

C-8301

Sub. Code

50312

DIPLOMA EXAMINATION, APRIL 2026

First Semester

Fire and Industrial Safety (3 Years)

**OCCUPATIONAL HEALTH AND SAFETY
MANAGEMENT**

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a notifiable occupational disease primarily affecting the lungs?
 - (a) Dermatitis
 - (b) Asbestosis
 - (c) Tetanus
 - (d) Carpal Tunnel Syndrome
2. What is the primary purpose of ventilation in a workplace?
 - (a) To control temperature
 - (b) To reduce noise levels
 - (c) To remove hazardous airborne contaminants
 - (d) To improve lighting
3. Which type of radiation's non-ionizing?
 - (a) X-rays
 - (b) Gamma rays
 - (c) Ultraviolet radiation
 - (d) Alpha particles

4. What does WBGT index measure?
 - (a) Noise levels
 - (b) Light intensity
 - (c) Heat stress
 - (d) Vibration exposure

5. Which of the following is NOT a vital sign?
 - (a) Pulse
 - (b) Body temperature
 - (c) Blood pressure
 - (d) Body weight

6. What is the purpose of CPR?
 - (a) To control bleeding
 - (b) To treat shock
 - (c) To restart a stopped heart
 - (d) To immobilize a fracture

7. What is the “Rule of Nines” used for?
 - (a) Estimating the extent of burns
 - (b) Calculating safe lifting limits
 - (c) Assessing the severity of a fracture
 - (d) Measuring the level of consciousness

8. Which of the following is a symptom of shock?
 - (a) Increased blood pressure
 - (b) Rapid, weak pulse
 - (c) Warm, flushed skin
 - (d) Slow deep breathing

9. What is the term for positive stress that can be motivating?
 - (a) Distress
 - (b) Eustress
 - (c) Acute stress
 - (d) Chronic stress

10. Which of the following is an Employee Assistance Program (EAP) designed to help with?
- (a) Financial planning
 - (b) Substance abuse
 - (c) Workplace stress
 - (d) All of the above

Part B

(5 × 5 = 25)

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

11. (a) Explain the concept of 'spectrum of health' in occupational health.

Or

- (b) Describe the different levels of prevention for occupational diseases.

12. (a) Discuss the effects of whole-body vibration on human health and the control measures.

Or

- (b) Explain the purpose and types of ventilation systems used in workplaces.

13. (a) Outline the sequence of actions a first aider should take upon arriving at an accident scene.

Or

- (b) Describe the management of a person experiencing a seizure.

14. (a) Explain the steps involved in performing CPR.

Or

- (b) Describe the different types of burns and their first aid treatment.

15. (a) Discuss the elements of industrial psychology and their relevance to occupational health.

Or

- (b) Explain the concept of workplace stress and its potential health consequences.

Part C

(5 × 8 = 40)

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

16. (a) Describe the notifiable occupational diseases and its symptoms and preventive measures.

Or

- (b) Discuss the toxic effects of mercury and the preventive strategies for these heavy metals.

17. (a) Explain the principles of noise measurement and different noise control methods.

Or

- (b) Discuss the physiological and comfort levels related to ventilation requirements in workplaces.

18. (a) Explain the structure and functions of the musculoskeletal system.

Or

- (b) Describe the recognition and management of fainting and diabetes-related emergencies.

19. (a) Explain the classification of wounds and their first aid treatment.

Or

- (b) Discuss the classification of fractures and the principles of immobilization.

20. (a) Discuss the various psychological hazards present in the workplace and its related disorders.

Or

- (b) Explain the individual and employer responsibilities in managing work-related stress.

C-8302

Sub. Code

50321

DIPLOMA EXAMINATION, APRIL 2026

Second Semester

Fire and Industrial Safety (3 years)

SAFETY ON ELECTRICAL AND CHEMICAL HAZARDS

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. Ohm's law states that current is directly proportional to:
(a) Resistance (b) Voltage
(c) Power (d) Capacitance
2. Which body system is most affected by electric shock?
(a) Digestive system
(b) Nervous system
(c) Pulmonary system
(d) Reproductive system
3. A secondary hazard of electricity is:
(a) Burns (b) Voltage
(c) Resistance (d) Inductance
4. The purpose of lightning arrestor is to:
(a) Generate electricity
(b) Protect equipment from surges
(c) Reduce current
(d) Increase resistance

5. A miniature circuit breaker (MCB) protects against:
 - (a) Short circuit and overload
 - (b) Mechanical wear
 - (c) Ground vibration
 - (d) Static charge
6. Earthing is primarily provided to:
 - (a) Save energy
 - (b) Ensure safety from fault current
 - (c) Reduce voltage
 - (d) Increase resistance
7. LC50 in toxicology refers to:
 - (a) Concentration lethal to 50% test population
 - (b) Dose lethal to 50% test animals
 - (c) Exposure time limit
 - (d) Fire resistance
8. WHMIS symbols are used for:
 - (a) Electrical equipment
 - (b) Chemical hazards
 - (c) PPE standards
 - (d) Fire codes
9. HAZCHEM code is mainly used in:
 - (a) PPE design
 - (b) Fire alarms
 - (c) Circuit design
 - (d) Transportation of hazardous chemicals
10. Green chemistry focuses on:
 - (a) Maximizing profit
 - (b) Reducing hazardous chemical use
 - (c) Increasing chemical hazards
 - (d) Promoting energy waste

Part B

(5 × 5 = 25)

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

11. (a) List the types of electrical faults.

