C–0314	Sub. Code 91023

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Fire and Industrial Safety

SAFETY IN MATERIAL HANDLING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Give any three prevention method for common injuries.
2. Define: Ergonomics.
3. What is pinch point?
4. What are all the types of cranes?
5. Define: hoists.
6. What is the use of hoist limit switch?
7. Define: Rigging.
8. What are the defects of ropes?
9. List the safety precautions in LPG trucks.
10. Explain about the center of gravity of load?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain briefly about ergonomic and prevention method for manual handling hazards.

Or

(b) Describe about the storage and handling of Cryogenic Liquids.

12. (a) Explain in detail about inspection and maintenance for Vehicles.

Or

(b) Define Third Party Inspection.

13. (a) Describe the Hazards in Conveyors.

Or

(b) Explain about the safe operative method of derricks near power line.

14. (a) Explain the Selection procedure for Wire ropes.

Or

(b) Difference between fiber rope and synthetic web slings.

15. (a) How do you conduct performance test for powered Industrial trucks?

Or

(b) Explain about the ergonomics and the safety considerations.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about handling of Heavy Objects and the hazards in it.

Or

(b) Explain the types of Crane: Provide the reasons for Crane Accidents.

17. (a) Conduct JSA for Conveyors and include the Control Measures.

Or

(b) Explain briefly about fork lift safe operations and testing procedures.

18. (a) Explain in detail about the operating principles of industrial trucks.

Or

(b) Discuss in detail about the selection procedure, training and performance test for industrial truck drivers.

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C–0315	Sub. Code
	91024

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Fire and Industrial Safety

CHEMICAL SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is LC 50?
2. Write about Atmospheric Monitoring.
3. What is HAZCHEM code?
4. Write the objectives of risk assessment.
5. Give examples of explosive substances.
6. What is TREM card?
7. What is SOP?
8. Who is Contractor and Client?
9. What are the benefits of good house keeping?
10. How to handle chemical waste?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about Occupational Skin diseases due to chemicals.

Or

(b) Explain the health surveillance.

12. (a) Explain in details about green chemistry.

Or

(b) Outline the checks that could be made in assessing the H and S competence of a contractor.

13. (a) Explain how training can have a positive influence on H and S performance of workers.

Or

(b) Write the criteria which must be met for risk assessment to be suitable and sufficient.

14. (a) Write about Mechanical Integrity.

Or

(b) Explain about PHA.

15. (a) Write about Safety precautions for chemical laboratories.

Or

(b) What are the types of incidents?

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Differentiate the Internal audit and External audit with advantages and disadvantages.

Or

(b) Explain the contents of incident investigation report.

17. (a) Write about chemical storage tank design considerations.

Or

(b) Explain the Hierarchy of control.

18. (a) Write a short note on Radioactive Hazards.

Or

(b) Explain about GHS.

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C–0316	Sub. Code
	91025

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Second Semester

Fire and Industrial Safety

INDUSTRIAL HYGIENE

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Industrial Hygiene.

2. What are the three types of Muscles?

3. What is Ionizing Radiation?

4. Define Zoonoses.

5. What are the physical form of chemicals?

6. What is Dose?

7. Define Ergonomics.

8. What are the hazards of manual handling?

9. What is micro organisms?

10. Define HVAC.

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

Answer **all** questions

11. (a) Explain the functions of renal system?

Or

(b) Write about Central Nervous System and Peripheral Nervous System?

12. (a) Explain about Hepatitis B and C.

Or

(b) Write about Non—Ionizing radiation?

13. (a) What are the routes of entry for chemicals?

Or

(b) Write about Asphyxiants.

14. (a) Explain the factors affecting the performance of physical tasks.

Or

(b) Write the minimum ergonomic requirements for work stations?

15. (a) Explain about Audiometry test?

Or

(b) Write about Biological exposure in dices.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain the functions of digestive system.

Or

(b) Write about Anthrax and Leptospirosis.

17. (a) What are the stages of toxicological evaluation?

Or

(b) Explain about Hepatotoxic agents and Nephrotoxic agents.

18. (a) Write about Carpal Tunnel Syndrome.

Or

(b) Explain about workplace risk assessment?

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C–0317	Sub. Code 91026

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Fire and Industrial Safety

PRINCIPLES OF SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write about safety incentive scheme.

