. (a) Briefly discuss about display screen equipment.

Or

(b) Describe in detail about design of the workplace.

20. (a) Explain (i) sampling Gases and (ii) sampling vapours.

Or

(b) What is BEI? and state the need and significance of it.

———————

C–5274	Sub. Code 70124

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Industrial Safety and Hygiene

HAZARDOUS WASTE MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Which of the following data is required for hazard identification?

   (a) Land use

   (b) Contaminant

   (c) Affected Population

   (d) All of the above

2. What is the first stage of risk assessment?

   (a) Exposure assessing

   (b) Hazard identification

   (c) Toxicity study

   (d) Risk characterization

3. Exposure prediction depends upon _____ of exposure.

(a) Intensity (b) Frequency

(c) Genetics (d) Both (a) and (b)

4. Risk _____ provides information important for interpreting the risk results.

(a) Estimation (b) Description

(c) Analysis (d) Output

5. _____ represents a contact between a chemical agent and an object.

(a) Dose (b) Response

(c) Exposure (d) Concentration

6. Estimation of short-term and long-term exposure are usually in terms of

(a) Doses (b) Susceptibility

(c) Population (d) Genetic

7. A waste to be called toxic, acute oral LD5O concentration should be _____ mg/kg.

(a) 2500 (b) 3300

(c) 4500 (d) 5000

8. By NEPA process, federal agencies assess social and _____effects of proposed actions.

(a) Industrial (b) Health

(c) Economic (d) Chronic

9. Waste from pesticides is an example for _____ waste category.

(a) Organic aqueous (b) Inorganic aqueous

(c) Organic liquid (d) Organic sludge

10. Which of the following is not characteristic of hazardous waste?

(a) Toxicity (b) Corrosivity

(c) Ignitibility (d) Leakage

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

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

11. (a) Mention the sources of solid wastes.

Or

(b) State the roles of stakeholders.

12. (a) Enumerate the chemical properties of solid wastes.

Or

(b) Write short notes on waste exchange.

13. (a) List the waste collection system methods.

Or

(b) Transport of wastes — discuss shortly.

14. (a) Biological waste Processing technologies are discussed with a suitable example.

Or

(b) Define recovery And briefly discuss about energy recovery.

15. (a) Differentiate secure and sanitary landfills.

Or

(b) Write short notes on landfill management.

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

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

16. (a) Explain in detail about the need for solid waste management.

Or

(b) Elaborately discuss the elements of integrated waste management.

17. (a) Briefly discuss hazardous characteristics

Or

(b) Waste sampling and characterization plan.

18. (a) Briefly discuss the storage methods for municipal wastes.

Or

(b) Explore the methods of the handling of hazardous wastes.

19. (a) Describe the treatment of biomedical wastes.

Or

(b) Handling of materials — discuss briefly.

20. (a) Explore the waste disposal options and mention the need for them.

Or

(b) Elaborately discuss the environmental monitoring.

C–5275

Sub. Code
70126A

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Industrial Safety and Hygiene

TEXTILE SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. What is the primary raw material used in yarn manufacturing?

   (a) Cotton (b) Wool

   (c) Silk (d) Polyester

2. Which process is used to remove impurities from raw cotton fibres?

   (a) Spinning (b) Weaving

   (c) Dyeing (d) Carding

3. Which of the following is not a type of yarn twist?

   (a) S Twist

   (b) Z twist

   (c) Left-hand twist

   (d) Right-hand twist

4. _____ spinning method is known for producing compact and strong yarns.