Or

(b) Define CPR, resistance and capacitance.

12. (a) Differentiate primary and secondary hazards.

Or

(b) Shortly discuss about electromagnetic forces.

13. (a) What is safe distance from lines in electrical safety?

Or

(b) Identify the uses of a miniature circuit breaker and an earth leakage circuit breaker.

14. (a) List the flammable and reactive chemicals and discuss shortly about it.

Or

(b) State the purpose of the safety data sheet and labelling of chemicals.

15. (a) What is the inventory and tracking of chemicals?

Or

(b) Shortly discuss about chemical Exposure Risk Assessment.

Part C

(5 × 8 = 40)

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

16. (a) Explain briefly about the overloads and short circuits.

Or

- (b) Briefly discuss about the international standards on electrical safety.

17. (a) Explore the classes of Insulation.

Or

- (b) Define Earthing. State the need and significance of earthing.

18. (a) Briefly discuss the Earthing standards.

Or

- (b) Name the Personal Protective Equipment used in electrical safety and discuss briefly about it.

19. (a) Explain the following

- (i) Radioactive Hazards
- (ii) CLP Hazard pictogram.

Or

- (b) Describe in detail about LC50 and LD50 Flammable limits.

20. (a) Explain in detail about the Emergency Information panel – HAZCHEM code with necessary data.

Or

- (b) Explore the general guidelines for handling of hazardous chemicals.

C-8303

Sub. Code

50322

DIPLOMA EXAMINATION, APRIL 2026

Second Semester

Fire and Industrial Safety (3 Years)

FOOD SAFETY

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. The primary objective of quality control in food is:
 - (a) Increase profit
 - (b) Ensure safety and quality
 - (c) Reduce labour
 - (d) Extend storage time
2. Sampling in food quality evaluation is used to:
 - (a) Save cost
 - (b) Represent the whole batch
 - (c) Increase production
 - (d) Avoid storage
3. Biological contamination of food is mainly caused by:
 - (a) Chemicals
 - (b) Pathogenic microorganisms
 - (c) Dust
 - (d) Heat

4. Personal hygiene of food handlers is essential to:
 - (a) Reduce wastage
 - (b) Prevent foodborne diseases
 - (c) Increase profit
 - (d) Improve packaging
5. HACCP in food safety is primarily used for:
 - (a) Marketing
 - (b) Identifying critical control points
 - (c) Packaging
 - (d) Export certification
6. GAP, GMP, and GHP are examples of:
 - (a) Risk analysis tools
 - (b) Food safety practices
 - (c) Export policies
 - (d) Labelling techniques
7. FSSAI is responsible for:
 - (a) Export certification
 - (b) Food safety regulation in India
 - (c) Agricultural subsidies
 - (d) Chemical imports
8. 'Codex Alimentarius Commission works under:
 - (a) USDA
 - (b) FAO and WHO
 - (c) FDA
 - (d) WTO
9. Traceability in food safety means:
 - (a) Identifying origin and movement of food products
 - (b) Reducing storage cost
 - (c) Improving labelling colour
 - (d) Increasing shelf life

10. Food product recall is done when:
- (a) Food is unsafe for consumption
 - (b) Food is excess in stock
 - (c) Food is cheap in market
 - (d) Food is overpacked

Part B

(5 × 5 = 25)

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

11. (a) Define quality control and state the importance of quality control.

Or

- (b) Mention the types of quality characteristics of food.

12. (a) How to prevent the foodborne hazards?

Or

- (b) Write the need and significance of sanitation.

13. (a) What is Total Quality Management?

Or

- (b) Shortly discuss about Risk Management

14. (a) Roles and responsibilities of the WHO.

Or

- (b) Describe briefly about food quality and food safety.

15. (a) State the procedure and protocols of food safety auditing.

Or

- (b) List the need and importance of certifications in food safety.

Part C

(5 × 8 = 40)

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

16. (a) List the quality control objectives in food quality and how to identify the quality of MILK and MEAT?

Or

- (b) Explain in detail about the types of quality characteristics of food.

17. (a) Briefly discuss about personal hygiene.

Or

- (b) Explore the safety in food services.

