C–2808	Sub. Code
	90721

P.G. DIPLOMA EXAMINATION, APRIL 2024.

Second Semester

Fire and Industrial Safety

CONSTRUCTION SAFETY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. Which type of construction activity is associated with the highest risk of fatal accidents?

   (a) Excavation and ground works

   (b) Roofing and working at heights

   (c) Demolition work

   (d) Electrical installation

2. What is the purpose of a preconstruction meeting a construction project?

   (a) To discuss the budget and financial aspects

   (b) To assign tasks and responsibilities to different teams

   (c) To review the design and identify potential safety hazards

   (d) All of the above

3. Which of the following is NOT considered a hazard in construction?

   (a) Excavations

   (b) Scaffold inspection

   (c) Road works

   (d) Planting trees around the construction site

4. Which constriction activity requires special attention to ensure worker safety due to limited space and potential atmospheric hazards?

   (a) Tunneling

   (b) Road works

   (c) Power plant constructions

   (d) Construction of high rise buildings

5. What document is often required before commencing work at heights to ensure safety compliance?

   (a) Risk assessment report

   (b) Safety data sheet

   (c) Work permit

   (d) Employee handbook

6. Which organization provides guidelines for tall protection in construction?

   (a) ANSI (American National Standards Institute)

   (b) OSHA (Occupational Safety and Health Administration)

   (c) ISO (International Organization for Standardization)

   (d) NFPA (National Fire Protection Association)

7. Which machinery is specifically designed for transporting concrete from the mixer to the construction site?

(a) Concrete vibrators

(b) Concrete pumps

(c) Mobile cranes

(d) Chain pulley blocks

8. What is a critical aspect of ensuring safety while operating cranes on construction sites?

(a) Regular crane painting

(b) Thorough crane inspection and testing

(c) Increasing the cranes load capacity

(d) Ignoring manufacturer guidelines

9. What is an essential document that outlines the planned demolition procedures and safety measures?

(a) Pre-survey report

(b) First aid manual

(c) Method statement

(d) Fire hazard prevention checklist

10. What is an important consideration for preventing health hazards during demolition?

(a) Ignoring safety gear

(b) Failing to identify asbestos

(c) Excessive noise levels

(d) Lack of ventilation

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

Answer **all** the questions.

11. (a) Discuss three major human factors associated with accidents in the construction industry and explain how they contribute to unsafe working conditions.

Or

(b) Explain the importance of pr-construction meetings in mitigating potential hazards on construction sites and ensuring the safety of workers.

12. (a) Discuss the different types of scaffolding used in construction and outline the common causes of accidents related to scaffolding.

Or

(b) Explain the risks involved in tunneling operations and the importance of pre-blast and post-blast inspections in ensuring safety during blasting activities.

13. (a) Explain the importance of proper use of ladders in fall prevention. What are the key safety guidelines for using ladders on construction sites?

Or

(b) Discuss the safety considerations and protocols for working on fragile roofs. What measures should be in place to prevent falls through fragile surfaces?

14. (a) Describe the essential elements of a safe crane inspection checklist and why regular inspections are crucial.

Or

(b) Differentiate between mobile cranes and tower cranes mid explain their respective advantages and limitations

15. (a) Describe the purpose and importance of a pre-survey inspection in demolition work and what key aspects are assessed.

Or

(b) Discuss the role of site supervision in ensuring safety during demolition activities and the specific responsibilities of supervisors.

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

Answer **all** the questions.

16. (a) Describe the key elements of design aids for safe construction practices and how they contribute to accident prevention.

Or

(b) Evaluate the significance of quality assurance in construction projects and its impact on accident prevention.

17. (a) Describe the potential hazards related to the erection and dismantling of structure frame works and explain how proper training can help prevent accidents.

Or

(b) Describe the key challenges associated working in confined spaces in construction and explain safety measures to mitigate them.

18. (a) Analyze real accident case studies related to working at heights. What were the contributing factors to these accidents, and how could they have been prevented?

Or

(b) Discuss OSHAs requirements for safe access and egress at construction sites. What measures should he in place to facilitate safe entry and exit for workers working at heights?

19. (a) Discuss the specific safety considerations and procedures for operating earthmoving equipment like excavators and dozers.

Or

(b) Explain the importance of proper training and supervision for safe operation of welding machines and portable electrical tools.

20. (a) Discuss the importance first-aid training and equipment on demolition sites and how they can contribute to emergency response.

Or

(b) Describe an interesting experience from a construction site related to fire prevention or response during demolition and the lessons learned.