(a) Open-end (b) Ring

(c) Air-jet (d) Friction

5. What is the function of a spinning frame in yarn manufacturing?

(a) Twisting (b) Winding

(c) Combing (d) Both (a) and (b)

6. Which type of yarn has a single strand without any twists?

(a) Filament (b) Textured

(c) Core-spun (d) Staple

7. Triangular-shaped folds of fabric stitched to control fullness are called

(a) Gathers (b) Pleats

(c) Darts (d) Hem

8. What is the main cause of the textile industry due to dust?

(a) Respiratory (b) Digestion

(c) Hearing (d) Eyesight

9. The dyeing process leads to _____ Pollution.

(a) Air (b) Water

(c) Noise (d) None of the above

10. What is the major concern with the textile industry?

(a) Water pollution (b) Landfill

(c) Air pollution (d) All of the above

Part B (5 × 5 = 25)

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

11. (a) Differentiate short-staple spinning and long-staple spinning.

Or

(b) State the merits and demerits of ring frames.

12. (a) Shortly, discuss about the cooking vessel accident hazards in the textile industry.

Or

(b) Identify the applications of knitting machines in textile processing industries.

13. (a) List the purpose of dyeing.

Or

(b) Mention the merits and demerits of bleaching.

14. (a) Shortly, discuss welfare measures in the textile industry.

Or

(b) Write short notes on relevant occupational diseases.

15. (a) Define safety and mention the important safety measures that need to be followed in the textile processing industry.

Or

(b) State the safety rules in the textile industry.

Part C (5 × 8 = 40)

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

16. (a) Explore the causes and prevention methods of accident hazards in the textile industry.

Or

(b) Briefly discuss the method of winding and warping.

17. (a) Describe the possible hazards due to steam and its prevention methods.

Or

(b) Elaborately discuss about shuttlelooms and shuttleless looms.

18. (a) Explain in detail about mechanical finishing operations and mention the advantages of it.

Or

(b) Describe in detail about Punting.

19. (a) List the possible health hazards in the textile industry related to dust and discuss the prevention methods.

Or

(b) Name the specific hazards in work environments and explain the special precautions.

20. (a) Briefly discuss about waste disposal in the textile industry.

Or

(b) Effluent treatment — discuss briefly.

———————

C–5276	Sub. Code 70127

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Industrial Safety and Hygiene

HOUSEKEEPING MANAGEMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. In the hospitality industry, what is the primary goal of housekeeping?
   (a) Cooking
   (b) Cleaning and Organizing
   (c) Front desk
   (d) Handling parcel

2. What type of loading is used when all rooms are cleaned at the same time, regardless of the number of guests?
   (a) Discharge (b) Partial
   (c) Full (d) Staggered

3. What is the key responsibility of a housekeeping supervisor in a hotel?
   (a) Preparing food
   (b) Check-ins
   (c) Inspecting rooms
   (d) Handling guest

4. Which equipment is essential for cleaning carpets in hotel rooms?

(a) Duster (b) Scrubber

(c) Mop (d) Vacuum cleaner

5. What is the first step in the standard procedure of housekeeping?

(a) Organizing (b) Dusting

(c) Cleaning (d) Collecting trash

6. Which cleaning method is most effective for hardwood floors?

(a) Wet mopping (b) Sweeping

(c) Vacuuming (d) Steam cleaning

7. What should be done immediately after a guest checks out of a hotel room?

(a) Inspecting room

(b) Replacing linens

(c) Restocking room

(d) All of the above

8. Which laundry equipment is used for pressing and smoothing clothes?

(a) Washing machine (b) Detergent dispenser

(c) Iron (d) Dryer

9. What is the best method for controlling pests in hotel rooms?

(a) windows open (b) vacuuming

(c) pest sprays (d) Ignoring

10. Which of the following is the duty of a housekeeping attendant?

(a) Preparing invoices

(b) Answering phone

(c) Managing finances

(d) Cleaning rooms

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

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

11. (a) State the importance of housekeeping.

Or

(b) List the duties of housekeeping employees.

12. (a) Maintenance of brooms and brushes — discuss shortly.

Or

(b) Mention the storage methods of housekeeping materials.

13. (a) Explore the cleaning methods of hard flooring and thermoplastic flooring.