2. What is safety education and training?

3. Write the formula for frequency rate.

4. Define ANSI.

5. Why Accident occurs?

6. What is Accident Reporting and Recording?

7. Give an examples of Unsafe Action and Unsafe Condition.

8. Define Near Miss.

9. What is Safety survey?

10. Write about history of safety movement.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the general concepts of Management.

Or

(b) Outline the circumstances that will require review of safety policy.

12. (a) Write about implementation of Audit indication.

Or

(b) Explain the Audit process.

13. (a) Write the contents of Internal Accident record.

Or

(b) Explain the purpose of accident investigation.

14. (a) Write about calculations of incident rate and severity rate.

Or

(b) Explain the cost of accidents.

15. (a) Give the importance of safety training.

Or

(b) Write about safety pledge.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain about planning for safety.

Or

(b) Write about perusal of accident and safety records and formats.

17. (a) When an accident occur in a company, what are the two types of losses the company will face?

Or

(b) Write about departmental accidents reports.

18. (a) Explain the duties of safety committee members.

Or

(b) Write about safety budgeting.

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C–0318	Sub. Code
	91032

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Fire and Industrial Safety

INDUSTRIAL SAFETY AND LEAN CONCEPTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Write the importance of accident analysis.

2. List the types of inspections.

3. What are the causes of building failure?

4. Brief the term NDT.

5. What is called industrial hygiene?

6. Write the significance of ergonomics.

7. Define static electricity.

8. Write the safety precautions for grinding.

9. List the applications of lean concepts.

10. Define POKA YOKE.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write about the Emergency planning in detail.

Or

(b) Classify safety audits and its merits and demerits.

12. (a) Discuss the hazard analysis with suitable case study.

Or

(b) Write short notes on plant maintenance.

13. (a) Write the significance of PPE in detail.

Or

(b) Discuss the noise pollution control in detail.

14. (a) Explain the slipped disc syndrome in detail.

Or

(b) Write short notes on welding hazards.

15. (a) Discuss the various styles of leadership in detail.

Or

(b) Write short notes the 5S Principle.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Elaborate insurance and compensation act in detail.

Or

(b) Discuss the design of fire protection system in detail.

17. (a) Discuss the necessary welfare facilities for labour as per standards.

Or

(b) Discuss the safe manual handling practices in detail.

18. (a) Elaborate KAIZEN concept with suitable example.

Or

(b) List any twenty duties and responsibilities of a safety professional.

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C–0319	Sub. Code
	91033

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Third Semester

Fire and Industrial Safety

SAFETY IN CONSTRUCTION SECTOR

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Write any four common hazard in construction sites.

2. Define 'Rest breaks'.

3. Write the precautions to prevent collapse.

4. State Indian explosives act 1984.

5. Brief MEWP.

6. List few safety measures in manual handling.

7. What do you mean by 'scaffolding'?

8. Write any two safety slogans.

9. Define ergonomics.

10. Write the first aid procedure for electric shock.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write about the occupational health and hygiene in detail.

Or

(b) Discuss the eye protection methods.

12. (a) Discuss Hazards related to excavation and its prevention methods.

Or

(b) List the guidelines for loading blasting agents.

13. (a) Describe the traffic management during road construction.

Or

(b) Discuss safe lifting and carrying techniques.

14. (a) Explain the safe practices for mixing of concrete materials.

Or

(b) Write short notes on the safe use of ladders.

15. (a) Explain the safe working postures with suitable sketches.

Or

(b) List out the control measures of gas cutting.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Discuss the BOCW act 1996 in detail.

Or

(b) Discuss tunneling hazards and its protection methods in detail.

17. (a) Explain the road making process in detail.

Or

(b) Elaborate on safe structural steel erection procedures.

18. (a) Discuss power-driven machinery hazards in detail.

Or

(b) Discuss the roles and responsibilities of safety officers at the construction site.

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C–0320	Sub. Code
	91034

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Third Semester

Fire and Industrial Safety

EHS LAWS AND ACTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Who is eligible for factories ad 1948?

2. Why factories act important?

3. What is section 8 under water act 1974?

4. What are the objectives of water act 1974?

5. What is the responsibility of occupier under MSIHC rules?

6. What is difference between flammable and combustible liquid?

7. Define explosive substance.

8. What is boiler hazard?

9. What is ANSI?

10. What are the objectives of HSWA 1974?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on importance of chapter IVA under factory act.

Or

(b) Give short notes on power of inspector under factory act.

12. (a) Discuss on prevention and control of water pollution.

