C–8628	Sub. Code
	30621

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

BEHAVIOR BASED SAFETY

(2019 onwards)

Duration: 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Activator, Behavior.
2. Define consequences.
3. Define Personality. Explain with example.
4. Define Attitude and explain its types.
5. What is ABC analysis of Behavior?
6. Define emotion.
7. Mention the human factors of Incident.
8. What is the Maslow's hierarchy of human needs?
9. Define Attitude.
10. What are the three dimension of leadership?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) What are the factors influencing personality?

Or

(b) Write a short notes on Misbehavior and its types.

12. (a) Write a short notes on Team building.

Or

(b) Write a short notes on importance of communication.

13. (a) What is BBS and importance of BBS?

Or

(b) Explain ABC model of behavior change.

14. (a) Write a short notes on importance of OHS training.

Or

(b) Write a short notes on stages of brainstorming.

15. (a) Mention any five leadership qualities for total safety culture.

Or

(b) Mention the critical success factors associated with BBS.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Write briefly on theories of BBS.

Or

(b) Explain in detail on perception, factors influencing perception and impression management.

17. (a) Write in detail on group decision making techniques.

Or

(b) Explain safety coaching through observation and feedback.

18. (a) Write a short notes on interpersonal and intra personal conversation.

Or

(b) Mention the keys for getting the best BBS coaching.

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C–8629	Sub. Code
	30622

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

LEGISLATIONS – ENVIRONMENT, HEALTH AND SAFETY

(2019 onwards)

Duration: 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Occupational safety.

2. Which subsection of Tamilnadu Factories Rules deals with "Employment of Young person"?

3. Define "Environmental Pollutant" and "Hazardous substance" as per Environment (Protection) Act 1986.

4. List the objectives of Air Act 1981 with reference to prevention and control of pollution.

5. How do you classify Hazardous chemical as per MSIHC Rules 1989?

6. Why should the Acetylene gas cylinders to be kept in upright position?

7. What is the warning message to be attached with Gas cylinders as per Gas Cylinders rules 1981?

8. What are the main objectives of bio-medical waste management?

9. Which standard deals with occupational noise exposure according to OSHA regulations?

10. Mention any four functions of ISO.

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

Answer **all** questions.

11. (a) Write short notice of duties of occupier as per the factories act, 1948.

Or

(b) List the preparations to be done for boiler inspection by boiler Inspector as per the Indian Boiler Act 1923.

12. (a) Write short notes on functions of safety committee as per the factories act, 1948.

Or

(b) Write short notes on workmen compensation act.

13. (a) Discuss the principles and steps involved in Environmental Auditing.

Or

(b) How is fire hazard eliminated in the construction site?

14. (a) How the overhead electric lines are saved as per the Indian Electricity Act 1910?

Or

(b) How is PPE regulation mentioned in HASAWA ACT 1974? Explain in detail.

15. (a) Compare the powers and functions of the state and central pollution control boards in control and prevention of water pollution.

Or

(b) Compare the inter relationship between ISO 14001 and OSHAS 18001.

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

Answer **all** questions.

16. (a) "Good working environment contributes significant role in the maintenance of the health of employees"- Justify the statement and explain the provisions of Tamilnadu Factories Rules 1950 and Indian Factories Act 1948 for the health of the workers.

Or

(b) What are the markings and fittings to be provided on the pressure vessel as per SMPV (unfired) Rules 1981? Explain in detail.

17. (a) What kind of Health and Safety policy to be declared by the occupier of the hazardous factory as per TN Factories Rules 1950? Explain in detail with suitable examples.

Or

(b) Discuss how accidents are reported, investigated and analyzed in an industry. Also show how the above prepared report helps in the prevention of future accidents in that industry?

18. (a) You are given the responsibility of developing and implementing an environmental management system for manufacturing industry in compliance with requirements of ISO 14000.

(i) Identify the issues which may arise while assessing significance of your environment impacts.

(ii) Plan your actions to prepare an ISO 14000 certification audit.

Or

(b) Discuss the Bhopal accident in detail in the light of MSIHC 1989 and also explain how the safety laws are violated in Bhopal, list the amendment made by the Indian Government after the Bhopal incident.

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C–8630	Sub. Code
	30623

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

ELECTRICAL SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is static electricity?

