| C–8228 | Sub. Code |
|---|---|
| | 91023 |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Second Semester**

**Fire and Industrial Safety**

**SAFETY IN MATERIAL HANDLING**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What are all the hazards while lifting heavy objects by hand?

2. Give any three safety measures while handling hazardous materials?

3. What is ergonomics?

4. Give any two reasons for crane accident.

5. List out the types of derricks.

6. What is the use of hoist limit switch?

7. Define Rigging.

8. Differentiate Wire rope and Fiber rope.

9. Give some examples of powered trucks.

10. How do you inspect the Escalator.

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain about safe lifting posture and handling of loads.

Or

(b) Explain about the safe storage and handling of hazardous materials.

12. (a) Write the Job Hazard Analysis for the Crane operations.

Or

(b) Write about the reasons for Crane accident and preventive measures.

13. (a) Explain briefly about floating cranes.

Or

(b) Explain in detail about off road vehicles.

14. (a) Define abrasive and Abrasive Wear for wire ropes?

Or

(b) List the difference between Hooks and Shackles.

15. (a) Explain performance test for industrial trucks.

Or

(b) List out the safety devices and brakes in elevators, truck and hoists.

## Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about hazardous material storage and necessary PPE's for handling.

Or

(b) Explain in details about the risk in Unsafe Hooks.

17. (a) Explain in details about conveyor safety and safe handling of loads.

Or

(b) Explain about

(i) Strength of wire rope,

(ii) Fatigue of wire rope,

(iii) Rated capacity of sling.

18. (a) Explain in detail about safety precautions and maintenance of gasoline operated trucks.

Or

(b) Discuss in detail about PPE and its types.

———————

| C–8229 | Sub. Code 91024 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 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. Define: Toxicity.
2. What are the physical form of chemicals?
3. What is Inventory?
4. What is hierarchy of control?
5. Define Cryogen.
6. Give examples of oxidizing substances.
7. Write about process safety hazards?
8. Give the objectives of emergency planning.
9. Define Autoclaving.
10. What is Acute and Chronic Conditions.

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

Answer **all** questions.

11. (a) Write the contents of MSDS.

Or

(b) Draw the CLP hazard pictogram.

12. (a) Give the classification of hazardous chemicals.

Or

(b) Write the importance of EIP.

13. (a) What is PSSR? How PSSR conducted.

Or

(b) Write the 14 elements of process safety management.

14. (a) How to store the compressed gas cylinders safely.

Or

(b) Explain the Routes of entry for chemicals.

15. (a) Explain about the Respiratory PPE and its types.

Or

(b) Explain about 5S.

**Part C** $(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write a short note on transporation of hazardous chemical safely.

Or

(b) Explain management of change in PSM.

17. (a) Write about the recommended practices for handling and storage of LPG.

Or

(b) Explain the duties of works incident controller and work main controller?

18. (a) Write a short note on chemical exposure risk assessment.

Or

(b) Draw and explain WHMIS symbols.

———————

| C–8230 | Sub. Code 91025 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Second Semester**

**Fire and Industrial Safety**

**INDUSTRIAL HYGIENE**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is Health and Hygiene?
2. Write about Sense organ?
3. What is Humidifier fever?
4. Differentiate Sound and Noise.
5. What is Toxicity?
6. Define Metabolism.
7. Give an examples for Repetitive Task.
8. Write about Man and Machine System.
9. What is AAQ?
10. What is BEI?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the functions of circulatory system.

Or

(b) What is Respiration and write about the respiratory hazards?

12. (a) Write about Salmonellosis.

Or

(b) Explain Dilution Ventilation.

13. (a) Write about Anaesthetics.

Or

(b) Explain about Excretion.

14. (a) Write about Tennis Elbow.

Or

(b) Explain the causes of Tendinitis.

15. (a) How X ray test will be taken?

Or

(b) Write about sampling gases and vapour.

## Part C (3 × 10 = 30)

Answer **all** questions.

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

Or

(b) Write about Local Exhaust Ventilation.

17. (a) Explain about PPE and its types.

Or

(b) Write about Blood damaging agents and Lung damaging agents.

18. (a) Explain sampling and analytical methods.

Or

(b) Write about Neurological tests.