Or

(b) Give short notes on prevention, control and abatement of environmental pollution.

13. (a) Give short notes on preparation of off-site emergency plan by authority under MSIHC rules 1989.

Or

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

14. (a) Discuss on salient features of hazardous waste (management and handling) rules.

Or

(b) Give short notes on gas cylinder rules.

15. (a) Give short notes on OHSAS 18001.

Or

(b) Give short notes on element of ISO 14000.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in detail about importance of various sections in chapter V under factories act 1948.

Or

(b) Explain the working hours of adult under the factories act 1948 in detail.

17. (a) Explain the battery (management and handling) rules 2001 in detail.

Or

(b) Explain in detail about NOC approval from statutory authorities.

18. (a) Explain in detail about 16 section of safety data sheet.

Or

(b) Explain the salient features of explosive act 1983.

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C–0321	Sub. Code
	91035

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Third Semester

Fire and Industrial Safety

INCIDENT, PREVENTION, CONTROL INVESTIGATION AND REPORTING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Differentiate reportable and non-reportable accidents.

2. What is called an unsafe act?

3. Write the merits of the shell model.

4. Define systems theory.

5. What do you mean by 'Engineering control'?

6. Name a few PPE used for working at height.

7. Define SCAT.

8. Write the need for an accident investigation.

9. Differentiate severity and incidence rate.

10. Classify industrial accidents.

Part B

$(5 \times 5 = 25)$

Answer **all** the questions.

11. (a) Differentiate form 14 and form 18.

Or

(b) Discuss the significance of accident reporting to internal management.

12. (a) Write a short note on the domino theory.

Or

(b) Brief the multi causation theory.

13. (a) Discuss the hierarchy of accident prevention.

Or

(b) How will you prevent accidents in the fireworks industry? Explain.

14. (a) Explain the AEB method with example.

Or

(b) List the merits and demerits of fault tree analysis.

15. (a) Discuss the assessment of work injury in detail.

Or

(b) Explain the scheduled charges for disabilities.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Describe the significance of the accident reporting system in detail.

Or

(b) Compare human factor theory and accident theory.

17. (a) Elaborate on the modern accident prevention methods used in construction sectors.

Or

(b) Describe the event tree analysis with a suitable example.

18. (a) Enumerate the method for the computation of frequency rates in detail.

Or

(b) Sketch and explain any four PPE used in heavy engineering industries.

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C–0322	Sub. Code 91042

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Fire And Industrial Safety

FIRE DESIGN ENGINEERING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Why chimney fires are dangerous?

2. Write the legal requirements for fire risk assessment.

3. Is there any danger in dropping a fire extinguisher.

4. What chemical is in fire sprinklers?

5. How do fire hydrants work?

6. Which fire extinguisher used in kitchen?

7. If you discover a fire, what action you should take?

8. How do you know a fire extinguisher is unsafe?

9. Differentiate smoke detector and fire alarm.

10. Name five areas of consideration in designing.

Part B

$(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Classify the level of Fire Hazards.

Or

(b) Write about methods of heat transfer.

12. (a) Write about installation of fire extinguisher.

Or

(b) Give the technical details of sand and water buckets.

13. (a) Write about hydrant fitting methods.

Or

(b) Explain about installation of fire pump room.

14. (a) Why does CO_2 cartridge get cold? Why do CO_2 extinguisher have a horn?

Or

(b) Why does a foam fire suppression system work?

15. (a) How does fire alarm control panel work?

Or

(b) Can smoke alarms be fitted on walls? Can smoke alarms be interconnected wirelessly?

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write a short note on wiring methods for addressable fire alarm system.

Or

(b) Explain the installation of foam flooding.

17. (a) Write about fire water storage tank specifications.

Or

(b) Explain about NBC classification based on occupancy.

18. (a) Write a short note on installation of MCP.

Or

(b) Write about coding writing in fire panel.

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C–0323	Sub. Code
	91043

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Fire and Industrial Safety

PROCESS SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Process Safety Management?

2. Define LEL and UEL.

3. Write the limitations of PHA.

4. Who need safety training?

5. Define Mechanical Integrity.

6. What is Quality Assurance?

7. What is incident?

8. Why incident should be investigated?

9. What is Hot work?

10. Define Trade secret?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) What are the 14 elements of PSM?

Or

(b) Write about Process Safety Hazards.

12. (a) Explain the elements of operating procedure.

Or

(b) Write about Failure Mode and Effect Analysis.

