

**C-8865**

**Sub. Code**

**90711**

**P.G. DIPLOMA EXAMINATION, APRIL 2023**

**Non-Semester**

**Fire and Industrial Safety**

**FIRE SAFETY : DESIGN, INSTALLATION AND  
MAINTENANCE**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** the questions.

1. Write the physical properties of fire.
2. Define BLEVE.
3. Classify hazards.
4. List a few responsibilities of a fire safety officer.
5. Differentiate UV and IR Flame detector.
6. Write the working principle of smoke detectors.
7. What are the merits and demerits of a fire hydrant system?
8. Write the purpose of the pump house.
9. What do you mean by fire load?
10. Classify fire exits.

**Part B**

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Write about the classification of fire.

Or

- (b) Write short notes on the fundamentals of fire safety.

12. (a) Discuss the testing of fire extinguishers in detail.

Or

- (b) Prepare a maintenance checklist for fire extinguishers.

13. (a) Sketch and explain the functions of fire alarms.

Or

- (b) Write the requirements of optical beam detectors.

14. (a) Discuss the general procedure of hydrant installation.

Or

- (b) Explain the construction and working of external fire hydrants.

15. (a) Write the classification of buildings based on occupancy.

Or

- (b) Sketch a fire escape plan for a textile showroom.

**Part C**

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Discuss the general causes of fire and its extinguishing methods.

Or

- (b) Sketch and explain a suitable fire safety system for educational institutions.

17. (a) Discuss the maintenance of fire extinguishers in detail.

Or

- (b) Sketch and explain the fire alarm system and its merits and demerits.

18. (a) Describe the installation procedures of the fire hydrant system.

Or

- (b) Enumerate safe building design as per the national building code.

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**C-8866**

**Sub. Code**

**90712**

**P.G. DIPLOMA EXAMINATION, APRIL 2023.**

**Non Semester**

**Fire and Industrial Safety**

**ELECTRICAL AND CHEMICAL SAFETY**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define Ohm's law.
2. What is resistance?
3. What do you mean by energy leakage?
4. Define: Short circuit current.
5. Give the safe distance from lines.
6. What is MCB?
7. Give the features of Indian Electricity rule.
8. Where logout and tag out needed?
9. What is Isolator?
10. Give the examples of explosion proof electrical apparatus.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain in detail about Indian Electricity rules.

Or

- (b) Write about human body parts and effects of shock.

12. (a) Explain : Current surges.

Or

- (b) Write about voltage classifications.

13. (a) Explain the safe limits of amperage.

Or

- (b) Write about insulation and continuity test.

14. (a) Write about discharge rod and earthing devices.

Or

- (b) Give the safety in the use of portable tools.

15. (a) Write about Temperature classification.

Or

- (b) Explain in detail about intrinsically safety and explosion proof electrical apparatus.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about system grounding and equipment grounding.

Or

- (b) Explain : Ground fault circuit interrupter.

17. (a) Write about Earthing standards.

Or

(b) Explain in detail about National electrical safety code.

18. (a) Write about electrical causes of fire and explosion.

Or

(b) Explain the types of electrical faults.

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**C-8867**

**Sub. Code**

**90713**

**P.G. DIPLOMA EXAMINATION, APRIL 2023.**

**Non Semester**

**Fire and Industrial Safety**

**INDUSTRIAL SAFETY AND TOXICOLOGY**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Which is called as basic units of life and why it is called so?
2. What are the parts of digestive system?
3. Difference between sound and noise.
4. What is the permissible amount of vibration in a human body as per any one of the standards?
5. What are the lung damaging agents?
6. Expand and explain HAZCHEM with example.
7. What is white finger?
8. What is tennis elbow and why it is called so?
9. Abbreviate HVAC.
10. What is audiometry test?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write the organs and it's functions of the digestive system.

Or

- (b) How crucial the skin and sense organs in a human body?

12. (a) Give short notes on Dilution ventilation of industrial workplace.

Or

- (b) General ventilation of non-industrial work places-explain.

13. (a) Give short notes on different Stages of toxicological evaluation.

Or

- (b) With examples explain the ACGIH threshold limits values.

14. (a) What are the minimum requirements for workstations?

Or

- (b) Write short notes on design of workplace.

15. (a) Write short notes on HVAC systems used in a building.

Or

- (b) Explain about the lung volume airway resistance.



**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain about the fuel system and renal system of the human body.

Or

- (b) Write short notes on any four occupation diseases.