18. (a) Elaborately discuss about Good Hygienic Practices.

Or

- (b) Explore the current challenges to food safety.

19. (a) Describe the following FSSAI and AGMARK.

Or

- (b) What are the WTO agreements and TBT agreements?

20. (a) Briefly discuss the export and import of food in India.

Or

- (b) Elaborately discuss the packaging and labelling of food.

C-8304

Sub. Code

50331

DIPLOMA EXAMINATION, APRIL 2026

Third Semester

Fire and Industrial Safety (3 Years)

CONSTRUCTION SAFETY

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a human factor that can contribute to accidents in construction?
 - (a) Fatigue
 - (b) Stress
 - (c) Complacency
 - (d) All of the above

2. What is the purpose of a pre-construction meeting?
 - (a) To discuss project timelines and budgets
 - (b) To identify potential hazards and develop safety plans
 - (c) To select subcontractors
 - (d) To obtain permits

3. What is the primary purpose of scaffolding?
 - (a) To provide a temporary working platform
 - (b) To store materials
 - (c) To protect the building from weather
 - (d) To provide access for the public

4. Which type of scaffold is supported by the structure being built?
- (a) Independent scaffold
 - (b) Putlog scaffold
 - (c) Suspended scaffold
 - (d) Mobile scaffold
5. What is a “method statement’ in demolition work?
- (a) A financial report
 - (b) A document outlining the demolition procedures and safety precautions
 - (c) A permit to work
 - (d) An environmental impact assessment
6. Which of the following is a hazard associated with blasting?
- (a) Flyrock
 - (b) Ground vibrations
 - (c) Air overpressure
 - (d) All of the above
7. What is the purpose of a safety belt?
- (a) To prevent falls
 - (b) To arrest falls and minimize injury
 - (c) To provide access to work areas
 - (d) To carry tools
8. Which of the following is NOT a safe practice when using a ladder?
- (a) Securing the ladder to prevent movement
 - (b) Using the top two rungs as a step
 - (c) Maintaining three points of contact
 - (d) Inspecting the ladder for damage before use

9. What is the purpose of a crane inspection checklist?
- (a) To ensure the crane is properly maintained
 - (b) To identify potential hazards
 - (c) To comply with safety regulations
 - (d) All of the above
10. Which of the following is a hazard associated with using a concrete mixer?
- (a) Rotating blades
 - (b) Noise
 - (c) Dust
 - (d) All of the above

Part B

(5 × 5 = 25)

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

11. (a) Explain the different types of accidents that can occur in the construction industry, providing examples.

Or

- (b) Discuss the role of education and training in preventing construction accidents.

12. (a) Describe the hazards associated with trenching and excavation work.

Or

- (b) Explain the different types of falsework and their applications in construction.

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

Or

- (b) Explain the safety precautions for working on fragile roofs.

14. (a) Describe the operation and safety precautions for using mobile cranes and tower cranes

Or

- (b) Explain the safety considerations for using conveyors and concrete pumps in construction.

15. (a) Discuss the health hazards associated with demolition work.

Or

- (b) Explain the fire hazards in demolition work and the preventive measures to mitigate these hazards.

Part C (5 × 8 = 40)

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

16. (a) Discuss the causes of fatal accidents in the construction industry and explain the measures to prevent them.

Or

- (b) Explain the role of contractual clauses and design aids in promoting safe construction practices.

17. (a) Describe the hazards and safety precautions for working on contaminated sites.

Or

- (b) Discuss the safety challenges and considerations for power plant construction projects.

18. (a) Explain the different types of fall protection systems and their selection criteria based on the work environment and hazards involved.

Or

- (b) Discuss the importance of safety monitoring systems and accident case studies in improving fall protection.

19. (a) Describe the inspection and testing procedures for hoisting cranes, including the use of crane inspection checklists.

Or

- (b) Explain the safety precautions for using portable electrical tools and welding machines in construction.

20. (a) Discuss the different methods for demolition work and its associated hazards and safety precautions.

Or

- (b) Explain the importance of first aid and emergency preparedness at construction sites.

C-8305

Sub. Code

50332

DIPLOMA EXAMINATION, APRIL 2026

Third Semester

Fire And Industrial Safety (3 years)

ACCIDENT INVESTIGATION AND REPORTING

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a direct cost of an accident?
 - (a) Medical expenses
 - (b) Lost time
 - (c) Damage to equipment
 - (d) Loss of reputation
2. Form No. 18 under the Factories Act 1948 is related to:
 - (a) Accident reporting
 - (b) Leave application
 - (c) Employee registration
 - (d) Factory inspection
3. The 'unsafe act' in accident causation refers to:
 - (a) A hazardous condition in the workplace
 - (b) A human action that deviates from safe procedures
 - (c) A failure of equipment
 - (d) An act of nature