13. (a) How accidents will be documented?

Or

(b) Explain the role of safety committee.

14. (a) Write the disadvantages of calculation of accident indices.

Or

(b) Explain Frequency Severity Incidence.

15. (a) Write about safety campaign.

Or

(b) Explain the methods of promoting safety.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write about Disaster Control.

Or

(b) Write the contents of accident investigation report.

17. (a) Explain the principles of Accident Prevention.

Or

(b) What are the documents to be examined during safety audit?

18. (a) What is the role of private consulting agencies in safety training?

Or

(b) Write about ANSI recommended practises for compiling and measuring work injury experience.

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C–0324	Sub. Code 91044

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth Semester

Fire And Industrial Safety

HAZARD IDENTIFICATION, RISK ASSESSMENT AND RISK CONTROL

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Write about Risk Ranking?

2. What is Functional Safety?

3. Give the objectives of Risk Assessment.

4. What is PHA?

5. Write the disadvantages of FTA.

6. What is Quantitative Risk Analysis?

7. Define FMECA.

8. What is Intelligent HAZOP?

9. What is explosion?

10. Write the steps of Risk Assessment.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about Safety Instrumentation.

Or

(b) Explain ALARP.

12. (a) Write about PHA preliminaries.

Or

(b) Explain about HAZID and Risk Estimation.

13. (a) Write about layer of protection analysis.

Or

(b) Explain about Computer HAZOP.

14. (a) Write about Checklist Analysis.

Or

(b) Explain about HAZOP Methodology.

15. (a) Write about Electrical Area Classification.

Or

(b) Explain about third party certification of instruments.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain about SIL Determination Techniques.

Or

(b) Write about automated FMEA concepts.

17. (a) Write about evaluation of plant hazard selection techniques.

Or

(b) Give the comparison of various PHA methods.

18. (a) Write about SIL certification and standards.

Or

(b) Explain about SIL calculation for safety instrument loop.

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C–0325	Sub. Code 91045

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fourth 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. What is safety inspection?
2. Mention some workplace hazards.
3. Define safety audit.
4. What is NCR and its types?
5. Expand: LCA, EIA, EMS.
6. Define LCA.
7. What is closing meeting in audit?
8. What is audit plan?
9. Define OH and S policy.
10. List out some key changes in ISO 45001

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

Answer **all** questions.

11. (a) Explain in detail about purpose of workplace inspection.

Or

(b) Explain about

(i) Duration of safety inspection

(ii) Frequency of safety inspection

12. (a) Explain in detail about audit objectives.

Or

(b) What are the methodology used to conduct safety audit?

13. (a) Explain in detail about steps in ISO 14001 audit.

Or

(b) Explain about ISO 14040 (LCA).

14. (a) Explain in detail about implementation of audit report.

Or

(b) Explain about opening meeting and closing meeting in audit.

15. (a) Write about OH and S policy, key elements in OH and S policy.

Or

(b) Comparison of ISO 45001 and OHSAS 18001.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in details about safety audit and its types.

Or

(b) Explain about safety inspection, purpose, duration, frequency, follow up and monitoring.

17. (a) Explain in detail about ISO 14001.

Or

(b) Explain in detail about EIA in EMS.

18. (a) Explain in detail about 1S14489:1998 (OS and H Audit)

Or

(b) Discuss in details about Correspondence between OHSAS 18001, ISO 14001, ISO 9001.

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C–0326	Sub. Code
	91051

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Fire and Industrial Safety

SAFETY IN HIGH HAZARDOUS AREAS

(2013 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Define the Hazardous zone.

2. List the merits of online monitoring expert systems.

3. Brief the term OSHA.

4. Why hazardous waste management is important?

5. Write the common faults in electrical equipment.

6. Mention the permissible hot spot temperature.

7. Define the term potting.

8. List the merits and demerits of fiber optics.

9. What is called static electricity?

10. Write the types of barriers.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Discuss the classification of industrial equipment for various hazardous gases.

Or

(b) Discuss the expert system for safety assurance.

12. (a) Write short notes on 'National electric code'.

Or

(b) Discuss the various emission sources of gases.

13. (a) Describe the function of intrinsically safe equipment in detail.

Or

(b) Discuss the safety hazards of electrical faults.

14. (a) Describe the features of explosion-proof enclosure.

Or

(b) Write short notes on restricted breathing.

15. (a) Differentiate electrical spark and electrical arc.