2. How is the voltage classified into various levels?

3. What are the types of electrical hazards?

4. Define electric shock.

5. Give the safety limits of voltage and current.

6. Define Earth Leakage Circuit Breaker (ELCB).

7. What are the personnel protective equipment's to be employed for electrical safety?

8. Define work permit system.

9. State the classification of hazardous zones.

10. Name some equipment certifying agencies.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the safety features in the transformers.

Or

(b) Write short notes on Cardio Pulmonary Resuscitation (CPR).

12. (a) Write a note on International Standards on Electrical safety

Or

(b) List out the differences between electrostatics and electro magnetism.

13. (a) Discuss the hazards associated with electric current and voltages.

Or

(b) Explain the main protection scheme against lighting hazards.

14. (a) What are the safety measures in the use of portable electrical hand tools?

Or

(b) Write briefly about the discharge rod and method of discharging.

15. (a) What is insulator? Classify insulator based upon temperatures capability of insulation material.

Or

(b) Explain the personal protective equipment's used in electrical safety.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) State the importance of 'Permit to work' in electrical installation. What are the procedures to be adopted in the permit?

Or

(b) Describe the various environmental factors that influence an electrical injury.

17. (a) Discuss the electrical causes of initiation of fires and explosion due to ionization, spark and arc – ignition energy. What are the safety measures to be taken for fire prevention action?

Or

(b) Explain competent persons, authorized person and line clearance.

18. (a) Describe with a neat connection diagram, the construction and working operation of the following, (i) Earth leakage relay and (ii) Earth fault relay.

Or

(b) Explain the different types of electrical apparatus used in the hazardous zones.

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C–8631	Sub. Code
	30624

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

INDUSTRIAL HYGIENE II : EVALUATION AND CONTROL OF HAZARDS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define safety survey.
2. Define safety inspection.
3. Explain the term violence as per factories act.
4. Write down few example of mobile plant operation.
5. What is manual handling?
6. Define mechanical handling.
7. Write the full form of COSHH?
8. What are the routes of entry in to the human body for a biological agent?
9. Write the full form of HAZOP.
10. Define the term Risk.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the hierarchy of control of a work place hazard.

Or

(b) What do you understand by incident recall technique?

12. (a) Explain the possibilities of hazards related to pedestrian in a construction site.

Or

(b) What do you understood by vehicle management plan?

13. (a) Explain the risk assessment of manual handling.

Or

(b) Explain the importance of training required for operating mechanical equipment.

14. (a) Explain the term biological agent and chemical agent.

Or

(b) Write down the general control measures for electrical hazards.

15. (a) Explain the steps involved in HIRA.

Or

(b) Briefly explain the term Root cause analysis.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain hazard assessment, procedure and methodology to be followed.

Or

(b) Explain how you can manage occupational road safety in a road project for Highway department.

17. (a) Explain mechanical machinery hazards and non-mechanical hazards and the control measures?

Or

(b) Explain the importance of health surveillance and personnel hygiene.

18. (a) Explain how an incident or accident is investigated and what the techniques used for investigation.

Or

(b) Explain any three Electrical, Biological and Chemical hazards faced by an employee in a pesticide industry.

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C–8632	Sub. Code
	30625B

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

HAZARD AND RISK ANALYSIS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is ranking of hazard?
2. Explain risk matrix.
3. List the key elements in JSA.
4. Write the expansion of FMEA and FTA.
5. What are the advantages of JSA?
6. Explain hazard analysis.
7. What is accident proneness?
8. What do you mean by accident investigation?
9. Explain safety activity rate.
10. Explain the term- partial total disability.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain how industrial hazards are identified.

Or

(b) Write short notes on administrative risk.

12. (a) What is the necessity of JSA?

Or

(b) List potential industrial hazards.

13. (a) Write notes on ETA.

Or

(b) Discuss briefly about safety management tools

14. (a) Explain preventive action plan for accidents.

Or

(b) Explain various types of accidents.

15. (a) What are the causes of accidents?

Or

(b) Explain safety performance monitoring.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss in detail about procedure for JSA.

Or

(b) Prepare an accident investigation report on your own.

17. (a) Discuss in detail about FMEA, with a case study?

Or

(b) Write notes on (i) Heinrich triangle (ii) shell model.

18. (a) Write notes on various types of disabilities.