4. Which theory suggests that accidents are caused by a combination of factors?
 - (a) Domino Theory
 - (b) Human Factors Theory
 - (c) Multiple Causation Theory
 - (d) Systems Theory
5. Which risk control method involves redesigning equipment or processes?
 - (a) Elimination
 - (b) Substitution
 - (c) Engineering control
 - (d) Administrative control
6. Which of the following is a method of accident investigation?
 - (a) Root Cause Analysis
 - (b) Risk assessment
 - (c) Job safety analysis
 - (d) Hazard identification
7. SCAT stands for:
 - (a) Systematic Cause Analysis Technique
 - (b) Safety Control and Assessment Tool
 - (c) Standardized Checklist for Accident Tracking
 - (d) Statistical Calculation of Accident Trends
8. Frequency rate is calculated based on:
 - (a) Number of accidents
 - (b) Number of fatalities
 - (c) Days lost
 - (d) Cost of accidents
9. Severity rate is calculated based on:
 - (a) Number of accidents
 - (b) Number of fatalities
 - (c) Days lost
 - (d) Cost of accidents

10. Which of the following is a common type of industrial accident?
- (a) Falls
 - (b) Struck by objects
 - (c) Caught in or between
 - (d) All of the above

Part B

(5 × 5 = 25)

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

11. (a) Explain the importance of accident reporting in preventing future accidents.

Or

- (b) Describe the reporting requirements for accidents under the BOCW Act 1996.

12. (a) Discuss the limitations of Heinrich's Domino Theory in explaining modern workplace accidents.

Or

- (b) Explain the Accident/Incident Theory and its application in accident prevention.

13. (a) Describe the different types of engineering controls used to prevent workplace accidents.

Or

- (b) Explain the role of administrative controls and work practices in ensuring workplace safety.

14. (a) Outline the steps involved in conducting a thorough accident investigation.

Or

- (b) Describe the Accident Analysis and Barrier Function (AFB) technique.

15. (a) Explain the different types of disabling injuries and their impact on workers and organizations.

Or

- (b) Discuss the challenges in classifying industrial accidents and the importance of accurate classification.

Part C

(5 × 8 = 40)

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

16. (a) Analyse the various direct and indirect costs associated with workplace accidents.

Or

- (b) Discuss the role of management commitment and employee involvement in creating a safe work culture.

17. (a) Compare and contrast the different theories of accident causation and their practical implications for accident prevention.

Or

- (b) Explain the concept of accident proneness' and its validity in explaining accident occurrence.

18. (a) Evaluate the effectiveness of different risk control strategies in reducing workplace accidents and injuries.

Or

- (b) Discuss the role of safety training and education in preventing accidents and promoting safe work practices.

19. (a) Discuss the different methods of accident investigation and their strengths and weaknesses.

Or

- (b) Explain the use of various tools and techniques, such as 5 Whys and Fault Tree Analysis, in accident investigation.

20. (a) Explain the methods for calculating accident frequency and severity rates and their use in monitoring safety performance.

Or

- (b) Discuss the importance of analysing accident data and areas for improvement in workplace safety.

C-8306

Sub. Code

50341

DIPLOMA EXAMINATION, APRIL 2026

Fourth Semester

Fire and Industrial Safety (3 Years)

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

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. A hazard is best defined as:
 - (a) Probability of loss
 - (b) Source of potential harm
 - (c) Result of an accident
 - (d) Risk register
2. The concept of ALARP stands for:
 - (a) As Low As Reasonably Practicable
 - (b) As Late As Risk Possible
 - (c) As Low As Risk Prevented
 - (d) As Low As Rules Permit
3. Which tool is mainly used to analyze the basic causes of accidents?
 - (a) Fault Tree Analysis
 - (b) Root Cause Analysis
 - (c) Risk Matrix
 - (d) Job Safety Analysis

4. A Job Safety Analysis (JSA) is conducted to:
 - (a) Identify hazards in job tasks
 - (b) Increase productivity
 - (c) Reduce working hours
 - (d) Approve Contracts

5. HAZOP is used to:
 - (a) Study plant deviations
 - (b) Inspect scaffolds
 - (c) Train new workers
 - (d) Audit financial records

6. The Risk Priority Number (RPN) is a key element of:
 - (a) ETA
 - (b) HAZAN
 - (c) FMEA
 - (d) HIRA

7. The first step in HIRA is:
 - (a) Control measure
 - (b) Hazard identification
 - (c) Reporting
 - (d) Monitoring

8. A Risk Matrix is used for:
 - (a) Ranking hazards by severity and likelihood
 - (b) Estimating project cost
 - (c) Scheduling manpower
 - (d) PPE purchase

9. The Bhopal gas tragedy is linked to the release of :
 - (a) Ammonia
 - (b) Chlorine
 - (c) Methyl isocyanate
 - (d) Carbon monoxide