———————

| C–8231 | Sub. Code |
|---|---|
| | 91026 |

**B.Sc. DEGREE EXAMINATION, APRIL 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. What are the three main sections of safety policy?
2. Write the advantages of JSA
3. Differentiate safety audit and inspection.
4. What is Non Conformity Reporting?
5. Why workers might not report accidents.
6. Why Safety Committee fails?
7. Give an example of temporary total disability
8. What is Safety "T" score?
9. Define Motivation.
10. Write about Safety Communication?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about safety sampling and its importance.

Or

(b) Explain the evolution of modern safety concept.

12. (a) What are the components of safety audit?

Or

(b) Explain the term "Liason with departments".

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.

———————

| C–8232 | Sub. Code 91032 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 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** questions.

1. Define human factor.

2. What is difference between safety audit and safety inspection?

3. What is the importance of plant inspection?

4. What is the function of site layout?

5. What is difference between sound Vs noise.

6. What are the consequences of heat related issues?

7. Define machine hazards.

8. What is a chemical hazard with an example?

9. What is the importance of leadership?

10. Define benchmarking.

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on planning for major emergency.

Or

(b) Discuss on procedure for accident report.

12. (a) Give short notes on types of fire protection system.

Or

(b) Give short notes on causes and control measure for building failure and collapse.

13. (a) Define vibration. Give short notes on causes, consequence and control measure for vibration hazards.

Or

(b) Discuss on welfare facilities.

14. (a) Define confined space.

Or

(b) Give short notes on various types of grinding machines.

15. (a) Give short notes on ART of KAIZEN.

Or

(b) Discuss on steps of elimination of waste.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in detail about ultrasonic testing methods.

Or

(b) Explain in detail about electromagnetic testing methods.

17. (a) Explain the elements of site layout planning in detail.

Or

(b) Explain in detail about condition monitoring techniques.

18. (a) Define PPE. Write various types of PPE's using in industry.

Or

(b) Explain the steps of A3 problem solving in detail.

———————

| C–8233 | Sub. Code |
|---|---|
| | 91035 |

**B.Sc. DEGREE EXAMINATION, APRIL 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** questions.

1. What are the causes of accident?
2. What is reportable accident?
3. What is biased liability theory?
4. Define bird's triangle.
5. Define hierarchy control measures.
6. What are the five types of PPEs?
7. Define MOT analysis.
8. What is root cause analysis?
9. Define days of disablement?
10. Write any four Cardio Vascular diseases.

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on non-reportable accident with an example.

Or

(b) Give short notes on accident investigation procedures.

12. (a) Discuss on human factor theory.

Or

(b) Give notes on importance of epidemiological theory.

13. (a) Define elimination and substitution control. Give suggestion for any four incident to provide control measures.

Or

(b) Define engineering and administrative control. Give suggestion for any four incident to provide the control measures.

14. (a) Give short notes on event and causal factor analysis method.

Or

(b) Give short notes on sequential timed event plotting method.

15. (a) Give short notes on importance and use of partial and total disablement.

Or

(b) Give short notes on classification of accident and assessment of work injury.

## Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about FORM 4 accident report under BOCW act 1996.

Or

(b) Explain the system theory in detail.

17. (a) Explain in detail about event tree analysis with an example.

Or

(b) Explain the accident investigation process in detail.

18. (a) Explain in detail about accident proneness theory.

Or

(b) Explain the accident analysis and barrier function method.

———————

| C–8234 | Sub. Code 91042 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 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. Define fire?
2. What is Flash point?
3. What is fire extinguishers?
4. Define fire load.
5. List out types of detecting devices in fire alarm systems.
6. Explain about Fire Ball?
7. Define fire hydrant monitor system?
8. What is NBC?
9. Classify the types of exits?
10. Explain about Manual call point?

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

Answer **all** questions.

11. (a) Explain about Fire Fighting Techniques.

Or

(b) What is fire triangle, tetrahedron and pentagon.

12. (a) How to install fire extinguisher and it procedure for fixing?

Or

(b) Discuss about the maintenance checklist required for checking fire extinguisher.

13. (a) Explain in detail about Smoke and Heatdetectors.