Or

(b) Write short notes on ionizing radiation.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Describe the functions of expert system for its maintenance and trouble shooting.

Or

(b) Elaborate on the principles of IEC and its responsibilities.

17. (a) Discuss the construction and working of nitrogen filled equipment.

Or

(b) Discuss the various protection methods in a hazardous area in detail.

18. (a) Describe the features of NFPA standard in detail.

Or

(b) Discuss the causes of Bhopal gas tragedy and the lessons learned from it.

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C–0327	Sub. Code
	91052

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Fire and Industrial Safety

SAFETY IN OIL AND GAS INDUSTRIES

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Classify hazards.

2. Define product hazard.

3. What is 'root cause analysis'?

4. Write the limitations of FMEA.

5. What is called risk picture?

6. Define unsafe conditions.

7. Compare group and individual factors.

8. Write the objectives of the oil field fatality analysis.

9. What is called mitigation?

10. Mention the accident data collection sources.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Sketch and explain the bathtub curve.

Or

(b) Describe occupational stress and its prevention methods.

12. (a) List out the merits and demerits of the Markov method.

Or

(b) Give a short note on job safety analysis.

13. (a) Discuss the special PPE used in the oil and gas industry.

Or

(b) Discuss the causes of the ocean ranger accident.

14. (a) Brief the human factors contributing to accident in oil and gas industry.

Or

(b) Write the recommendation to reduce fatal accidents in the oil and gas industry.

15. (a) Write short notes on onshore emergency planning.

Or

(b) Discuss the roles of the international association of oil and gas producers.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Discuss the roles and responsibilities of safety engineers.

Or

(b) Explain the methods for conducting PHA in detail.

17. (a) Describe the seacrest drillship accident and the lessons learned from it.

Or

(b) Discuss the steps to conduct safety awareness programs in oil and gas industry.

18. (a) Discuss the failure and lessons learned from landmark offshore oil and gas accidents.

Or

(b) Elaborate on offshore emergency preparedness and planning.

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C–0328	Sub. Code
	91053

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Fire and Industrial Safety

SAFETY ASPECTS IN INDUSTRIAL PLANT LAYOUT DESIGN

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Define 'Safety system'.

2. What do you mean by fire load?

3. Write the significance of radiography testing.

4. Write the selection parameters of plant location.

5. Define TQM.

6. List the safety measures for material handling.

7. Mention the advantages of good illumination.

8. Write the objectives of safety inspection.

9. Write the need for ergonomics.

10. Define the term team lifting.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on plant layout design.

Or

(b) Discuss the factors to be considered for fire hydrant location.

12. (a) Discuss the construction and working of ultrasonic testing.

Or

(b) Give a short note on safe chemical storage.

13. (a) Brief quantitative models and its limitations.

Or

(b) Discuss the warehouse operations in detail.

14. (a) Write the principles of good ventilation in detail.

Or

(b) Discuss 5S principles in detail.

15. (a) Write short notes on slings and ropes inspection methods.

Or

(b) Discuss the operation and maintenance of conveying equipment.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Enumerate the importance of standards and codes of practice for plant layout.

Or

(b) Sketch and explain the safe layout for food processing industry.

17. (a) Compare AM and CIM and its merits and demerits.

Or

(b) Enumerate the role of preventive maintenance in health and safety.

18. (a) Discuss general safety considerations in material handling.

Or

(b) Discuss the safe storage and handling of CNG in detail.

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C–0329	Sub. Code
	91054

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Fire and Industrial Safety

SAFETY IN LOGISTICS & WAREHOUSE SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Write the need for warehousing.
2. Define logistics management.
3. What do you mean by 'TREM card'?
4. List any two key points from transport act.
5. Write the purpose of employer training.
6. Brief conveyor inspection method.
7. What is factor of safety?
8. Point out the crane safety precautions.
9. How do you determine fire load.
10. Classify fire extinguisher.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on WMS.

Or

(b) Write about the logistics management.

12. (a) Draw any five warning symbols and its meaning.

Or

(b) Write short notes on fuel conservation.

13. (a) Discuss safe manual material handling procedures.

Or

(b) Write the importance of fork lift training.

14. (a) Explain the safe storage of gas cylinders.

Or

(b) Mention the safe usage of chains and wire rope slings.

15. (a) Write short notes on fire alarm.

Or

(b) List the roles and responsibilities of the fire service department.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Discuss the logistics system designs in detail.

