**C–8297**

**Sub. Code**
**50111/50311**

**DIPLOMA EXAMINATION, APRIL 2026.**

**First Semester**

**BASICS OF FIRE SAFETY**

**(Common for Fire & Industrial Safety Management/Fire & Industrial Safety (Three Year))**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 1 = 10)

Answer **all** the questions.

1. Fire is a
   (a) Chemical reaction
   (b) Physical reaction
   (c) Combined reaction
   (d) None of these
2. The fire triangle consists of
   (a) Wood, Oxygen, $CO_2$
   (b) Oxygen, Fuel, $CO_2$
   (c) Oxygen, Fuel, Nitrogen
   (d) Fuel, Oxygen, Heat
3. What is your reaction on finding a fire?
   (a) Take a picture of it
   (b) Call a friend
   (c) Sound the alarm and evacuate
   (d) Attempt to extinguish alone

4. The following is extinguisher is best to put off cooking oil and fat fire

(a) Class B (b) Class A

(c) Class C (d) Class F

5. Personal protective equipment consists of

(a) Respiratory protection equipment

(b) Helmet and shoes

(c) Hearing protection equipments

(d) All of the above

6. The best system to put off fire in the outer area of a building is

(a) Water mist protection system

(b) Portable extinguisher

(c) Hydrant system

(d) Water sprinkler system

7. Where should a fire and smoke alarm be placed in a room?

(a) On the floor (b) On the wall

(c) At the entrance (d) On the ceiling

8. Which of the following is an essential component of fire safety in a building?

(a) Fire resistant paint

(b) Smoke detector

(c) Fireworks display

(d) Storage tanks

9. The only thing that can keep you in a safe environment is

(a) PPE

(b) Supervision

(c) Obeying rules and regulation

(d) Attitude

10. The purpose of fire safety training is

(a) Improve physical fitness

(b) Enhance problem solving skill

(c) Increase awareness on fire hazards and prevention

(d) Teach advanced fire fighting techniques

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

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

11. (a) Explain various heat transfer methods.

Or

(b) Write short notes on BLAVE with a sketch.

12. (a) Differentiate safety glass and goggles.

Or

(b) List out the fire extinguishers with their specific usage.

13. (a) How one can prevent from hand injuries?

Or

(b) Explain shortly the sprinkler system inspection methods.

14. (a) Give the types of detectors and explain one in details.

Or

(b) Point out few preventive measures for skin.

15. (a) Differ smoke and fumes then Gas and vapour.

Or

(b) What are the precautions to be carried out on combustible liquid hanling?

## Part C

(5 × 8 = 40)

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

16. (a) Write shortly on risk, accident, incident and near miss.

Or

(b) Discuss on basics of PPE and give it types.

17. (a) Describe different eye protection methods.

Or

(b) Brief the fire extinguisher operating methods and precaution steps.

18. (a) Write about the importance of leg protection and hand protection.

Or

(b) Explain a sprinkler system with a neat sketch.

19. (a) What are the basics to be followed on fire protection device installation?

Or

(b) How we save our skin from the effects of harmful chemical substances?

20. (a) Write about Oxygen deficiency and respirators.

Or

(b) Elaborate the precautionary steps to be taken during loading and unloading of combustible liquids.

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**DIPLOMA EXAMINATION, APRIL 2026**

**First Semester**

**Fire & Industrial Safety Management**

**CONSTRUCTION SAFETY**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 1 = 10)

Answer **all** questions.

1. Most of the accidents caused by
   (a) Bad weather (b) People's activities
   (c) Machineries (d) Poor maintenance

2. Construction works are
   (a) More hazardous (b) Most dangerous
   (c) Accident prone (d) Highly polluted

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

4. The removal of earth for highway formation is
   (a) Embankment (b) Excavation
   (c) Subgrade (d) Filling

5. How to ensure that the ladder is safe and won't slip?

(a) Tie at the top

(b) Ask someone to stand near

(c) Tie it at the bottom

(d) Wedge the bottom of the ladder with wooden blocks

6. Which type of fall protection equipment is designed to arrest falls in a controlled manner?

(a) Safe nets (b) Guard rails

(c) Safety harness (d) Helmets

7. A bulk load is in the form of

(a) Powder (b) I Beam

(c) Building block (d) Container

8. Which is not a type of crane?

(a) Mounted (b) Railroad

(c) Flying (d) Crawler

9. Taking up or down or breaking up activities without care is termed as

(a) Reconstruction (b) Dismantling

(c) Redevelopment (d) Demolition

10. Which of the following is not man made hazard?

(a) Leakage of Toxic waste

(b) War and civil strike

(c) Draught

(d) Environmental pollution

## Part B (5 × 5 = 25)

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

11. (a) Construction activities are more dangerous. Why?