Or

(b) Why do we need to do cleaning daily and weekly? What are all the things that need to be clean weekly?

14. (a) Name a few stain removal agents and narrate the steps.

Or

(b) Mention the handling method of guest laundry.

15. (a) Identify the need for and importance of pest control.

Or

(b) Explore the control methods of furniture beetle.

Part C (5 × 8 = 40)

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

16. (a) Briefly discuss about the organizational chart.

Or

(b) List the essential personal factors required while dealing with guests on a daily basis.

17. (a) Identify the uses of polishes and their storage methods.

Or

(b) Briefly discuss the electronic equipment used in housekeeping.

18. (a) List the types of furniture and briefly discuss the cleaning methods.

Or

(b) Explain the following :

(i) Night Service

(ii) Lost and Found.

19. (a) Explore the uses of laundry agents.

Or

(b) Explain the inspection method of used LINEN.

20. (a) What is pest control in housekeeping? And mention the control methods of cockroaches.

Or

(b) Elaborately discuss the theft control methods and how to deal with theft at the hotel.

———————

C–5277	Sub. Code
	70131

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Industrial Safety and Hygiene

INDUSTRIAL HYGIENE II : EVALUATION AND CONTROL OF HAZARDS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Which of the following elements make e-waste hazardous in nature?

   (a) Lead (b) Glass

   (c) Plastic (d) Iron

2. The biological activities depend upon _____

   (a) pH (b) Chemicals

   (c) Toxins (d) Temperature

3. Which of the hazardous pollutants occurs in plastic?

   (a) Lithium (b) PCBs

   (c) Lead (d) Copper

4. _____ treatment method prevents immobilization of hazardous waste into the environment.

   (a) Hydrolysis (b) Stabilization

   (c) Solidification (d) Both (b) and (c)

5. Which among the following is the primary cause of death due to a gas leak?

(a) Dizziness (b) Vomiting

(c) Chocking (d) Restless

6. What is the hazardous pollutant released from electron tubes?

(a) Arsenic (b) Gold

(c) Copper (d) Barium

7. What is the principle of sovereignty?

(a) Import procedure

(b) Export Procedure

(c) Right to ban

(d) Right to accept

8. What chemical gas leaked from the Union Carbide plant?

(a) MIC (b) Hydrogen

(c) Oxygen (d) Methane

9. In 2006, the IAER projected that _____ billion electronic and electrical appliances would become e-waste by 2010.

(a) 1 (b) 2

(c) 3 (d) 4

10. Nickel is released from _____

(a) Display (b) Calculator

(c) Alloy (d) Transformer

Part B (5 × 5 = 25)

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

11. (a) List the common occupational diseases and discuss the control measures.

Or

(b) Why do we need to do periodic medical examinations for workers?

12. (a) Write short notes on Industrial Hygiene.

Or

(b) State the principles of local exhaust ventilation.

13. (a) How to review the training programs?

Or

(b) Write short notes on promoting safety.

14. (a) Narrate the role of the safety department.

Or

(b) State the principles of PSM.

15. (a) Name the different air pollutants in industries.

Or

(b) How do you measure noise? Mention the control measures.

Part C (5 × 8 = 40)

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

16. (a) Briefly discuss about occupational health management services at the workplace.

Or

(b) Elaborately discuss the pre-employment.

17. (a) Describe in detail the occupational health and environment safety management system.

Or

(b) Explain the following :

(i) Wet Method

(ii) Personal Hygiene.

18. (a) Briefly discuss the elements of the training cycle.

Or

(b) State the need for and significance of safety and health training.

19. (a) Elaborately discuss the performance measurements to determine the effectiveness of PSM.

Or

(b) Explain the importance of industrial safety.

20. (a) Define noise. Briefly discuss the effects of noise on the auditory system.

Or

(b) Briefly discuss the effects of vibration.