Or

(b) Explain in details about inspection, testing and maintenance of fire alarm systems.

14. (a) Explain about installations of fire pump room.

Or

(b) Write about underground and terrace water tanks in fire hydrant systems.

15. (a) Explain the testing and maintenance procedure needed for Fire Alarm system.

Or

(b) Write short note on fire escape and stairs in detail?

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain about the installation of Clean agent suppression system?

Or

(b) Explain in details about fire extinguisher maintenance as per BIS 2190.

17. (a) Explain in detail about fire alarm systems and emergency lightings.

Or

(b) Write short notes on fire safety in temporary occupancies.

18. (a) Explain in detail about fire sprinkler system with types.

Or

(b) Write short note on installation of MCP?

———————

| C–8235 | Sub. Code 91043 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Fourth Semester**

**Fire and Industrial Safety**

**PROCESS SAFETY MANAGEMENT**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is PHA?
2. Define Process Safety
3. Write about Process Chemistry
4. Give the uses of Check list analysis
5. What is Quality Control
6. What is Audit?
7. Write the types of Incident
8. What are the contents of internal accident record
9. Who is contractor and who is client?
10. Write the hazards of hot work?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the electrical classifications.

Or

(b) Write about maximum intended inventory.

12. (a) Explain about what if analysis.

Or

(b) Give the description of operating procedure.

13. (a) Write about safety training needs.

Or

(b) Differentiate Quality assurance and Quality control.

14. (a) Write about incident investigation questionnaire.

Or

(b) Explain about Trade Secrets.

15. (a) Give the objectives of emergency planning.

Or

(b) Write the duties of work incident controller.

## Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain about Incident investigation methodologies.

Or

(b) Write about Mechanical integrity.

17. (a) Draw and Explain block flow diagram.

Or

(b) Write about relief system design.

18. (a) Explain about Fault Tree Analysis.

Or

(b) Explain the elements of operating procedure.

———————

| C–8236 | Sub. Code |
|---|---|
| | 91044 |

**B.Sc. DEGREE EXAMINATION, APRIL 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. What is Risk Register?
2. What is safety instrumentation?
3. Write about various PHA methods?
4. Define Qualitative Risk Analysis
5. Write about FMECA Detection
6. What is Risk Priority Number?
7. Define Computer Hazop?
8. What is layer of protection analysis?
9. Define Safety Life Cycle?
10. Write about electrical area classification?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain Fault Tolerance and Plant Aging.

Or

(b) Write about Functional Safety.

12. (a) Explain about Risk Assessment and Management.

Or

(b) Write about HAZID.

13. (a) Explain about Human Reliability Analysis.

Or

(b) Write about what if analysis.

14. (a) Explain about FMEA methodology?

Or

(b) Write about SIL certifications and standards.

15. (a) Explain about flammable gas detection.

Or

(b) Explain about third party certification of instruments.

## Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain about plant hazard preliminaries.

Or

(b) Write about FMCEA methodology.

17. (a) Explain about Check List Analysis.

Or

(b) Write about PHA.

18. (a) Explain about safety instrumentation systems.

Or

(b) Write about Quantitative Risk Analysis.

———————

| C–8237 | Sub. Code |
|---|---|
| | 91045 |

**B.Sc. DEGREE EXAMINATION, APRIL 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. Define inspection team.
3. What is safety audit?
4. What is NCR?
5. Define EIA in EMS.
6. What is environmental policy?
7. Define Auditee.
8. What is open meeting in audit?
9. Define safety policy.
10. What is short term action plan?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about importance of workplace inspection.

Or

(b) Explain about

(i) Duration of safety inspection

(ii) Frequency of safety inspection

12. (a) Explain in detail about post audit activities.

Or

(b) What are the background information to be gathered in safety audit?

13. (a) Explain in detail about Documentation requirements in ISO 14001.

Or

(b) Explain about ISO 14020 (Eco-Labelling).

14. (a) Explain in detail about elements of OH&S system.

Or

(b) Explain about audit Documents and reports.

15. (a) Write about benefits of audit certification.

Or

(b) Discuss in detail about OH&S policy.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in details about safety inspection.

Or

(b) Explain about pre audit, on site audit and post audit activities.