Or

(b) Write notes on (i) ranking of hazards (ii) hazard elimination plan.

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C–8633	Sub. Code
	30625C

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

HAZARD ANALYSIS AND CRITICAL CONTROL POINT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define the term Micro biology.
2. Explain the term Virus.
3. Define the term food poisoning.
4. Define the term chemical poisoning.
5. Explain the term spoilage.
6. What is canned foods?
7. Define the term ventilation in food industry.
8. Explain the term noise in manufacturing industry.
9. Define the term product quality.
10. Define the term Process control

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the types bacteria's in food.

Or

(b) Explain the characteristics of fungi.

12. (a) Explain the bacterial food poisoning.

Or

(b) Explain Incidences of food poisoning.

13. (a) Explain the spoilage of vacuum packed meat.

Or

(b) Explain spoilage of fresh meat.

14. (a) Explain the procedure for handling of food materials.

Or

(b) Explain the purpose of basic design and layout of production shop floor.

15. (a) Explain the origin and schemes of HACCP.

Or

(b) Explain the 7 principles of HACCP.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss the factors influencing the bacterial growth and how it can be controlled.

Or

(b) Explain the food borne hazards and explain any two.

17. (a) What is spoilage of dairy products and how it can be controlled to minimum acceptable limit?

Or

(b) Explain the handling and storage of finished products are important over process areas.

18. (a) Explain HACCP and predictive microbiology and problems faced in implementation.

Or

(b) Explain the general principles and structural techniques in construction of wall, floor and ceilings.

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C–8634	Sub. Code
	30626

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Industrial Safety and Hygiene

INTERNATIONAL HEALTH AND SAFETY STANDARDS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is ISO and mention the country of origin?
2. ISO 14000 is dealing with?
3. When ISO 45001 is come in to force?
4. How may sections are there in 45001?
5. Define the term harmful emission?
6. Write the purpose of health and safety regulations?
7. Define occupational safety and health?
8. Write the full form of ILO and ANSI?
9. Explain IMS in short?
10. What does ISO 9001 emphasis?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the requirements of environmental policy and legal compliance.

Or

(b) Explain audit plan and how it should be performed.

12. (a) Explain the purpose of emergency planning and control.

Or

(b) Explain purpose of investigation, corrective action and follow up.

13. (a) Explain the general duties of an employer.

Or

(b) Explain the general functions of the commission and executive.

14. (a) Describe the role of employer and employee in short as per ILO.

Or

(b) Explain the safe work programme and advantages.

15. (a) Explain the benefits of IMS.

Or

(b) List down the different ISO's and their application in any organization.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain the section and features of ISO 14000.

Or

(b) Explain the structures and features of ISO 45001.

17. (a) What is imminent danger and causes of danger and who shall be responsible for corrective actions?

Or

(b) How do you describe the occupational safety and health of employees of small, medium and large sized enterprises?

18. (a) Explain general principles of LCA, reporting system stages of LCA and Review.

Or

(b) Explain the purpose of ISO 14004 and it's principles?

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C–8635	Sub. Code
	30631

M.Sc. DEGREE EXAMINATION, APRIL 2023

Third Semester

Industrial Safety and Hygiene

CONSTRUCTION SAFETY ANALYSIS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the importance of PPE.

2. Define Hygiene.

3. Write few causes of Accidents.

4. Write short notes on Indian Explosive Act 1984.

5. Write the safety measures in manual handling.

6. Write short notes on Road maintenance.

7. Mention the types of scaffolding.

8. List the hazards in structural steel works.

9. Define Ergonomics.

10. List few safety precautions for arc welding.

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

Answer **all** questions.

11. (a) Explain briefly about BOCW Act 1996.

Or

(b) Write short notes on:

(i) Noise safety

(ii) Fall protection.

12. (a) Discuss about the Disposal of explosives.

Or

(b) Explain the safety precautions for blasting works.

13. (a) Explain the safe use of Lifting equipment.

Or

(b) Write a short note on Road making.

14. (a) Explain the importance of Erection planning.

Or

(b) Write a short note about the safe use of ladders.

15. (a) What are the safety requirements for power-driven machinery?

Or

(b) Write about the treatment for Electric shock.

Part C

($3 \times 10 = 30$)

Answer **all** questions.