17. (a) Explain in detail about General ventilation requirements of school building.

Or

- (b) Write in detail about the toxic agents which affects the lungs and blood.

18. (a) What are the ergonomic hazards arises out while performing a manual handling of material and how-to overcome it.

Or

- (b) What are the neurological and audiometric tests done and why it is done so? Also explain the occupational disease which affects the nervous system of the body.

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**C-8868**

**Sub. Code**

**90714**

**P.G. DIPLOMA EXAMINATION, APRIL 2023.**

**Non Semester**

**Fire and Industrial Safety**

**CONSTRUCTION SAFETY**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is impregnation of timber?
2. What is the IS standard for safety helmets (head protection)?
3. What are the types of soils?
4. What is safety fuse in explosion operations?
5. Checklist before starting the forklift operation.
6. List the safety precautions to be followed while the excavator loading the dumber truck.
7. What is guard rails and toe board? Write the standard size of toe board as per BOCW Act?
8. What are three point contacts and during which activity it is to be followed.
9. What is hot work?
10. List out the safety precautions while performing electrical works.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Why noise and vibrations and hazardous? Mention the occupational diseases caused due to it and control measures.

Or

- (b) Write short notes on the welfare facilities to be provided in the construction sites.

12. (a) Which safety precautions to be followed to prevent collapse of soil.

Or

- (b) What is the machine used generally in tunnelling operation? And list the safety precautions to be followed.

13. (a) Write short notes on Traffic Management during Road construction and repair.

Or

- (b) What are the SOPs to be followed in cranes?

14. (a) Mention and explain the parts of scaffolding.

Or

- (b) Write note on General precautions in material handling.

15. (a) What are recommended working postures while performing a lifting operation?

Or

- (b) What is hot work and list the precautions for any one of the hot work?

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write short notes on Welfare facilities to be provided in the construction site.

Or

- (b) Explain the Step by Step activities in deep foundations and its precautions.

17. (a) Write short notes on risks in tunnelling operations and how to mitigate it.

Or

- (b) What are the equipment's used in road making? And write in detail about the SOP of any two.

18. (a) Write short notes on precautions in erection works.

Or

- (b) What is electric shock? Ways to prevent it. Also explain the treatment of electric shock.

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**C-8869**

**Sub. Code**

**90715**

**P.G. DIPLOMA EXAMINATION, APRIL 2023**

**Non-Semester**

**Fire and Industrial Safety**

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

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is Risk?
2. Define PHA and ALARP.
3. How risk estimation is done?
4. Why risk assessment is done?
5. What if analysis and where it is used?
6. Write about Checklist analysis.
7. What is SIL?
8. What is FMEA?
9. What is third party certification?
10. List some of the safety instruments used in Construction sites.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Differentiate hazard and risk with example.  
Or  
(b) Write short notes on risk register.
12. (a) Comparison of various PHA methods.  
Or  
(b) Write short notes on HAZID technique.
13. (a) What is preliminary hazard analysis and why it is done?  
Or  
(b) Write short notes on what if analysis?
14. (a) Give short notes on SIL certifications and standards.  
Or  
(b) What is FMECA and its application?
15. (a) What is safety life cycle with example?  
Or  
(b) List and explain the electrical area classification.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write in detail about the fault tolerance and plant ageing with suitable examples.  
Or  
(b) Explain the HAZID methodology with any one case study.

17. (a) Differentiate qualitative and quantitative analysis with appropriate examples.

Or

- (b) Draw the FMEA tabulation and explain the terminologies used in it.

18. (a) Write short notes on the HAZOP methodology and also explain that how important the reporting and follow up?

Or

- (b) Write in detail about the erection, commission and validation of safety instrumentation system.

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**C-8870**

**Sub. Code**

**90716**

**P.G. DIPLOMA EXAMINATION, APRIL 2023**

**Non-Semester**

**Fire and Industrial Safety**

**EHS LEGISLATIONS**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are the main objectives of factory act?
2. Who is occupier in factory act?
3. What is the permissible noise level in residential area?
4. Why noise is pollution? Justify
5. Define MSDS.
6. What is TREM card? Purpose of use.
7. What is the purpose of mines act?
8. Define Hazardous waste
9. Define PDCA cycle
10. What does OHSAS stands?



**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on general duties of occupier under factory act.

Or

- (b) List out five important powers of inspector under the factory act.