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

Or

(b) Explain in detail about LCA.

18. (a) List out types of records to be examined during the safety audit.

Or

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

———————

| C–8238 |
|---|

| Sub. Code |
|---|
| 91051 |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Fifth Semester**

**Fire and Industrial Safety**

**SAFETY IN HIGH HAZARDOUS AREAS**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Define Explosion.
2. What is difference between fire and Explosion?
3. Define structural emission
4. What are the three steps of emission degree?
5. Define hot spot temperature.
6. How does corona discharge work?
7. What is explosion proof enclosure?
8. Define hermetic sealing.
9. Define hot surface.
10. What are the five types of ionizing radiation?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on design feature of flame proof equipment.

Or

(b) Give short notes on design feature of increased safety equipment.

12. (a) Give short notes on OHSA regulation for design of explosion proof equipment.

Or

(b) Give short notes on NEC standards for hazardous area classification.

13. (a) Give short notes on principle of $SF_6$ gas insulated equipment.

Or

(b) Give short notes on importance and design feature of oil immersed equipment.

14. (a) Discuss on dust ignition proof enclosure.

Or

(b) Give short notes on advantages and disadvantages of purge and pressurization protection method.

15. (a) Explain in detail about intrinsic safety principle.

Or

(b) Give short notes on difference between electric arc and spark.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in detail about intrinsic safe barriers types with neat diagram.

Or

(b) Explain the identification and control of ignition sources in detail.

17. (a) Explain the explosion parameters in detail.

Or

(b) Explain in detail about working principle of purge and pressurization protection equipment.

18. (a) Explain in detail about properties of $SF_6$ gas.

Or

(b) Explain the faults and safety measures in electricity and electrical equipment in detail.

———————

| C–8239 | Sub. Code 91052 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 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** questions.

1. Why safety important in oil and gas industry?

2. Define fire triangle.

3. What are the goals and benefits of root cause analysis?

4. Define HAZOP.

5. What is explosive atmosphere?

6. What are the most common accidents in offshore?

7. Define human factor.

8. What is individual factor?

9. What are the importances of early warning systems?

10. What is the role of safety management in oil and gas industry?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on human factor theory.

Or

(b) Give short notes on importance and use of bath tub hazard curve.

12. (a) Give short notes on job safety analysis.

Or

(b) Explain about preliminary hazard analysis and its use.

13. (a) Give short notes on case study of Alexander I, kielland accident.

Or

(b) Give short notes on causes, consequence of ocean ranger accidents.

14. (a) Give short notes on categorization of accident related to human factor in oil and gas industry.

Or

(b) Give suggestion/control measure to reduce fatal accident in oil and gas industry.

15. (a) Give short notes on role and function of Danish energy agency.

Or

(b) Give short notes on purpose and function of performance measurement project.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in detail about fault tree analysis.

Or

(b) Explain in detail about case study of baker drilling barge accident.

17. (a) Explain in detail about onsite emergency planning and preparedness in oil and gas industry.

Or

(b) Explain in detail about case study of Glomar java sea drillship accident.

18. (a) Explain in detail about offsite emergency planning and preparedness in oil and gas industry.

Or

(b) Explain the occupational stress and human error cause of accident in oil and gas industry.

———————

| C–8240 | Sub. Code |
|---|---|
| | 91053 |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Fifth Semester**

**Fire and Industrial Safety**

**SAFETY ASPECTS IN INDUSTRIAL PLANT LAYOUT**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What are the factors in determining of layout and design?

2. What are the types of layout?

3. Why plant location is important?

4. Define NDT.

5. What are the functions involved in warehouse?

6. What are the important considerations for designing services products?

7. What are the advantages of good illumination?

8. Define glare and its effects.

9. What are mechanical hazards with an example?

10. Abbreviate: ALDEP, CORELAP, CRAFT, JIT.

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on importance and objective of plant layout.

Or

(b) Give short notes on functional layout. Write advantage and disadvantage of functional layout.

12. (a) Give short notes on factor rating method of plant location.

Or

(b) Give short notes on brown and Gibson method of plant location.

13. (a) Give short notes on TQM manufacturing operation.

Or

(b) Give short notes on steps involved in AM manufacturing operation.