16. (a) Discuss the necessary welfare facilities for employees in detail.

Or

(b) Discuss the responsibilities of safety supervisor.

17. (a) Describe traffic management during road construction in detail.

Or

(b) Describe the maintenance and inspection of scaffoldings.

18. (a) Explain safe storage and handling of LPG.

Or

(b) How will you conduct a safety awareness program in the construction site? Explain in detail.

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C–8636	Sub. Code
	30632

M.Sc. DEGREE EXAMINATION, APRIL 2023

Third Semester

Industrial Safety and Hygiene

INDUSTRIAL SAFETY ENGINEERING

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the need of safe layout.

2. Differentiate LNG and CNG.

3. Define ZMS.

4. List the benefits of good guarding.

5. Define Hot work safety.

6. Write short notes on flashback arrestor.

7. Write the need of safety inspection.

8. Define the term hydro testing.

9. Define short term action plan.

10. List few benefits of certification

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the selection parameters of tyreplant location.

Or

(b) Sketch a safe layout for fireworks industry.

12. (a) List the Safety consideration for drilling process.

Or

(b) Discuss the guarding during maintenance.

13. (a) Write short notes on safety training.

Or

(b) Write the safety precautions in metalizing.

14. (a) Discuss about the radiography safety.

Or

(b) Write short notes on sand and shot blasting.

15. (a) Write about the features of OSHAS 18001.

Or

(b) Discuss the OSHA certification procedure.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss the facilities for safe effluent disposal.

Or

(b) Sketch and Explain the safe layout for nuclear power plant.

17. (a) Describe the guard construction in detail.

Or

(b) Discuss about various PPE used in hot works.

18. (a) Enumerate the pressure vessel inspection and testing.

Or

(b) Explain the scope of Oh&s management system in detail.

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C–8637	Sub. Code 30633

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Third Semester

Industrial Safety and Hygiene

EVOLUTION OF MODERN SAFETY CONCEPTS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define IRT.

2. Write the importance of safety inspection.

3. Define the Deming cycle.

4. Mention the objectives of management theories.

5. Define Risk management.

6. Write short notes on Reliability.

7. Write the purpose of the investigation.

8. Define the term job safety analysis.

9. Mention the uses of Pareto analysis.

10. Define product life cycles.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the line and staff functions for safety.

Or

(b) Write short notes on disaster control.

12. (a) Write the objectives of Herzberg's motivational theory.

Or

(b) Discuss the various management styles.

13. (a) Write short notes on Hazard analysis.

Or

(b) Write the objectives of FMEA.

14. (a) Explain human factors theory.

Or

(b) Write short notes on Accident investigation techniques.

15. (a) Write about failure data analysis.

Or

(b) Discuss the Weibull model.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Describe the history of safety movement in detail

Or

(b) Enumerate McGregor's X and Y theories with suitable examples.

17. (a) Describe hazard identification and analysis in detail.

Or

(b) Discuss any two accident causation theories in detail.

18. (a) Enumerate product design and life testing in detail.

Or

(b) Describe the evolution of the performance of supervisors on safety.

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C–8638	Sub. Code 30634

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Third Semester

Industrial Safety and Hygiene

COMPUTER AIDED HAZARD ANALYSIS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What do you mean by HAZOP?

2. Differentiate group risk and societal risk.

3. List the application of RSST.

4. Write the working principle of DSC.

5. Draw any two logic symbols.

6. Differentiate pool fire and jet fire.

7. Mention few heat radiation effects.

8. Define BLEVE.

9. List the merits of past accident analysis.

10. Write the lesson learnt from Bhopal disaster.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about the methodology of safety audit.

Or

(b) Describe safety warning systems.

12. (a) Describe the shock sensitiveness test.

Or

(b) Write the application and advantages of TGA.

13. (a) Write short notes on HAZAN.

Or

(b) Differentiate Fault Tree Analysis and Event Tree Analysis.

14. (a) Write short notes UVCE and Flash fire.

Or

(b) Explain the logics of consequence analysis.

15. (a) Describe the Feyzin disaster in detail.

Or

(b) Write short notes on Rasmussen masses report.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss hazard monitoring in detail.

Or

(b) Elaborate the working and construction of TGA.

17. (a) Discuss about reliability software on FMEA.

Or

(b) Explain the procedure for chemical inventory analysis.

