

C-6322

Sub. Code

30721

M.B.A. DEGREE EXAMINATION, APRIL 2022

Second Semester

Environment and Industrial Safety

EHS ACTS, LAWS AND REGULATIONS

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is the meaning of Overcrowding as per Factories Act 1948?
2. How overtime working is regulated?
3. Define hazardous waste (as per HW (M&H) Rules).
4. What are the methods prescribed for disposal of Bio-Medical wastes?
5. What is the objective of Workmen Compensation Act 1923?
6. Explain Grant of Authorization.
7. List four dangerous occurrences.
8. Write applicability of Public Liability Insurance Act.

9. What is Extended Producers Responsibility?
10. What precautions to be taken against dangerous fumes, gases as per Factories Act.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write brief note on Occupier's responsibilities.

Or

- (b) Write brief note on Manager of Factory's responsibilities.

12. (a) Write brief note on contents of Material Safety Data Sheets.

Or

- (b) What is the function of Site Appraisal Committee?

13. (a) Write the criteria for deciding hazardous waste.

Or

- (b) How transboundary movement of hazardous wastes regulated?

14. (a) Write the provisions related to employment of Young Persons.

Or

- (b) Write provisions related to hazardous processes ,in Factories Act.

15. (a) List any ten e-wastes and statutory records to be maintained under E-wastes (M&H) Rules.

Or

- (b) What safety arrangements are to be made under The Dangerous Machines Act 1983?

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Develop a Compliance Checklist for Factories Act and Rules.

Or

- (b) Develop a compliance checklist for Air and Water Acts.

17. (a) Write an essay on Relevance of Factories Act in Modern Economy.

Or

- (b) Write an essay on Laws governing intra-state and inter-state movement of hazardous wastes in India.

18. (a) Write a note on Safety Officer's responsibilities under Factories Act.

Or

- (b) Write notes on Static and Mobile Pressure Vessels Rules and Gas Cylinder Rules.

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30722

M.B.A. DEGREE EXAMINATION, APRIL 2022

Second Semester

Environment and Industrial Safety

**INTERNATIONAL MANAGEMENT OF HEALTH AND
SAFETY**

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define health and safety culture.
2. What are the objectives of risk assessment?
3. Write hazards of working alone.
4. What is reactive monitoring of safety performance?
5. When health and safety training is needed?
6. Give examples of health and safety standards.
7. Give examples of Permits to Work.
8. What is proactive monitoring of safety performance?
9. List major health and safety management systems.
10. Who is an Occupier as per Factories Act 1948?

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Differentiate human errors and violations.
Or
(b) List Health and Safety training topics.
12. (a) What is the role of safety Representatives?
Or
(b) What are the functions of Safety Committee?
13. (a) Write key elements of a health and safety policy.
Or
(b) How to review a health and safety policy?
14. (a) Write note on sources of information on health and safety.
Or
(b) Write the criteria for Contractor selection.
15. (a) Write note on Legal aspects of Risk Assessment.
Or
(b) What are the basic elements of health and safety management systems.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write an essay on role and function of ILO Conventions.
Or
(b) Write an essay on Benefits and Problems associated with OH and S Management Systems.

17. (a) Develop a Emergency Plan procedure for a hospital.

Or

(b) What are Employer and Employee's responsibilities related to health and safety?

18. (a) Write an essay on promoting safety culture through employee consultation and participation.

Or

(b) Explain risk assessment process in detail.

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30723

M.B.A. DEGREE EXAMINATION, APRIL 2022

Second Semester

Environment and Industrial Safety

SAFETY IN MATERIAL HANDLING

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What are the accessories used in manual handling of materials?
2. What is the purpose of outriggers in a mobile crane?
3. What is a pinch point?
4. Why cable kinking is not good?
5. Why boom angle is important in cranes?
6. What are the hazards of floating cranes?
7. What is the function of hoist limit switch?
8. Why taglines are used during movement of heavy objects?
9. What is the selection criteria for Forklift Operator?
10. What are the hazards in a Escalator?