———————

C–5278	Sub. Code
	70132

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Industrial Safety and Hygiene

HAZARD AND RISK ANALYSIS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. ———————— analysis is done to assist in judging whether the consequences are great enough to require increased management.

   (a) Adverse impact (b) Physical

   (c) Social (d) Non-destructive

2. For existing chemicals, we should always consider ——— case exposure assessment based on modelling to derive an environmental concentration.

   (a) Better (b) Reasonable Worst

   (c) Moderate (d) High

3. What is the task of risk management?

   (a) Evaluate source (b) Allocate Measure

   (c) Implementing (d) All of the above

4. ———————— monitoring is an example of indirect measurement in exposure assessment.

(a) Environment (b) Biological effect

(c) Toxic (d) Personal

5. Toxicological and epidemiological exposure-response relationship comes under ————————assessment.

(a) Chemical (b) Character

(c) Consequences (d) Co-existence

6. A discussion of uncertainty is critical for ————————.

(a) Risk characterization

(b) Chemical test

(c) Calculation

(d) Pathway analysis

7. A quantitative uncertainty analysis requires knowledge about the ————————.

(a) Frequency (b) Duration

(c) Intensity (d) Potential range values

8. Uncertainty in the point estimate that is less than one order of magnitude is considered _____.

(a) High (b) Low

(c) Very High (d) Moderate

9. Minamata, Japan hazard outbreak had effect on the population.

(a) Direct (b) Acute

(c) Chronic (d) Minimal

10. An uncertainty analysis is additionally useful to weigh the benefits against the ————————.

(a) Alternative remedial actions

(b) Chemical plans

(c) Exposure plans

(d) Toxicity actions

Part B (5 × 5 = 25)

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

11. (a) Write short notes on hazard characterization.

Or

(b) List the application of ALARP in risk assessment.

12. (a) Shortly discuss about the risk analysis methods.

Or

(b) Define JSA. And mention the need for JSA.

13. (a) Name a few safety management tools and briefly discuss any one tool.

Or

(b) What is the Risk priority number?

14. (a) Summarize the hazard identification methods.

Or

(b) Enumerate the process of monitoring and reviewing the risk assessment.

15. (a) Shortly, discuss the Port Hudson disaster.

Or

(b) What is a convey report?

Part C (5 × 8 = 40)

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

16. (a) Elaborately discuss about hazardous events.

Or

(b) Identify the need for and significance of a safety warning system and discuss it briefly.

17. (a) Enumerate the benefits of risk analysis.

Or

(b) Distinguish risk-benefit and cost-benefit analysis.

18. (a) Briefly discuss about FTA.

Or

(b) Explain FMEA methodology and control measures of FMEA.

19. (a) Elaborately discuss the evaluation of hazard and risk.

Or

(b) Describe in detail about the specific site assessment and risk matrix.

20. (a) What kind of disaster happened in Flixborough?

Or

(b) Describe in detail about the Bhopal Disaster.

———————

C–5279	Sub. Code
	70133

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Industrial Safety and Hygiene

SAFETY AUDIT AND INSPECTION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Quality is conformance to requirements. Identify the quality guru who said this.

   (a) Ishikawa (b) Cosby

   (c) Turage (d) Monroe

2. The systematic activities and planned activities that provide adequate confidence that the manufactured products are meeting the requirements is called ————.

   (a) Quality assures (b) Quality control

   (c) Inspection (d) Complying

3. The two categories of products are ———————— and ————————

   (a) Goods, service

   (b) Chemical, Bio

   (c) Car, bus

   (d) Calculator, pen

4. Which of the following does not fit in the category of Goods?

(a) Bike (b) Insurance

(c) Car (d) Flight

5. The types of customers are

(a) Internal (b) External

(c) Both (a) and (b) (d) Managers

6. Which of the following does not fit in the category of Internal Customers?

(a) Stakeholders (b) Public

(c) Shareholders (d) Employees

7. Which of the following is not a measure of Product Deficiency?

(a) Error (b) Defect

(c) Off Specification (d) Mass of product

8. Which dimension of product quality tells you about the probability that a product will perform its function for a given period of time under specified conditions?