12. (a) What are the main functions of state board of water act?

Or

- (b) Give short notes on main functions of central board of water act.

13. (a) Write 16 section of MSDS.

Or

- (b) Give short notes on information to be furnished in a safety report in MSHIC rules.

14. (a) Write the sections in Chapter III of Workmen's Compensation Act and explain any three sections.

Or

- (b) Write about the Registration of Establishments in BOCW.

15. (a) Write in general about the HASAWA 1974 UK.

Or

- (b) Write the Functions and Importance of OSHA act of USA.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about information to be furnished regarding notification of a major accident.

Or

- (b) (i) What are the specific functions of the Central Pollution Control Board?  
(ii) What are the measures for control of noise pollution?
17. (a) Write about the General Safety Requirements of Electricity Rules. List out all the Sections and explain any eight sections.

Or

- (b) Explain Part II of HASAWA 1974. (Explain all sections).
18. (a) Write about the provisions relating to hazardous process in Factories act.

Or

- (b) (i) Explain about the duties of authorities in MSIHC rules.  
(ii) Explain about the Responsibilities of the occupier based on MSIHC rules.
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C-8871

Sub. Code

90717

P.G. DIPLOMA EXAMINATION, APRIL 2023

Non-Semester

Fire and Industrial Safety

SAFETY IN LOGISTICS AND WAREHOUSE INDUSTRY

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is logistics and its type?
2. Differentiate between warehousing and logistics.
3. What is the need of TERM card?
4. What is meant by fleet safety management?
5. What are the main causes of injury in forklift?
6. Name the safety devices in crane.
7. What is the correct lifting technique?
8. Where are safety blocks used?
9. What is the difference between deluge and sprinkler system?
10. Define toxicity index.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write note on evolution of warehousing.

Or

- (b) Explain the function of warehousing.

12. (a) Steps involved in accident reporting and investigation procedure.

Or

- (b) Write note on tanker truck static ground protection.

13. (a) What are the steps and precautions to be followed while starting a crane?

Or

- (b) List out the safe operating procedure for forklift.

14. (a) Explain the correct positioning of feet in manual material handling and mention the allowable weight to be carried manually.

Or

- (b) (i) List out the conditions under which the wire rope slings should be replaced.

- (ii) How to care slings after use?

15. (a) How does deluge fire suppression system work?

Or

- (b) Write note on fire detection and fire alarm system.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Checklist for EOT crane inspection and maintenance.

Or

- (b) Write note on defects in chain with their inspection and maintenance procedure.

17. (a) Recommendations to improve fleet safety along with checklist.

Or

- (b) Explain speed and fuel conservation with reference to standards.

18. (a) Explain the process of fire hydrant system.

Or

- (b) Discuss about the different types of portable fire extinguisher.

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**C-8872**

**Sub. Code**

**90718**

**P.G. DIPLOMA EXAMINATION, APRIL 2023**

**Non-Semester**

**Fire and Industrial Safety**

**SAFETY INSPECTION AND AUDIT**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Why workplace inspection is important? Justify.
2. What are the main functions of inspection team?
3. What are the main document need to perform safety audit?
4. Define types of audit.
5. What is LCA?
6. What are the advantage for ISO 14001?
7. Define procedure of certification.
8. What is ISO 45001?
9. What are the Key changes in ISO 45001?
10. Write the role of Labour Inspector.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the inspection system and the planning phase of the inspection.

Or

- (b) What are the details will be there in the inspection report and write about the monitoring of inspection?

12. (a) Write about the pre audit activities.

Or

- (b) How the audit findings will help the organization growth?

13. (a) Give short notes on three types of environmental labels ISO 14020.

Or

- (b) Give short notes on life cycle inventory analysis operational procedure.

14. (a) Write about the structure and features of OSHAS 18001.

Or

- (b) Write about the elements of OH & S management system.

15. (a) How will you formulate a safety policy for an organization?

Or

- (b) Explain short term action plan.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about life cycle inventory for recycling process.

Or

- (b) Mention the types of EIA and explain the methodology in detail.

17. (a) Write the correspondence between OSHAs 18001, ISO 14001:1996 and ISO 9001:1994.

Or

- (b) If you are a labour inspector for a company, what are the preparations will you expect from the organization and give the explanation for duration of inspection.

18. (a) Explain the Post audit activities in detail.

Or

- (b) Write the principles and rules of Eco labelling before company attempts audit.

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