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write short note on safety aspects of hydraulic jacks.

Or

- (b) Write short note on physical hazards in Manual Handling.

12. (a) Write short note on Conveyor Safety.

Or

- (b) How to prevent side pull during heavy object transportation?

13. (a) Write note on factors affecting lifting capability of a crane.

Or

- (b) What safety arrangements are necessary for a highway truck?

14. (a) List factors causing chain sling failure.

Or

- (b) List hazards in a moving walks.

15. (a) Suggest PPEs required for moving hot objects by wheel barrows.

Or

- (b) Write a note on inspection of web slings.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Develop a safety inspection checklist for a component assembly shop (manual handling of parts).

Or

- (b) Develop a Safe Operating Procedure for Overhead Crane Operators.

17. (a) Develop a safety inspection checklist for a power operated Belt Conveyor used in Cement Plants.

Or

- (b) What safety precautions to be taken while shifting steel scrap using lifting magnets?

18. (a) What safety do's and don'ts to be followed in a warehouse where several forklifts, stackers operate at a time?

Or

- (b) Discuss safety aspects of stacking and storage of bulk materials in a warehouse.

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M.B.A. DEGREE EXAMINATION, APRIL 2022

Second Semester

Environment and Industrial Safety

ENVIRONMENTAL STUDIES

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Why coral reefs are considered important?
2. What you understand by wetlands?
3. What are the problems with dam construction?
4. Why use of pesticide is a problem?
5. What are natural resources?
6. What are renewable energy sources?
7. What is the meaning of sustainable lifestyle?
8. Describe Energy Flow in the Ecosystem.
9. Draw Ecological Pyramid.
10. Give four examples of endangered species of India.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write brief note on Deforestation and its environmental impact.

Or

- (b) Write brief note on Ecosystem.

12. (a) Briefly explain Biodiversity.

Or

- (b) Write brief note on Global Environment.

13. (a) Write brief note on Air Pollution.

Or

- (b) Write brief note on Soil Pollution.

14. (a) Write brief note on Marine pollution.

Or

- (b) Write brief note on Alternate Energy Resources.

15. (a) What are the causes of Man-Wildlife Conflicts?

Or

- (b) What are Hot Spots of Bio-diversity? Give examples.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write a note on Renewable and Non-Renewable Resources.

Or

- (b) Write a note on Biodiversity and Conservation of Ecosystem.

17. (a) Write an essay on Promoting Public Awareness on Environmental Protection.

Or

(b) Write an essay on Mangroves and their Conservation.

18. (a) Explain in detail effects of modern agriculture and their mitigation.

Or

(b) Write an essay on Prevention of Desertification.

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30725 a/

30625 a

M.B.A./M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Environment and Industrial Safety

SAFETY IN OIL AND GAS INDUSTRY

(Common for M.B.A. (E & IS)/M.Sc. (ISH)

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Explain Occupational Stressor.
2. How are human errors classified?
3. Define HAZOP.
4. Define Job Safety Analysis.
5. What is Markov method?
6. Explain bathtub hazard curve.
7. Define Preliminary Hazard Analysis.
8. Write the organizational factors affecting safety.
9. Name any four accident causation theories.
10. How offshore oil and gas industry are different from onshore installations?

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Write brief note on safety management principles.

Or

- (b) Explain FMEA with an example.

12. (a) Explain steps involved in Oil Field Fatality Analysis.

Or

- (b) Explain Fault Tree Analysis with an example.

13. (a) Write the common causes of accidents in offshore industry?

Or

- (b) List oil and gas industry accident databases and accident data collection sources.

14. (a) Write a note on lessons learnt in recent offshore oil and gas accidents.

Or

- (b) Discuss Mumbai High North Platform accident and its causes.

15. (a) Discuss Bohai 2 oil accident and its causes.

Or

- (b) Discuss Seacrest Drill Ship accident and how it could have been prevented.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write an essay on Prevention of accidents in Oil and Gas industry.