(a) Aesthetic (b) Reputation

(c) Reliability (d) Permanence

9. Which of the following is not a technique to study the 'service quality gap'?

(a) Survey (b) Online research

(c) Focus group (d) Inquire the boss

10. If an organization commits to 10 promises and if all the promises are met, then which 'service quality' dimension is strongly promoted?

(a) Completeness (b) Compiling

(c) Tangible (d) Aesthetic

Part B (5 × 5 = 25)

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

11. (a) Enumerate the purpose of workplace inspection.

Or

(b) State the role of the inspection team during the inspection.

12. (a) List the pre-audit activities.

Or

(b) Write short notes on safety audit interviewing.

13. (a) Define leadership and state the role of leadership.

Or

(b) Who is the worker, and who is the leader?

14. (a) Define EMS.

Or

(b) Narrate the three levels of documentation for an ISO14000-based EMS.

15. (a) Explore the general principles of LCA.

Or

(b) Write short notes on EIS.

Part C (5 × 8 = 40)

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

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

Or

(b) Explain in detail the follow-up and monitoring with necessary data.

17. (a) Elaborately discuss the on-site activities in the safety audit.

Or

(b) List the critical audit evidence and briefly discuss it.

18. (a) What are success factors? And explain in detail about ISO 45001

Or

(b) Describe the OH and S policy in detail.

19. (a) Briefly discuss about Clauses 4.1 to 4.5.

Or

(b) Explain the steps in ISO 14001.

20. (a) Elaborately discuss the EIA methodology.

Or

(b) List the types of labels. And briefly discuss it in detail about it.

———————

C–5280	Sub. Code
	70134

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Industrial Safety and Hygiene

SAFETY AT OIL, GAS AND NUCLEAR SECTOR

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions.

1. Which of the following is a key component of downstream operations in the oil and gas industry?

   (a) Drilling (b) Exploring

   (c) Refining (d) Seismic surveys

2. What is essential for ensuring safety in offshore oil drilling operations?

   (a) Wellhead management

   (b) Minimizing work

   (c) Ignoring weather

   (d) Reducing safety

3. Root cause analysis in the oil and gas industry aims to

   (a) Increase production

   (b) Identify the cause

   (c) Cut costs

   (d) Delay maintenance

4. What does HAZOP stand for?

(a) Hazard and Operability

(b) Health Analysis

(c) Health Monitor

(d) Health Protocol

5. Which analysis technique is used to identify potential failure modes in a system?

(a) HAZOP

(b) Failure Mode

(c) Root cause analysis

(d) Safety checklist

6. The Three Mile Island disaster was primarily caused by:

(a) Equipment malfunction

(b) Operator error

(c) Earthquake

(d) Both (a) and (b)

7. Which measure is essential for controlling radiation exposure in nuclear power plants?

(a) Monitor radiation (b) Proper shielding

(c) Safety protocol (d) All of the above

8. The first nuclear reactor in India was named which of the following?

(a) Apsara (b) Dhruva

(c) Kamini (d) Purnima

9. _____ of uranium is used to produce heat in nuclear power stations.

(a) Fission (b) Fusion

(c) Bombardment (d) Internal combustion

10. Which of the following terms is NOT related to nuclear power plants?

(a) Moderator (b) Nuclear reactor

(c) Control rod (d) Drilling

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

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

11. (a) Differentiate upstream and downstream.

Or

(b) List the common causes of work injuries.

12. (a) Define safety and reliability and how to do safety analysis in the oil industry.

Or

(b) Write short notes on Markov methods.

13. (a) What is offshore safety?

Or

(b) Work permit system – discuss shortly.

14. (a) What is a reactor control and protection system?

Or

(b) Shortly discuss about operational safety.