18. (a) Recall Port Hudson disaster and its effects.

Or

(b) Discuss in detail reactor safety study on nuclear power plant.

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C–8639

Sub. Code
30635C

M.Sc. DEGREE EXAMINATION, APRIL 2023

Third Semester

Industrial Safety and Hygiene

HAZARDOUS WASTE MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is 'TREM card'?

2. List few hazardous waste characteristics.

3. Brief MSIHC Rules 1989.

4. Why hazardous waste management is important?

5. Write any two rules of solid waste management.

6. Specify the sources of radioactive waste.

7. Define risk.

8. Brief disinfection.

9. What is called combustion?

10. Write remedies for groundwater contamination.

Part B (5 × 5 = 25)

Answer **all** questions

11. (a) Write short notes on Hazardous waste transportation.

Or

(b) Discuss the safe disposal methods of hazardous waste.

12. (a) Differentiate compatibility and flammability of chemicals.

Or

(b) Discuss the rules of biomedical waste handling.

13. (a) Describe waste separation methods in detail.

Or

(b) Classify the waste generation from nuclear power plant.

14. (a) Brief Environmental risk with examples.

Or

(b) Explain landfill design in detail.

15. (a) Discuss any one chemical treatment process for MSW.

Or

(b) Write short notes on Biodegradation of toxic waste.

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Describe various disposal methods of hazardous waste.

Or

(b) Elaborate the recycle plastics usage rules.

17. (a) Discuss the radioactive waste safe disposal and its health effects.

Or

(b) Discuss any one risk assessment case study in detail.

18. (a) Describe the physicochemical process for hazardous waste.

Or

(b) Prepare a hazardous waste management plan for textile industry.

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C–8640	Sub. Code
	30641

M.Sc. DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Industrial safety and Hygiene

ENVIRONMENTAL SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. List the sources of pollution.
2. Brief ozone depletion.
3. Classify water pollutants.
4. Name few health hazards caused by water pollution.
5. Differentiate recycling and reuse
6. Define the term incineration.
7. Write the working principle of gas analyzer.
8. List any two duties of pollution control board.
9. Write the pollution prevention methods in cement factories.
10. Define Eco friendly energy.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on Automobile pollution.

Or

(b) Explain deforestation and its prevention methods.

12. (a) Brief advanced wastewater treatment.

Or

(b) Describe the objectives of effluentquality standards.

13. (a) Write about the disposal of radioactive waste.

Or

(b) Discuss the waste identification process.

14. (a) Write short notes on the atomic absorption spectrometer.

Or

(b) Explain any one gaseous emission prevention method.

15. (a) Discuss the pollution control methods in paper industries.

Or

(b) Explain pollution control methods in tanneries.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Elaborate air pollutants effects on human beings and its prevention methods.

Or

(b) Classify industrial effluents and their treatment process.

17. (a) Discuss the objectives of hazardous waste management in India.

Or

(b) Explain the construction and working of the electrostatic precipitator.

Or

18. (a) Discuss the pollution control methods in thermal power plants.

Or

(b) Discuss the importance of pollution control in dying industries.

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C–8641	Sub. Code
	30642

M.Sc. DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Industrial Safety and Hygiene

EHS MANAGEMENT STANDARDS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. List a few benefits of certification.

2. Write the scope of OSHAS 18001.

3. Define a short-term action plan.

4. State the OHAnd S Policy?

5. Differentiate proactive and reactive monitoring.

6. What do you mean by 'Record management'?

7. Write the objectives of Environmental policy.

8. List the duties of an auditor.

9. Brief LCA.

10. What is EIA?

Part B (5 × 5 = 25)

Answer **all** the questions

11. (a) Discuss the features of ISO 14001.

Or

(b) Describe the OSHAS 18001 certification procedure.

12. (a) Discuss the development of OSHAS action plan.

Or

(b) Discuss the content of OH and S policy.

13. (a) Describe the importance of EHS training.

Or

(b) Write the significance of accident report.

14. (a) Write about documentation requirements for ISO 14000.

Or

(b) Discuss the general principles of Environmental audit.

15. (a) Write short notes on Eco-labeling.

Or

(b) Discuss the scope and benefits of EIA.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Describe the guidelines for implementing ISO 9001.