10. The Flixborough disaster involved:
- (a) Explosion in a chemical plant
 - (b) Collapse of a building
 - (c) Fire in refinery
 - (d) Nuclear radiation

Part B

(5 × 5 = 25)

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

11. (a) Define hazard, Risk and Risk register.
- Or
- (b) Write short notes on human error analysis.
12. (a) What is Risk Analysis?
- Or
- (b) Shortly discuss about job safety analysis.
13. (a) Narrate the HAZOP methodology with relevant data.
- Or
- (b) List the types of FMEA and its uses.
14. (a) List the steps involved in hazard identification.
- Or
- (b) Write short notes on Specific Site Assessment.
15. (a) Name the Risk Assessment techniques and their importance.
- Or
- (b) What are pas accident analysis?

Part C

(5 × 8 = 40)

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

16. (a) Briefly discuss about hazardous event.

Or

- (b) Elaborately discuss about the concept of ALARP and its application in risk assessment.

17. (a) Explain in detail about risk analysis process.

Or

- (b) Describe risk-benefit and cost-benefit analysis with necessary data.

18. (a) Explore in detail about FMEA methodology.

Or

- (b) Elaborately discuss about Fault Tree Analysis and Event Tree Analysis.

19. (a) What is Risk Matrix and explain in detail about risk control method.

Or

- (b) Briefly discuss about the types of risk assessment with suitable examples.

20. (a) Explain in detail about the Bhopal Disaster and its effects with relevant data.

Or

- (b) Describe in detail about the Mexico disaster with necessary information.

C-8307

Sub. Code

50342

DIPLOMA EXAMINATION, APRIL 2026

Fourth Semester

Fire & Industrial Safety [3 Years]

EHS LAW

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. The Factories Act 1948 mainly deals with:
 - (a) Labour wages
 - (b) Health, safety and welfare of workers
 - (c) Trade disputes
 - (d) Export duties
2. Employment of young persons under the Factories Act is:
 - (a) Prohibited
 - (b) Encouraged
 - (c) Restricted with Conditions
 - (d) Free without rules
3. The Environment Protection Act 1986 empowers:
 - (a) Local bodies only
 - (b) Central Government
 - (c) Private industries
 - (d) Labour unions
4. The Air Act 1981 and Water Act 1974 provide for:
 - (a) Prevention and control of pollution
 - (b) Trade licences
 - (c) Factory inspections
 - (d) Transport rules

5. Under MSIHC Rules 1989, occupier is responsible for:
 - (a) Tax payment
 - (b) Notification of major accidents
 - (c) Import duty
 - (d) Labour strikes

6. Safety Data Sheets (SDS) are used to:
 - (a) Provide hazard information on chemicals
 - (b) Approve wages
 - (c) Record attendance
 - (d) Audit costs

7. The Indian Boilers (Amendment) Act 2007 relates to:
 - (a) Electrical safety
 - (b) Pressure vessels and boilers
 - (c) Fire prevention
 - (d) Labour health

8. The Explosives Act 1884 regulates:
 - (a) Compensation
 - (b) Labour unions
 - (c) Manufacture, storage and transport of explosives
 - (d) Food safety

9. HASAWA 1974 is legislation from:
 - (a) USA
 - (b) UK
 - (c) India
 - (d) Germany

10. ISO 45001 standard relates to:
 - (a) Food safety
 - (b) Occupational health and safety management
 - (c) Environmental auditing
 - (d) Fire codes

Part B

(5 × 5 = 25)

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

11. (a) Shortly discuss the women workers welfare.

Or

- (b) What are special provisions?

12. (a) List the general powers of the central government.

Or

- (b) How to prevent the air pollution.

13. (a) Safety reports — discuss shortly.

Or

- (b) Write short notes on the handling of hazardous wastes.

14. (a) What is SMPV?

Or

- (b) Shortly discuss about Workman's Compensation Act.

15. (a) Health Act of USA — discuss shortly.

Or

- (b) Abbreviate the following :

- (i) API
- (ii) OISD
- (iii) NFA
- (iv) AERB.

Part C

(5 × 8 = 40)

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

16. (a) Explain in detail about the employment of young persons.

Or

- (b) Briefly discuss about the Tamil Nadu Safety Officer Rules 2005.

17. (a) Elaborately discuss the noise pollution and its control methods.

Or

- (b) Describe the power and functions of state board in control of water pollution.

18. (a) Explore the duties of authorities.

Or

- (b) List the toxic chemicals and briefly discuss the what are all the safety measures that need to be followed while handling them.

19. (a) Explain in detail about the Indian Boiler Act 2007.

Or

- (b) Briefly discuss the Gas Cylinder Rules 2016 and the Explosive Act 1884.

20. (a) Describe in detail about the European Safety.

Or

- (b) Explain the following :
- (i) AERB
 - (ii) ANSI.