Or

(b) Discuss inspection and maintenance of road vehicles in detail.

17. (a) Enumerate the safe procedure for handling gasoline.

Or

(b) Discuss the types of cranes an its applications in detail.

18. (a) Describe any one major fire accident and the lessons learned from it.

Or

(b) Enumerate the special safety measures for control of explosion.

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C–0330	Sub. Code 91055A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

F & IS

SAFETY IN TEXTILE INDUSTRIES

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define 'Spinning'.

2. Write few unsafe conditions in textile industries.

3. List the hazards due to steam.

4. Write the purpose of non-woven's.

5. State 'punting' in the textile industry

6. What do you mean by scouring.

7. Define occupational diseases.

8. List the health diseases related to textile hazards.

9. Write any two safety slogans.

10. Name few waste disposal methods in textile industry.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the safety precautions in the winding operations in a Textile Industry.

Or

(b) Write short notes on machinery guarding.

12. (a) Discuss the working of loom shed-shuttles looms.

Or

(b) Sketch and explain knitting machines.

13. (a) Explain in detail the hazards involved in bleaching operations.

Or

(b) Write the types of hazards in mechanical finishing operations.

14. (a) Discuss the health hazards related to dust in the textile industry.

Or

(b) Discuss various welfare measures specific to textile industries.

15. (a) Write down the key points in the factory acts related to textile sectors.

Or

(b) Discuss the effluent treatment process in the Textile Industry.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain the detail of the process flow chart of synthetic fiber manufacturer.

Or

(b) Discuss the hazards due to sizing in detail.

17. (a) Enumerate the safety measures in the dyeing operation.

Or

(b) Discuss various PPE used in the textile industry.

18. (a) Discuss various safety status applicable to textile industry in detail.

Or

(b) Prepare a plan to control water pollution in the textile hub.

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C–0331	Sub. Code
	91055B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Fire and Industrial Safety

DUST EXPLOSION

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define deflagration index.

2. What is difference between deflagration and detonation?

3. What is purpose of electroplating?

4. What is the important of grain elevator?

5. What is the use of housekeeping labelling?

6. Define PPE.

7. What is auto ignition temperature?

8. Define smouldering fire.

9. What is the difference between active and passive isolation system?

10. What is the importance of housekeeping?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on classification of explosion area as per IEC standards.

Or

(b) Give short notes on various types of ignition sources with an example.

12. (a) Give short notes on working principle of cylindrical grinding machine.

Or

(b) Give short notes on discharge in lighting hazards in powder coating.

13. (a) Give short notes on selection, use, handling and maintenance of PPE's.

Or

(b) Give short notes on evaluation procedure and control measures for silica in coal mine.

14. (a) Give short notes on working principle and use of impact sensitivity.

Or

(b) Give short notes on combustibility test at elevated temperature.

15. (a) Give short notes on importance and use of automatic suppression system.

Or

(b) Give short notes on control and interlocking system in integrated process plants.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about principle and operation of types of cyclone separator.

Or

(b) Explain in detail about function and importance of spray drier.

17. (a) Explain the construction sequence and types of silos in detail.

Or

(b) Explain in detail about any three methods of particulate collection devices.

18. (a) Explain in detail about NIOSH guide to the selection and use of particulate respirators.

Or

(b) Explain in detail about working principle, importance and use of thermal sensitivity.

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C–0332	Sub. Code
	91055C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

F & IS

SAFETY IN MINING INDUSTRY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Name few major equipment use in open cast mines.
2. Define garage safety.
3. Brief winding.
4. Draw any two warning signs used in mines
5. List the hazards related to tunneling.
6. Write the purpose of ventilation.
7. Define reliability.
8. Write the merits of event tree analysis.
9. Define reportable accidents.
10. What do you mean by cost of accident?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on the handling of explosives in open cast mines.

Or

(b) Discuss the procedures for sale transportation in mines.

12. (a) Discuss the occupational hazards in underground mines.

Or

(b) Give a short note on water flooding in underground mines.

13. (a) Sketch any four PPE used in mines.

Or

(b) Write short notes on noise pollution.

14. (a) Discuss the elements of risk assessment.

Or

(b) Explain the activity relationship analysis and its limitations.

15. (a) Write the measures for improving safety in mines.

Or

(b) Discuss the significance of safety audits.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Describe the major key points in mines act.

Or

(b) Explain the functions of sensors and detectors used in mines safety.