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C–2809	Sub. Code
	90722

P.G. DIPLOMA EXAMINATION, APRIL 2024

Second Semester

Fire and Industrial Safety

HIRA AND SAFETY AUDIT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. What is the primary purpose of a risk register?

   (a) To document and track identified hazards.

   (b) To assign blame for accidents and incidents.

   (c) To promote workplace gossip.

   (d) To track employee attendance.

2. According lo the ALARP principle, risk reduction should continue until:

   (a) All risk is eliminated.

   (b) Costs outweigh the benefits off further reduction.

   (c) A specific target risk level is achieved,

   (d) All employees are satisfied with the level of risk

3. Which of the following is NOT a principle of risk assessment?

   (a) Systematic approach

   (b) Qualitative and quantitative methods

   (c) Subjectivity and bias

   (d) Continuous improvement.

4. The main purpose of a risk control measure is to:

   (a) Punish employees for unsafe behavior

   (b) Eliminate or reduce the risk associated with a hazard

   (c) Increase the likelihood of an accident occurring

   (d) Create paperwork for auditors.

5. The primary purpose of safety inspections is to:

   (a) Find and report on employee mistakes

   (b) Identify and address potential hazards before accidents occur

   (c) Provide entertainment fat inspectors

   (d) Increase production quotas

6. Safety checklists are most effective when they are:

   (a) Used only for formal inspections

   (b) Created and used by a single person

   (c) Regularly updated and relevant to the specific workplace

   (d) Ignored by most employees.

7. The main difference between a safety inspection and a safety audit is:
   (a) The level of detail involved
   (b) The purpose of the activity
   (c) The qualifications of the person conducting the activity
   (d) There is no difference.

8. The main objective of a safety audit is to:
   (a) Assign blame for past incidents
   (b) Assess the effectiveness of the safety management system
   (c) Identify individual employee safety deficiencies
   (d) Create more paperwork for management

9. What is the main focus of a Hazard and Operability Study (HAZOP)?
   (a) Identifying and analyzing potential hazards in process operations
   (b) Investigating the root causes of accidents and incidents
   (c) Developing and implementing safety training programs
   (d) Measuring the effectiveness of safety management systems

10. What is the main purpose of a Fault Tree Analysis (FTA)?
   (a) To identify potential causes of a specific failure event
   (b) To predict the likelihood of future accidents
   (c) To allocate blame for accidents and incidents
   (d) To develop and implement corrective actions

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the significance of a risk register in risk management and provide examples of the types of information it should contain

Or

(b) Discuss the importance of conducting a preliminary hazard analysis (PHA) before commencing a project or task. Highlight the key benefits of PHA.

12. (a) Discuss the objectives of conducting a Hazard Identification and Risk Assessment (HIRA) study.

Or

(b) Explain the process of identifying hazards in the workplace. Discuss the methods and techniques commonly used to identify various types of hazards effectively.

13. (a) Identify and discuss common hazards found in the workplace that inspectors should be vigilant about during inspections.

Or

(b) Describe the ideal duration of a workplace inspection. How long should inspections typically last, and what factors may influence the duration of an inspection?

14. (a) Identify and describe the different types of safety audits that organizations may conduct. Highlight the specific focus areas or scopes of each type.

Or

(b) Explain the importance of pre-audit activities in preparing for a safety audit. What background information and data should be gathered before initiating the audit process?

15. (a) Discuss the Hazard Analysis (HAZAN) technique. How does it differ from HAZOP, and what are its primary objectives in safety management?

Or

(b) Explain the concept of Fault Tree Analysis (FTA) and its application in safety management.

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

Answer **all** the questions.

16. (a) Explain the concept of ALARP in risk assessment. How does ALARP differ from other risk mitigation strategies?

Or

(b) Compare and contrast the concepts of qualitative and quantitative risk assessment. Highlight the advantages and limitations of each approach.

17. (a) Differentiate between preventive measures and control measures in the context of risk management.

Or

(b) Discuss the concept of a Risk Matrix in risk assessment. Provide an example of a Risk Matrix and explain how it is interpreted.

18. (a) Explain the concepts of safety tours and safety sampling as components of workplace inspections.

Or

(b) Describe the composition of an effective inspection team in detail.

19. (a) Discuss the importance of interviewing and observation as techniques for gathering audit evidence.

Or

(b) Discuss the significance of understanding the management system during a safety audit.

20. (a) Discuss the circumstances under which FMEA should be employed in safety management.

Or

(b) Describe the general procedure and steps involved in conducting an FMEA analysis. How is the Risk Priority Number (RPN) calculated during the FMEA process?

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