Or

(b) Write about few causes of accidents elated various construction activities.

12. (a) Differentiate trenches and shafts.

Or

(b) Write about confined spaces.

13. (a) State the bad effects of working on height.

Or

(b) Compare fall protection and fall prevention.

14. (a) List out the machineries used in construction industry with their specific usage.

Or

(b) Describe the functions of conveyors.

15. (a) Brief the precautions to be taken on explosive demolition.

Or

(b) What is pre survey inspection? Why it is important?

## Part C

(5 × 8 = 40)

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

16. (a) Explain the causes of accidents.

Or

(b) What are the human factors involved in construction work hazards and how to rectify or control them?

17. (a) Point out the precautious steps to be taken after excavation work.

Or

(b) Elaborate the problems expected on construction of high rise building.

18. (a) Describe the requirements for safe work platform.

Or

(b) How fall prevention differ from all protection?

19. (a) Write about the uses of winches and chain pulley blocks.

Or

(b) State the uses of excavators, dozers, loaders and dumpers.

20. (a) Point out the precautions to be carried out before a demolition works.

Or

(b) Brief the necessity for site supervision and safe clearance zone.

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**DIPLOMA EXAMINATION, APRIL 2026**

**Second Semester**

**Fire and Industrial Safety Management**

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

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 1 = 10)

Answer **all** questions.

1. What is the primary purpose of a hazard register?
   (a) To identify and document potential hazards
   (b) To assess and prioritize risks
   (c) To implement control measures
   (d) To review and evaluate safety performance

2. Which of the following is a type of hazard identification technique?
   (a) Checklist
   (b) Preliminary Hazard Analysis (PHA)
   (c) Hazard and Operability Study (HAZOP)
   (d) All of the above

3. State the aim of risk analysis in the context of occupational health and safety?

(a) To identify potential hazards

(b) To assess the likelihood and impact of potential hazards

(c) To implement control measures

(d) To review and evaluate safety performance

4. Point out the benefit of conducting a root cause analysis (RCA)?

(a) Identifies immediate causes of incidents

(b) Identifies underlying causes of incidents

(c) Provides a quick fix to problems

(d) Eliminates the need for further investigation

5. Why HAZOP (Hazard and Operability) study is required?

(a) To identify potential hazards and operability problems

(b) To assess the likelihood and impact of potential hazards

(c) To implement control measures

(d) To review and evaluate safety performance

6. The type of safety management tools used to evaluate the reliability of a system or process is?

(a) Fault Tree Analysis (FTA)

(b) Event Tree Analysis (ETA)

(c) Failure Mode and Effects Analysis (FMEA)

(d) All of the above

7. The primary objective of HIRA is?

(a) To identify potential hazards and assess risks

(b) To implement control measures and preventive measures

(c) To review and evaluate safety performance

(d) To conduct a specific site assessment

8. Which of the following is a principle of HIRA?

(a) Identify potential hazards and assess risks

(b) Evaluate and prioritize risks

(c) Implement control measures and preventive measures

(d) All of the above

9. The use of past accident analysis in risk assessment is?

(a) To identify potential hazards

(b) To assess the likelihood and impact of potential hazards

(c) To learn from past experiences and improve safety

(d) To evaluate the effectiveness of control measures

10. Specify an information source for hazard analysis?

(a) Historical data

(b) Expert judgment

(c) Industry standards

(d) All of the above

## Part B (5 × 5 = 25)

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

11. (a) Differentiate 'unsafe act" and an 'unsafe condition" in the context of hazard identification?

Or

(b) Explain the concept of ALARP (As Low As Reasonably Practicable) and its application in risk assessment and control.

12. (a) List out the key steps involved in conducting a job safety analysis (JSA).

Or

(b) Explain the role of benefit-cost analysis in the context of occupational health and safety.

13. (a) Illustrate the methodology in conducting a HAZOP study.

Or

(b) How the Risk Priority Number (RPN) is used in FMEA to prioritize potential failures.

14. (a) Point out the benefits of using HIRA methodology?

Or

(b) Define risk matrix and how it is used in HIRA to evaluate arid prioritize risks?

15. (a) Note down the key lessons learned from the Bhopal disaster and how can they be applied to improve risk assessment and management?

Or

(b) Explain the effect of consequence analysis in risk assessment to evaluate the potential impacts of hazards.

## Part C (5 × 8 = 40)

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

16. (a) Discuss the importance of human of error analysis in identifying and controlling hazards and explain the different types of human errors that can occur.

Or

(b) Explain the role of safety warning systems in preventing accidents and injuries and discuss the different types of warning systems that can be used.

17. (a) Write short notes on identifying and analyzing root causes of incidents and accidents in the workplace.

Or

(b) Brief risk analysis and its application in occupational health and safety.