C-8308

Sub. Code

50351

DIPLOMA EXAMINATION, APRIL 2026

Fifth Semester

Fire and Industrial Safety (3 Years)

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 inspection?
 - (a) To identify potential hazards
 - (b) To assess employee performance
 - (c) To evaluate the financial health of the company
 - (d) To comply with legal requirements
2. Which of the following is NOT typically included in a workplace inspection report?
 - (a) Date and time of inspection
 - (b) Observations of hazards
 - (c) Employee salaries
 - (d) Recommended corrective actions
3. What is the main difference between a safety inspection and a safety audit?
 - (a) Inspections are more frequent than audits
 - (b) Audits are more in-depth and comprehensive than inspections
 - (c) Inspections are conducted by internal staff, while audits are external
 - (d) There is no difference

4. Which type of audit focuses on an organization's compliance with safety regulations?
 - (a) Compliance audit
 - (b) System audit
 - (c) Management audit
 - (d) Financial audit

5. What is the aim of an occupational Health and Safety Management System (OHSMS)?
 - (a) To prevent accidents and ill health
 - (b) To improve product quality
 - (c) To reduce environmental impact
 - (d) To increase profits

6. What does the "Plan-Do-Check-Act" (PDCA) cycle represent?
 - (a) A process for conducting risk assessments
 - (b) A framework for continuous improvement
 - (c) A method for investigating accidents
 - (d) A procedure for emergency response

7. What is the focus of ISO 14001?
 - (a) Occupational health and safety
 - (b) Environmental management systems
 - (c) Quality management systems
 - (d) Financial management systems

8. What does "LCA" stand for in the context of environmental management?
 - (a) Life Cycle Assessment
 - (b) Loss Control Analysis
 - (c) Legal Compliance Audit
 - (d) Leadership and Commitment Assessment

9. What is the purpose of eco-labeling?
 - (a) To mislead consumers
 - (b) To increase product costs
 - (c) To identify environmentally friendly products
 - (d) To promote international trade

10. What is an Environmental Impact Assessment (EIA)?
- (a) A financial analysis of a project
 - (b) A study of the potential environmental impacts of a project
 - (c) An evaluation of employee satisfaction
 - (d) A measurement of a company's carbon footprint

Part B

(5 × 5 = 25)

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

11. (a) Explain the importance of planning workplace inspections.

Or

- (b) Describe the information that should be included in a workplace inspection report.

12. (a) Discuss the different types of safety audits and their objectives.

Or

- (b) Explain the methodology for conducting a safety audit.

13. (a) Describe the key elements of an OHSMS according to ISO 45001.

Or

- (b) Explain the importance of leadership and worker participation in an OHSMS.

14. (a) Discuss the objectives and principles of an Environmental Management System (EMS) according to ISO 14001.

Or

- (b) Explain the documentation requirements for an ISO 14001-based EMS.

15. (a) Describe the stages involved in a Life Cycle Assessment (LCA).

Or

- (b) Explain the concept of eco-labeling and its different types.

Part C

(5 × 8 = 40)

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

16. (a) Discuss the importance of follow-up and monitoring after a workplace inspection.

Or

- (b) Explain the role of workplace inspections in hazard identification and control.

17. (a) Describe the process of conducting a safety audit, including pre-audit and post-audit activities.

Or

- (b) Discuss the benefits of conducting safety audits for an organization.

18. (a) Explain the concept of the “Plan-Do-Check-Act” (PDCA) cycle in ISO 45001.

Or

- (b) Discuss the role of leadership commitment in creating a strong safety culture.

19. (a) Explain the steps involved in implementing an EMS based on ISO 14001.

Or

- (b) Discuss the benefits of implementing an EMS for an organization.

20. (a) Describe the purpose and methodology of an Environmental Impact Assessment (EIA).

Or

- (b) Discuss the relationship between EIA and EMS.

C-8309

Sub. Code

50352

DIPLOMA EXAMINATION, APRIL 2026

Fifth Semester

Fire and Industrial Safety [3 Years]

SAFETY IN OIL AND GAS INDUSTRIES

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a segment of the oil and gas industry?
 - (a) Upstream
 - (b) Downstream
 - (c) Midstream
 - (d) Retail

2. Which of the following is a common cause of work injuries?
 - (a) Slips, trips, and falls
 - (b) Strains and sprains
 - (c) Contact with equipment
 - (d) All of the above

3. The bathtub hazard curve illustrates:
 - (a) Accident frequency over time
 - (b) Equipment failure rates over time
 - (c) The relationship between safety and productivity
 - (d) The cost of accidents

4. HAZOP stands for:
 - (a) Hazard and Operability Analysis
 - (b) Hazard Assessment and Operability Procedure
 - (c) Hazardous Operations and Procedures
 - (d) Hazard Operability and Performance