14. (a) Give short notes on design and salient feature of local exhaust ventilation system.

Or

(b) Give short notes on duck design methods.

15. (a) Give short notes on general safety consideration of chain in manual handling.

Or

(b) Give short notes on design, operation and safety measures of bucket conveyor equipment.

## Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about principle of plant layout.

Or

(b) Explain the quality factor analysis method of plant location in detail.

17. (a) Explain in detail about eddy current method of plant inspection.

Or

(b) Explain the function and working process of computerized layout technique of CRAFT in detail.

18. (a) Explain in detail about CIM manufacturing operation.

Or

(b) Explain the SCM manufacturing operation process in detail.

———————

| C–8241 | Sub. Code 91054 |
|---|---|

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Fifth Semester**

**Fire and Industrial Safety**

**SAFETY IN LOGISTICS AND WAREHOUSE SAFETY**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 2 = 20)

Answer **all** questions.

1. What is the function of logistics?

2. What is the importance of warehouse?

3. Define TREM card.

4. What is tacho test?

5. What are the hazards presents in battery charging area?

6. What is the function of conveyors?

7. Define factor of safety.

8. What are the safety precautions for forklift?

9. Define emergency exit

10. What is fire hydrant system and it is types?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on warehouse management system.

Or

(b) Give short notes on logistic management.

12. (a) Give short notes on responsibility of the hazardous waste transporter.

Or

(b) Discuss on design feature and safety measures of tanker lorries.

13. (a) Give short notes on safety measures for storage and handling of gasoline.

Or

(b) Give short notes on safety measures for manual mechanical handling equipment operations.

14. (a) Give short notes on salient features of single girder EOT cranes.

Or

(b) Give short notes on importance and types of JIB cranes.

15. (a) Give short notes on Dow fire and explosion index.

Or

(b) Give short notes on different types of sprinkler system.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in detail about objective, purpose and types of maximum — minimum inventory control system.

Or

(b) Explain in detail about steps involved in logistic design system.

17. (a) Explain the driver safety programme in detail.

Or

(b) Explain in detail about motor vehicle transport worker act.

18. (a) Explain in detail about different types of fire extinguisher.

Or

(b) Explain the accident reporting and investigation procedure in detail.

———————

| C–8242 |
|---|

| Sub. Code |
|---|
| 91055C |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Fifth Semester**

**Fire and Industrial Safety**

**SAFETY IN MINING INDUSTRIES**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What are the main challenges in mining industry?

2. What causes mine fires?

3. Define explosion.

4. What are the types of gas detector using in mining industry?

5. Define vibration.

6. What are the dangers on ground mining?

7. Define FTA.

8. What is the use of control chart?

9. What is an accident?

10. Define safety audit.

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give short notes on causes and prevention of accident from drilling and handling equipment in mining industry.

Or

(b) Give short notes on garage safety measures.

12. (a) Give short notes on safety measures the fall of roof and sides accident in mining industry.

Or

(b) Give short notes on general safety measures in mining industry.

13. (a) Give short notes on causes, consequence and safety measures for ground collapse.

Or

(b) Give short notes on noise and vibration related hazards and control measures for mining industry.

14. (a) Give short notes on fuzzy model for risk assessment.

Or

(b) Give short notes on structure activity relationship analysis.

15. (a) Give short notes on accident classification and analysis.

Or

(b) Give short notes on recent development of safety audit in mining industry.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain the procedure of accident reporting system in detail.

Or

(b) Explain in detail about causes, prevention and control measures for tunnel face collapse in mining industry.

17. (a) Explain in detail about failure mode and effect analysis.

Or

(b) Explain in detail about fall from platform and danger from falling bodies hazards in mining industry.

18. (a) Explain about Tunnelling process.

Or

(b) Explain the causes, sources and control measures for atmospheric pollution in mining industry.

———————

| C–8243 | Sub. Code |
|---|---|
| | 91061 |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Sixth Semester**

**Fire and Industrial Safety**

**SAFETY MANAGEMENT SYSTEMS**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is safety budgeting?
2. Define accident.
3. List out modes of communications.
4. What is safety policy?
5. What is induction training?
6. Define safety education.
7. Write few safety promotional methods.
8. What is a safety suggestion schemes?
9. What is safety Culture?
10. What is Ethical Issues?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain in detail about Budgeting for safety.