Or

(b) Elaborate OSHAS 18001 strategy and planning in detail.

17. (a) Discuss the structure and responsibilities of Middle-level management.

Or

(b) Discuss the guidelines and principles of ISO 14004.

18. (a) Describe audit methodology in detail.

Or

(b) Write about the general principles and stages of LCA.

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C–8642	Sub. Code
	30643A

M.Sc. DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Industrial Safety and Hygiene

SUSTAINABLE SAFETY CULTURE AND BEHAVIOUR BASED SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is sustainability in safety?
2. How do you promote safety in the workplace?
3. Why behaviour-based safety program is important?
4. What are the safety key performance indicators?
5. Define safety culture.
6. What are the feedback processes involved in BBS?
7. How Can BBS Enhance Safety Performance?
8. How do you promote safety
9. What is safety education?
10. What is domestic safety?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain in detail about management commitment.

Or

(b) Explain in detail about Promotional strategies in safety.

12. (a) Explain in detail Workman's compensation cost.

Or

(b) Write about components of ideal safety culture.

13. (a) Explain in detail about implementation of BBS.

Or

(b) Explain in detail about feedback management.

14. (a) How will you promote employee participation in the workplace.

Or

(b) What is a Behavioural based safety program?

15. (a) Explain in detail about importance of Safety Training.

Or

(b) Explain in short about role of government agencies and private agencies in safety training.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) How will you promote safety culture in the organization.

Or

(b) What are the responsibilities of top management in safety?

17. (a) Explain in detail about leadership roles and responsibilities in BBS.

Or

(b) Explain in detail about behaviour and accident prevention model.

18. (a) Explain in detail about design behavioural safety process and implementation of behavioural safety process.

Or

(b) Explain in detail about Safety Training Methods (STM).

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C–8643	Sub. Code
	30643(B)

M.Sc. DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Industrial Safety and Hygiene

SAFETY IN LOGISTICS AND WARE HOUSE

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is logistics management?
2. Define inventory.
3. What is electricity?
4. Give the uses of tacho graph.
5. What is warehouse?
6. How to drive a forklift safely?
7. What is sling?
8. What is material handling?
9. Give the classification of fire.
10. What is fire wall?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write about warehousing strategies.

Or

(b) Explain the evolution of warehousing.

12. (a) How to design tanker lorries?

Or

(b) Write about fleet accident frequency.

13. (a) Write about crane safety.

Or

(b) Explain grease rack operation and wash rack operation.

14. (a) Write about chain pulley block safety precautions.

Or

(b) Explain factors of safety

15. (a) Write about fire resistance of building material.

Or

(b) How to construct fire exits?

Part C

$(3 \times 10 = 30)$

Answer **all** questions.

16. (a) Explain warehousing management systems.

Or

(b) Write about maximum and minimum inventory control systems.

17. (a) Explain sprinkler system and deluge system.

Or

(b) Write about replacement of halon with safer substitutes.

18. (a) Explain motor vehicle transport workers act.

Or

(b) Write about accident reporting and investigation procedures.

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C–8644	Sub. Code
	30643C

M.Sc. DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Industrial Safety and Hygiene

SAFETY IN TEXTILE INDUSTRIES

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define 'Combing'.

2. What do you mean by softening with specific to jute fabric?

3. Classify textile hazards.

4. Define shuttle loom.

5. State 'punting' in the textile industry.

6. Brief scouring.

7. List few unsafe condition in textile industries.

8. How to control noise pollution in the textile industry.

9. Differentiate acts and rules.

10. Brief waste disposal method in the textile industry.

Part B (5 × 5 = 25)

Answer **all** the 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 roles of safety officers in the textile industry.

Or

(b) Brief the hazards in the sizing process.

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

Or

(b) Brief the reasons for chemical pollution in different stages of textile processes.

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

Or

(b) Discuss the welfare measures for a Textile Industry.

15. (a) Write down the safety status applicable to textile sectors.

Or

(b) Write the objectives of the factory act applicable to the Textile Industry.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Prepare a plan for improving groundwater quality in textile processing districts.

Or

(b) Elaborate on the need for modern approaches to reducing textile hazards in detail.

17. (a) Explain the detail of the process flow charts for short and long staple spinning.

Or

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

18. (a) Enumerate the special precautions for specific hazardous work environments.