17. (a) Discuss the hazards of falling bodies and its protection methods.

Or

(b) Describe the FMEA with a suitable example in detail.

18. (a) Enumerate the recent development of safety engineering approaches for mines.

Or

(b) Discuss the principles and objectives of disaster management.

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C–0333	Sub. Code
	91055D

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Fire and Industrial Safety

SAFETY IN AIRPORT AND SHIPYARD

(2019 onwards)

Duration: 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the functions of dock safety board.
2. List the responsibilities of clearing agents.
3. Write the types of cargo ships.
4. Brief the term illumination of decks.
5. Mention the various methods of rigging.
6. Write the safety precautions for handling containers.
7. List the safety precautions for special lift trucks.
8. Classify transport equipment.
9. What are the causes of building collapse?
10. Brief dock railways.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write short notes on 'Environmental protection act 1989'.

Or

(b) What are the responsibilities of safety committees?

12. (a) Write short notes on safety in painting.

Or

(b) Discuss the objectives of electrical management.

13. (a) Describe the testing and examinations of lifting appliances.

Or

(b) Write about the construction methods of the rigging of derricks.

14. (a) Discuss the inspection methods of container in detail.

Or

(b) Point out the restriction of loading and unloading of cargo.

15. (a) Prepare an onsite emergency action plan for shipyard.

Or

(b) Write short notes on dock workers rules.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss the features of heavy package act 1951 in detail.

Or

(b) Discuss the responsibilities of port authorities in detail.

17. (a) Elaborate on the safe storage methods of hazardous goods.

Or

(b) Explain the different types of slings and loose gears and its applications.

18. (a) Elaborate on the stacking and unstacking both on board the ship and onshore.

Or

(b) Discuss the gas leakages an precautions concerning spillage of dangerous goods.

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C–0337	Sub. Code
	91013

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

First Year

Fire and Industrial Safety

FIRST SAFETY – PREVENTION AND CONTROL

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. What are the principles of explosion?
2. Define fire fighting systems.
3. Define vehicular use of natural gas.
4. How will you classify the petroleum products based on the flash point?
5. What are the possibilities of ignition sources in temporary occupancies?
6. What are the fire safety measures should be followed in small scale industries?
7. What to do in case of a vehicular fire.
8. Write any four HAZCHEM codes for commonly used chemicals.
9. What are the safety precautions for invertors?
10. Write about DG safety.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain about the stages of fire.

Or

(b) Describe about FHA.

12. (a) Describe the safety measure in industrial cylinders.

Or

(b) Explain about the safety precaution measures for customer at petrol pump.

13. (a) Describe about fire safety in shopping malls.

Or

(b) Explain about fire safety measures in control room.

14. (a) Write about fire safety measures for loading and unloading of hazardous goods.

Or

(b) What are the common causes of fire in motor vehicle?

15. (a) Write about common causes of electrical fires.

Or

(b) Describe about the main components of inverter unit.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Write about the working principles and types of fire extinguishers with neat diagram.

Or

(b) Briefly explain the halon system with neat sketch.

17. (a) Explain about interpretation of HAZCHEM code for road transport.

Or

(b) Explain about fire safety in transportation of hazardous goods.

18. (a) Describe about the hazards in LPG and its preventive measures.

Or

(b) Explain the fire safety in petroleum tank farm.

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C–0339	Sub. Code
	91015

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

First Year

Fire and Industrial Safety

LIFTING EQUIPMENT AND TRANSPORT SAFETY

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define SWL.
2. What is TERM Card?
3. Expand the term SMPUR.
4. Expand the term HAZMAT.
5. Define blind spot.
6. Define Eye Nuts.
7. What are the types of sling?
8. List out some hydrocarbons.
9. Define shackles.
10. Define Foresight.

Section B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain Forklift Inspection.

Or

(b) What are the controls to be checked in forklift?

12. (a) Explain manual handling.

Or

(b) Explain the lifting techniques.

13. (a) What are the important points to remember in lifting?

Or

(b) Explain the standard accident prevention formula.

14. (a) Explain the six position of two vehicles collisions.

Or

(b) Write the maintenance tips for two wheelers.

15. (a) What are the defects in wire rope sling?

Or

(b) Write the maintenance tips for four wheelers.

Section C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain the safety in storage of compressed gas cylinders.

Or

(b) Explain the Inspection and maintenance of crane.

17. (a) Explain the elements of defensive driving.

Or

(b) Explain the safe transportation of hazardous material by road.