5. Which of the following is a type of safety training?
 - (a) Toolbox talk
 - (b) On-the-job training
 - (c) Refresher training
 - (d) All of the above

6. Which organization typically regulates offshore safety?
 - (a) OSHA
 - (b) EPA
 - (c) Coast Guard or equivalent national body
 - (d) DOT

7. Situation awareness in offshore work refers to:
 - (a) Understanding the current environment and potential hazards
 - (b) Following safety procedures
 - (c) Using EPE
 - (d) Reporting accidents

8. Which of the following is a common hazard in the oil and gas industry?
 - (a) Explosions and fires
 - (b) Confined spaces
 - (c) Working at heights
 - (d) All of the above

9. A work permit system is used to:
 - (a) Authorize specific tasks
 - (b) Track production
 - (c) Manage finances
 - (d) Schedule meetings

10. Which of the following is a hazard associated with confined spaces?
- (a) Oxygen deficiency
 - (b) Toxic gases
 - (c) Flammable vapors
 - (d) All of the above

Part B

(5 × 5 = 25)

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

11. (a) Differentiate between upstream and downstream operations in the oil industry.

Or

- (b) Explain the safety management principles in the oil and gas industry.

12. (a) Describe the process of Root Cause Analysis.

Or

- (b) Explain the purpose and methodology of a HAZOP study.

13. (a) Discuss the consequences of not following safety procedures in offshore operations.

Or

- (b) Explain the importance of regular inspection of machinery in offshore installations.

14. (a) Describe the human factors that contribute to accidents in the oil and gas industry.

Or

- (b) Explain the common hazards associated with explosions in the oil and gas industry.

15. (a) Discuss the hazards associated with confined spaces and the requirements for ventilation and gas testing.

Or

- (b) Explain the control measures for lifting activities in the oil and gas industry.

Part C

(5 × 8 = 40)

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

16. (a) Analyse the common causes of work injuries in the oil and gas industry.

Or

- (b) Discuss the various accident causation theories and their relevance to the oil and gas industry.

17. (a) Evaluate the effectiveness of different safety analysis methods used in the oil and gas industry.

Or

- (b) Explain the various safety training programs required for personnel in the oil and gas industry.

18. (a) Discuss the offshore industrial risk picture and the importance of situation awareness for offshore workers.

Or

- (b) Analyse the causes and consequences of the Piper Alpha disaster.

19. (a) Discuss the group, and individual factors that influence safety performance in the oil and gas industry.

Or

- (b) Recommend measures to reduce fatal accidents in the oil and gas industry.

20. (a) Explain the hazards associated with hazardous materials and the precautions to be taken during their handling and storage.

Or

- (b) Discuss the sources of offshore oil and gas industry accident data and the importance of data analysis in accident prevention.

C-8310

Sub. Code

50361

DIPLOMA EXAMINATION, APRIL 2026

Sixth Semester

Fire and Industrial Safety (3 Years)

PROCESS SAFETY MANAGEMENT

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. The primary purpose of a Block Flow Diagram is to:
 - (a) Show piping layout
 - (b) Indicate process steps
 - (c) Display financial cost
 - (d) Represent workforce structure

2. Maximum Intended Inventory refers to
 - (a) Highest safe quantity of regulated substance
 - (b) Maximum tank volume
 - (c) Largest stock of raw material
 - (d) Peak flow rate

3. The most widely used method for conducting a HAZOP study is:
 - (a) Brainstorming
 - (b) Checklist method
 - (c) Node-by-node examination
 - (d) Simulation analysis

4. Which training type occurs periodically to refresh knowledge?
 - (a) Initial training
 - (b) On-the-job training
 - (c) Refresher training
 - (d) Intermittent training

5. Which ensures reliability of process equipment?
 - (a) Process hazard analysis
 - (b) Mechanical integrity
 - (c) Incident investigation
 - (d) Hot work permit

6. Before initiating startup after modifications, one must conduct:
 - (a) Compliance audit
 - (b) Safety meeting
 - (c) Incident investigation
 - (d) Pre-startup review

7. Which is an essential element of incident investigation?
 - (a) Financial reporting
 - (b) Investigation questionnaire
 - (c) Vendor selection
 - (d) Trade secrets

8. Employee participation in process safety mainly ensures:
 - (a) Higher wages
 - (b) Increased production rate
 - (c) Improved safety culture
 - (d) Reduced training cost

9. Hot work permit is required for:
 - (a) Painting jobs
 - (b) Welding and cutting jobs
 - (c) Excavation jobs
 - (d) Shifting materials

10. Emergency response planning includes:
- (a) Routine operations
 - (b) Handling contractors
 - (c) Evacuation and rescue
 - (d) Quality audits

Part B

(5 × 5 = 25)

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

11. (a) Define “Maximum intended Inventory” and explain its importance in process safety.