Or

(b) Sketch and explain various PPE used in textile industry.

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C–8645	Sub. Code
	30644A

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Fourth Semester

Industrial Safety And Hygiene

SAFETY IN FIREWORKS INDUSTRY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Write any two properties of sulfur.

2. What is 'Impact sensitivity'?

3. Write the purpose of earthing.

4. Name few PPE used for respiratory protection.

5. Define fuse cutting.

6. State explosive act.

7. What do you mean by ' Waste pit'?

8. Classify fire extinguisher.

9. Name few wastes in fireworks.

10. What is the meaning of 'consumer anxiety'?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write about the physical and chemical properties of Fire.

Or

(b) Discuss the precaution methods of explosion.

12. (a) Classify Hazards in fireworks factories.

Or

(b) Discuss unsafe acts and unsafe conditions related to fireworks.

13. (a) Write down the general requirements for fireworks as per the factory act.

Or

(b) Discuss safe packing methods in fireworks.

14. (a) Explain the paper cap handling with a neat sketch.

Or

(b) Write short notes on Manual material handling.

15. (a) Explain the waste disposal method in fireworks industries.

Or

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

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Discuss the principles of fireworks in detail.

Or

(b) Discuss any one fire accident case study and the lessons learned in detail.

17. (a) Sketch and explain a safe layout for fireworks.

Or

(b) Elaborate vehicle design procedure for explosive transports.

18. (a) Discuss waste control methods in other countries.

Or

(b) Describe the history of fireworks in India.

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C–8646	Sub. Code
	30644B

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Fourth Semester

Industrial Safety And Hygiene

PROCESS SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. State the purpose of the safety system.

2. Classify hazards.

3. Define FMEA.

4. List the limitation of PHA.

5. Brief Mechanical integrity.

6. Write the objectives of QA.

7. Write the purpose of the incident investigation.

8. Stress the benefits of Employee participation

9. What is called 'Hot work permit'?

10. Write the employer responsibilities.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on maximum intended inventory.

Or

(b) State the significance of process safety information.

12. (a) Describe the HAZOP in detail.

Or

(b) Discuss on – the – job and refresher training.

13. (a) Write about the compliance audit in detail.

Or

(b) Stress the importance of a pre – startup review.

14. (a) Explain any one investigation methodology

Or

(b) Write short notes on Trade secrets.

15. (a) List the contractor employee responsibilities.

Or

(b) Brief the major elements of emergency planning.

Part C

$(3 \times 10 = 30)$

Answer **all** the questions.

16. (a) Discuss ventilation system design in detail.

Or

(b) Discuss the methods of conducting PHA.

17. (a) Describe the term management of change in detail.

Or

(b) Prepare investigation questionaries' for process safety.

18. (a) Discuss the contractor selection procedure in detail.

Or

(b) Discuss the roles and responsibilities of safety managers in process industries.

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C–8647	Sub. Code
	30644C

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Fourth Semester

Industrial Safety and Hygiene

DUST EXPLOSION

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Classify Dust explosion.

2. Define dust fire.

3. Write the applications of conveyors.

4. Define the term Electroplating.

5. List the merits of Good Housekeeping.

6. Draw any two safety warning signs.

7. Define auto-ignition.

8. Write about the friction sensitivity.

9. What is called explosion isolation?

10. Write the advantages of the cyclone method.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on Dust concentration.

Or

(b) Discuss the safety parameters of dust.

12. (a) Sketch and Explain grinding mills.

Or

(b) Write short notes on Electrostatic hazards.

13. (a) Describe the control approaches to dust.

Or

(b) Discuss the various PPE used in dust control.

14. (a) Brief the combustibility test procedure.

Or

(b) Discuss the determination of smolder temperature.

15. (a) Write short notes on Explosion venting.

Or

(b) Describe the prevention of dust accumulation outside the process equipment.

Part C (3 × 10 = 30)

Answer **all** the questions.

16. (a) Discuss the types of dust zones in detail.

Or

(b) Discuss the hazards of powder coating and its reduction methods.

17. (a) Elaborate NIOSH guidelines for the selection of particulate respirators.

Or

(b) Discuss the material safety specification for dust layers.

18. (a) Prepare a dust control plan for process industries in detail.

Or

(b) Discuss the roles and responsibilities of safety officers in pollution control.

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