18. (a) Differentiate HAZOP and HAZAN (Hazard Analysis) and explain the advantages and limitations of each methodology.

Or

(b) Explain the procedure and steps involved in conducting an FTA.

19. (a) What is qualitative and quantitative risk assessment methodologies and explain the advantages and limitations of each approach.

Or

(b) Explain the importance of specific site assessment in HIRA.

20. (a) Elaborate the importance of learning from past disasters, such as Mexico City, Flixborough and Seveso disasters.

Or

(b) Justify the impact of Convey report in highlighting the importance of risk assessment and management in the process industries.

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**DIPLOMA EXAMINATION, APRIL 2026**

**Second Semester**

**Fire and Industrial Safety Management**

**SAFETY INSPECTION AND AUDIT**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 1 = 10)

Answer **all** questions.

1. What is the primary purpose of a workplace safety inspection?

   (a) To identify hazards and evaluate risks

   (b) To assign blame for past accidents

   (c) To provide training on safety procedures

   (d) To conduct performance evaluations

2. Which of the following is an essential element of a safety inspection plan?

   (a) Identifying potential hazards

   (b) Establishing a budget for safety equipment

   (c) Scheduling regular safety meetings

   (d) Conducting surprise inspections

3. What is the use of conducting on-site activities during a safety audit?

(a) To gather documentation and records

(b) To conduct interviews with employees

(c) To observe workplace conditions and practices

(d) All of the above

4. Which is a key consideration when evaluating audit evidence during a safety audit?

(a) Relevance to the audit objectives

(b) Sufficiency to support the audit findings

(c) Competence of the audit team

(d) All of the above

5. The primary aim of an Occupational Health and Safety (OH & S) management system?

(a) To reduce costs

(b) To improve productivity

(c) To minimize risks and prevent work-related injuries and illnesses

(d) To comply with regulatory requirements

6. The key success factor for an OH & S management system is?

(a) Top management commitment

(b) Employee participation

(c) Continuous improvement

(d) All of the above

7. The objective of the ISO 14001 standard is?

(a) To provide a framework for implementing an Environmental Management System (EMS)

(b) To establish a set of rules for environmental protection

(c) To provide guidelines for conducting environmental audits

(d) To establish a certification program for environmental professionals

8. The key principle of the ISO 14001 standard is?

(a) Continual improvement

(b) Pollution prevention

(c) Environmental responsibility

(d) All of the above

9. Life Cycle Assessment (LCA) in ISO 14040 is used?

(a) To evaluate the environmental impacts of a product or process

(b) To identify opportunities for cost savings

(c) To develop an environmental management system

(d) To conduct an environmental impact assessment

10. Characteristic of Type I eco-labels, as defined in ISO 14024 is?

(a) They are based on a single environmental criterion

(b) They are awarded by a third-party organization

(c) They are based on a life cycle assessment

(d) They are voluntary

## Part B (5 × 5 = 25)

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

11. (a) What are the key benefits of conducting regular workplace safety inspections?

Or

(b) What information should be included in a safety inspection report?

12. (a) Point out the key considerations when conducting interviews with employees during a safety audit?

Or

(b) How can audit findings and recommendations be effectively communicated to stakeholders, including management and employees?

13. (a) State the key elements of the Check-Act Cycle in the context of an OH & S management system?

Or

(b) How does leadership and worker participation contribute to the effectiveness of an OH & S management system?

14. (a) Derive an environmental policy, as required by ISO 14001?

Or

(b) Illustrate the guidelines provided by ISO 14004 for implementing an EMS?

15. (a) Mention the stages involved in conducting a Life Cycle Assessment (LCA), as per ISO 14040?

Or

(b) How can environmental impact assessment (EIA) be integrated into an Environmental Management System (EMS)?

**Part C** (5 × 8 = 40)

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

16. (a) Discuss the importance of planning and preparation in conducting a effective workplace safety inspection.

Or

(b) Explain the role of the safety inspection team in identifying hazards and evaluating risks, and describe the key characteristics of an effective team.

17. (a) Describe the post-audit activities, including follow-up and monitoring, to ensure that audit recommendations are implemented.

Or

(b) Brief the importance of the audit report in documenting the findings and recommendations of the safety audit.

18. (a) Discuss the scope and contents of ISO 45001, including its terms and definitions.

Or

(b) State the importance of organizational roles and worker participation.

19. (a) Brief the three levels of documentation required for an ISO 14000-based EMS, and describe the types of documents that should be maintained at each level.

Or

(b) Write about the key clauses of ISO 14001, specifically clauses 4.1 to 4.5.

20. (a) Specify the principles and rules governing Type I eco-labels, as defined in ISO 14024.

Or

(b) Illustrate the methodology and scope of environmental impact assessment (EIA).

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