Or

- (b) Interpret the role of Piping & Instrumentation Diagrams (P & ID) in safety management.

12. (a) Differentiate between “Checklist” and “What-If” methods in PHA.

Or

- (b) Explain the purpose of Refresher Training with an example.

13. (a) Discuss the scope of Mechanical integrity in maintaining plant safety.

Or

- (b) Evaluate the significance of a Pre-startup Review.

14. (a) Identify key steps in conducting an Incident Investigation.

Or

- (b) Explain the role of Employee Participation in ensuring compliance.

15. (a) Illustrate the conditions where a Hot Work Permit is mandatory.

Or

- (b) Describe the responsibilities of the Principal Employer in managing contractors.

Part C

(5 × 8 = 40)

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

16. (a) Analyze how deviations from design codes and standards can lead to major accidents.

Or

- (b) Examine the contribution of Safety Systems and Relief System Design in process safety.

17. (a) Compare HAZOP and FMEA methodologies in Process Hazard Analysis.

Or

- (b) Assess the importance of Training Documentation in ensuring process safety compliance.

18. (a) Evaluate the challenges in maintaining Mechanical Integrity for high-risk equipment.

Or

- (b) Critically discuss the role of Compliance Audits in continuous process safety improvement.

19. (a) Explain the Investigation Methodologies used in identifying the root causes of incidents.

Or

- (b) Discuss the balance between Trade Secrets and Employee Right-to-Know in safety.

20. (a) Develop an outline for an Emergency Planning & Response strategy in a refinery.

Or

- (b) Justify the need for strict Contractor Selection in process industries.

C-8311

Sub. Code

50362

DIPLOMA EXAMINATION, APRIL 2026

Sixth Semester

Fire & Industrial Safety [3 Years]

BEHAVIOUR BASED SAFETY

(2023 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** questions.

1. Personality is best defined as
 - (a) Physical appearance
 - (b) Unique patterns of thinking and behaviour
 - (c) Job performance
 - (d) Communication skills
2. Which factor strongly influences perception?
 - (a) Salary
 - (b) Environment
 - (c) Lighting
 - (d) Technology
3. Group decision-making is effective because it
 - (a) Saves time
 - (b) Ensures single opinion
 - (c) Combines diverse ideas
 - (d) Avoids conflict
4. Informal leaders usually emerge through
 - (a) Authority
 - (b) Position
 - (c) Influence & Respect
 - (d) Rules

5. In ABC model, “C” stands for:
 - (a) Causes
 - (b) Consequence
 - (c) Controls
 - (d) Coaching

6. Safety coaching is carried out through
 - (a) Punishment
 - (b) Observation and Feedback
 - (c) Rewards only
 - (d) Peer pressure

7. Ergonomics is primarily concerned with
 - (a) Reducing cost
 - (b) Fitting work to workers
 - (c) Improving product design
 - (d) Office culture

8. Fatigue in ergonomics mainly refers to
 - (a) Worker’s salary
 - (b) Physical and Mental strain
 - (c) Lack of motivation
 - (d) Job promotion

9. Anthropometry deals with
 - (a) Measuring machines
 - (b) Measuring human body dimensions
 - (c) Measuring productivity
 - (d) Measuring time

10. Work surface design guidelines are made to:
 - (a) Increase salary
 - (b) Reduce accidents and strain
 - (c) Improve team work
 - (d) Control emotions

Part B

(5 × 5 = 25)

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

11. (a) Define personality and explain two factors influencing it.

Or

- (b) Differentiate between attitudes and values with examples.

12. (a) Explain the emergence of informal leaders in organizations.

Or

- (b) Summarize the importance of group decision making.

13. (a) Interpret the ABC model of behaviour change.

Or

- (b) Explain the role of feedback in improving safety performance.

14. (a) Define ergonomics and explain its applications on the shop floor.

Or

- (b) Illustrate the concept of motion economy with one example.

15. (a) Define anthropometry and explain its role in work design.

Or

- (b) Explain the ergonomic guidelines for designing static work.

Part C

(5 × 8 = 40)

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

16. (a) Analyze how emotional intelligence influences workplace safety.

Or

- (b) Discuss the process of organisational behaviour modification with suitable examples.

17. (a) Compare team building and group decision-making in safety management.

Or

- (b) Evaluate the role of communication in group behaviour.

18. (a) Assess the significance of Behaviour Based Observation in creating a safety culture.

Or

- (b) Explain how PPE usage can be improved using BBS principles.

19. (a) Discuss the ergonomic considerations in the design of seating arrangements and work benches.

Or

- (b) Analyze the impact of physical and mental strain on accident incidence.

20. (a) Develop ergonomic guidelines for designing workstations for standing workers.

Or

- (b) Critically evaluate the effectiveness and cost-effectiveness of ergonomic work design.