Or

(b) Write about history of safety management in India.

12. (a) Explain in detail about Haddon's Principles.

Or

(b) Discuss in detail about effective system of Communication for SHE.

13. (a) Explain in detail about modern methods of safety training.

Or

(b) Explain about safety induction training.

14. (a) List out some importance of employee participation in safety.

Or

(b) Explain about modern methods and techniques of safety promotion.

15. (a) Explain in detail about Ethical Issues in safety.

Or

(b) Explain in detail about Psychological aspects of safety.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in details about authority power and qualification of safety officer.

Or

(b) Explain about need for safety, legal, Economic and social consideration for safety.

17. (a) Explain in detail about Training methods and strategies.

Or

(b) Explain in detail about history of trade unions in India.

18. (a) Explain in details about Knowledge and responsibility Vis-a-Vis safety performance.

Or

(b) Discuss in details about principles and modals of accident prevention and near miss incidents.

———————

| C–8244 | Sub. Code |
|---|---|
| | 91062 |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Sixth Semester**

**Fire and Industrial Safety**

**COMPUTER AIDED HAZARD ANALYSIS**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 2 = 20)

Answer **all** questions.

1. Define hazards.
2. What is societal risk?
3. Define safety audit.
4. What is shock sensitiveness test?
5. What is pool fire?
6. What is chemical inventory analysis?
7. Define flash point.
8. What is HAZAN?
9. Mention the reason for Bhopal disaster.
10. What is explosion?

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain in detail about Human Error analysis.

Or

(b) Write about hazards assessment, procedure and methodology.

12. (a) Explain about Thermo Gravimetric Analyzer (TGA).

Or

(b) What are the safety precautions to be followed during explosive test?

13. (a) Explain in detail about FTA.

Or

(b) Explain about Reliability Software's on FMEA for mechanical and Electrical systems.

14. (a) Explain about chemical inventory analysis.

Or

(b) Explain about plotting the damage distance on Plot Plant / Layout.

15. (a) Explain in detail about Flix borough disaster.

Or

(b) Explain in detail about Feyzin Disaster.

## Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in details about Reaction System Screening Tool (RSST).

Or

(b) Explain about Safety Audit in workplace.

17. (a) Explain in detail about HAZOP.

Or

(b) Write about Fire Explosion and Toxicity Index (FETI).

18. (a) Explain in details about

(i) Heat Radiation Effects.

(ii) BLEVE.

(iii) Pool Fire.

(iv) Jet Fire.

Or

(b) Discuss in details about Bhopal Disaster.

———————

| C–8245 |
|---|

| Sub. Code |
|---|
| 91063 |

**B.Sc. DEGREE EXAMINATION, APRIL 2023**

**Sixth Semester**

**Fire and Industrial Safety**

**BEHAVIOUR BASED SAFETY AND INDUSTRIAL ERGONOMICS**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 2 = 20)

Answer **all** questions.

1. Define personality.
2. What is motivation?
3. Define team building.
4. What is group dynamics?
5. What is safety culture?
6. Define BBS.
7. What is ergonomics?
8. Define switch gears.
9. Define personal risk factors.
10. Give a short notes of fatigue.

## Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain in detail about Learning and Types of Learners.

Or

(b) Write about motivation and its types.

12. (a) Explain in detail about group decision making techniques.

Or

(b) Discuss in detail about organization structure.

13. (a) Explain in detail about Behaviour based safety.

Or

(b) Explain about critical impact of social comparison feedback.

14. (a) Explain about applications of ergonomic principles in the shop floor.

Or

(b) Explain about principles of motion Economy.

15. (a) Give some guide lines for safe design and safe postures.

Or

(b) Explain in detail about man-machine interface control.

## Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain in details about learning, types of learners, learning process and learning theories.

Or

(b) Explain about

(i) Group dynamic.

(ii) Team Building.

17. (a) Explain in detail about ABC behaviour modification.

Or

(b) Write about physiology of workers.

18. (a) Explain in detail about body sizes and postures.

Or

(b) Discuss in details about interpersonal perception impression management.

———————