15. (a) Mention the radiation control methods and discuss them shortly.

Or

(b) In what way will radiation affect the environment? Also, mention the minimization methods.

Part C (5 × 8 = 40)

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

16. (a) Classify product hazard and discuss briefly about it.

Or

(b) Elaborately discuss the human error occurrence reasons.

17. (a) Briefly discuss about job safety analysis.

Or

(b) Describe in detaila about Falut tree analysis.

18. (a) Explain in detail about the consequences of not fallowing safety.

Or

(b) Describe in detail about the important of regular inspection of machinery and common hazards in oil industry.

19. (a) Briefly discuss about the engineered safety features.

Or

(b) Elaborately discuss the Three Mile Island accident causes and learnings.

20. (a) Explain in detail about the waste management system and its importance.

Or

(b) What is radiation and briefly discuss about the control of radiation exposure?

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C–5282	Sub. Code
	70137

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Industrial Safety and Hygiene

FOOD HYGIENE AND SANITATION (HACCP)

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which stage does adulteration take place in?

   (a) Producer (b) Distributor

   (c) Retailer (d) All of them

2. Statement 1: Adulteration takes place more in loosely sold items than those sold packed.

   Statement 2: Powder and paste forms are more adulterated than solid lumps.

   (a) True, False (b) True, True

   (c) False, False (d) False, True

3. Which of the following is an adulterant?

   (a) Urea (b) Pesticides

   (c) Iron-filling tea (d) All of them

4. Methods for detection of common adulterants are

(a) Visual test (b) Chemical Test

(c) Physical Test (d) All of them

5. What is the temperature (in degrees Celsius) danger zone for food?

(a) 0 – 4 (b) 5 – 10

(c) 11–16 (d) 5 – 57

6. Which of the following is an example of a physical food hazard?

(a) Bacteria (b) Mold

(c) Broken glass (d) Chemical

7. What is the maximum amount of time that perishable food should be left at room temperature?

(a) 2 hours (b) 4 hours

(c) 6 hours (d) 8 hours

8. Which of the following is an example of a chemical food hazard?

(a) Salmonella (b) Listeria

(c) Pesticide residue (d) Mold

9. What is the primary source of Campylobacter contamination in food?

(a) Raw poultry (b) Raw beef

(c) Fresh produce (d) Shellfish

10. _____ is the standards-setting body of food, where mandatory vertical and horizontal science-based standards are set across the food value chain.

(a) FSSAI (b) FAO

(c) MOFPI (d) None of them

Part B (5 × 5 = 25)

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

11. (a) State the importance of quality control in food quality.

Or

(b) List the factors influencing the quality of the food.

12. (a) Criticize the biological factors contributing to the contamination of the food chain.

Or

(b) Shortly discuss about personal hygiene.

13. (a) Define the following:

(i) GMP,

(ii) GHP.

Or

(b) Write short notes on risk analysis in food safety.

14. (a) What are FSSAI and PFA? And state the importance of it.

Or

(b) State the need for and significance of WHO and FDA.

15. (a) Enumerate the purpose of food safety auditing.

Or

(b) Why do we need to label food packages?

Part C (5 × 8 = 40)

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

16. (a) How do we assess the quality of the fruits and milk? Discuss briefly.

Or

(b) Explore the methods for determining the food quality in the food industry.

17. (a) Define food sanitation and explain in detail about the regulation of food sanitation.

Or

(b) Briefly discuss about sanitation methods and state the need for Pest Control.

18. (a) Explain in detail about the principles of food safety and the quality of the food.

Or

(b) Mention the applications of HACCP in food safety.

19. (a) Describe the role of national regulatory agencies in food safety.

Or

(b) Briefly discuss the ISO 900 and ISO 17025 standards for food quality and safety.

20. (a) Briefly discuss the FDA import policy in food safety auditing.

Or

(b) State the need for and importance of certifications in food safety and briefly discuss the alert system.

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