18. (a) Explain the notification and identification of accidents.

Or

(b) Explain the storage of corrosive substances.

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C–0340	Sub. Code
	91016

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

First Year

Fire and Industrial Safety

SAFETY ON ELECTRICAL AND CHEMICAL HAZARDS

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define Current.

2. List out the electricity hazards.

3. What is known as static electricity?

4. Define Bonding.

5. List out the effect of chemical.

6. What is MSDS?

7. Define OSHA.

8. Define Electric shock.

9. What is known as on-site emergency?

10. Define MSIHC.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain in detail about

(i) Fuse in electricity

(ii) Water + Electricity.

Or

(b) Explain ELCB.

12. (a) Explain charge creating mechanism.

Or

(b) Explain in briefly splashing of liquid JETS and ejection of liquid droplet

13. (a) Explain same prohibited chemicals in India.

Or

(b) Explain the risk of chemical.

14. (a) Explain the management responsibility for electrical installation.

Or

(b) Explain some International standards in electrical Installation.

15. (a) Explain the salient features of the statutes for hazardous chemicals.

Or

(b) Explain the preparation of off-site emergency plan.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Explain in detail about saving the electricity.

Or

(b) Explain and draw the check list for initial inspection of installation.

17. (a) Explain in detail about Earthing and bonding.

Or

(b) Explain about the occupational health center in factories.

18. (a) Explain the treatment for electric shock.

Or

(b) Explain about on-site and off-site emergency plan.

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C–0341	Sub. Code
	91022

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Second Year

Fire and Industrial Safety

COMMUNICATIVE ENGLISH LANGUAGE ADVANCE

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Define Communication.

2. What is called verbal communication?

3. What do you mean by Homonyms?

4. What is meant controlled composition?

5. Give two example for misplaced articles.

6. What are called vowels in English language?

7. What is the importance of personal appearance?

8. What are the different types of diagrams?

9. Write a few words about “Recite” in SQ3R.

10. Write any two rule for drafting a telegram.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write a note on different ways of effective communication.

Or

(b) How do you describe people and place?

12. (a) Frame question Tags for the following sentences:

(i) My name is Akhil.

(ii) He did not go to his home.

(iii) We are working for the public.

(iv) We live in a free country.

(v) He will not go for his personal work.

Or

(b) Differential oral and written composition.

13. (a) Write a short note on the use of infinitive.

Or

(b) Write briefly about noun and its types.

14. (a) Write shortly on primary and secondary stress.

Or

(b) Write a short note on the following (i) Gesture (ii) Posture.

15. (a) Write about skimming and scanning.

Or

(b) What are the merits of drafting and using e-mails?

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write an essay on different types of communication.

Or

(b) Write an essay on interview skills and kinds of interview.

17. (a) Explain the different kinds of composition.

Or

(b) Write an essay of your own on "pollution free society".

18. (a) Write an essay on the role of personal appearance and body language in a non-verbal communication.

Or

(b) Write an essay on mechanics and characteristics of good handwriting.

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C–0342	Sub. Code
	91023

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Second Year

Fire and Industrial Safety

GENERAL SAFETY MANAGEMENT
(PRINCIPLES AND POLICIES)

(2016 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write about 5s.
2. Define occupational health.
3. Wrote about safety on electronic devices.
4. Give the safety instructions for kids
5. Define workplace climate.
6. List any four occupational diseases.
7. Suggest some PPE's for gas welding.
8. Write the care and maintenance of respiratory PPE.
9. What is brain storming?
10. Give the objectives of OHS.

Part B (5 × 5 = 25)

Answer **all** questions

11. (a) How to avoid eye injuries?

Or

(b) How to compute frequency rate?

12. (a) Give the safety instructions for physically challenged persons.

Or

(b) Write about employee compensations as per compensation act.

13. (a) Why workers might not report incidents?

Or

(b) Write the contents of accident investigation report.

14. (a) Give the PPE's for skin protections.

Or

(b) Write about supplied air type respirators.

15. (a) Write about BBS training.

Or

(b) Explain the role of occupational health centre in industries.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write the classification of cartridge respirators and suggest maximum use concentration.

Or

(b) Give the importance of brainstorming in safety training.

17. (a) Explain about accident prevention tags at construction sites.

Or

(b) Explain the types of hand protection.

18. (a) Write the contents of internal accident record.

Or

(b) Write about Indian standards on safety and health.

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