Or

- (b) Compare safety challenges in Onshore and Offshore Oil and Gas installations.

17. (a) Write in detail about any two offshore oil and gas industry accident databases.

Or

- (b) Write note on Emergency Planning and Preparedness for offshore platforms.

18. (a) Discuss any two accident causation theories.

Or

- (b) Write an essay on Safety Awareness Training for Offshore O and G Industry employees.

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30725C

M.B.A. DEGREE EXAMINATION, APRIL 2022

Second Semester

Environment and Industrial Safety

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

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Risk?
2. What is meant by safety instrumentation?
3. State the term HIRA?
4. What is Hazard?
5. Define PHA?
6. What is checklist?
7. Expand BIL?
8. Write the formula for RPN?
9. Differentiate between combustible and flammable materials?
10. Define erection?

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write short notes on PHA?

Or

- (b) Write about the fault tolerance and plant ageing?

12. (a) Explain the various PHA methods?

Or

- (b) Write in detail about HAZID?.

13. (a) Write a short note on FTA?

Or

- (b) Differentiate between the qualitative and quantitative hazard analysis?

14. (a) Write in detail about SIL and its determination techniques?

Or

- (b) Illustrate about SIL certification and its standards

15. (a) Write about the safety life cycle?

Or

- (b) Write the purpose of third party certification in instruments?

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain in detail about ALARP?

Or

- (b) What are the steps to be followed to calculate HIRA?

17. (a) What is meant by PHA? And how to evaluate the plant hazard sections?

Or

- (b) Explain in detail about the HIRA?

18. (a) Elaborate safety life cycle and its maintenance.

Or

- (b) Discuss in detail about erection and validation?

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30741

M.B.A. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Environment and Industrial Safety

SAFETY INSPECTION AND AUDIT

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is the purpose of workplace inspection?
2. Describe the frequency of inspection in short.
3. Mention types of Audit.
4. What are post-audit activities?
5. Define ISO 14001
6. List out types of EIA.
7. What are the responsibilities of IS 14489:1998?
8. Define audit goals of IS 14489:1998.
9. Mention some benefits of OSHAS 18001 certification.
10. Define a short-term action plan.

Part B

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Illustrate in detail about follow-up and monitoring in the inspection.

Or

- (b) Describe the purpose of the inspection team.

12. (a) Explain in detail about on-site activities.

Or

- (b) Discuss assessment strengths and weaknesses during Audit.

13. (a) Discuss the principle of LCA with its stages.

Or

- (b) Explain in detail about ISO 14020.

14. (a) Discuss the process of executing and collecting evidence in IS 14489:1998 Audit?

Or

- (b) Write short notes on report distribution and record retentions in IS 14489:1998 Audit?

15. (a) Discuss benefits of certification of OSHAS 18001 and its procedure.

Or

- (b) Discuss guidelines for implementing (18002:2000) OSHAS 18001.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Briefly discuss about duration and frequency of inspection.

Or

- (b) Explain in detail about the methodology to conduct a safety audit and discuss pre-audit activities.

17. (a) Discuss ISO 14004 with principle, documentation requirement, and clauses 4.1 to 4.5.

Or

- (b) Illustrate in detail about ISO 14000 with its implantation plan, registration, and importance to management auditing.

18. (a) Discuss three types of the annex in IS 14489:1998 Audit.

Or

- (b) Explain the content of OH and S policy in detail with its principle, strategy, planning, and specific goals.

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30742

M.B.A. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Environment and Industrial Safety

HAZARDOUS WASTE MANAGEMENT

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Hazardous waste.
2. What is surface storage?
3. What is waste compatibility?
4. What is bio medical waste?
5. Define solid waste management.
6. What is disposal option?
7. What is physiochemical?
8. Define bioreactor.
9. What is risk?
10. What is environmental risk?

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss about classification of hazardous waste.

Or

- (b) Discuss about transport of hazardous waste.

12. (a) What is bio medical waste? How these are classified?

Or

- (b) State about storage and handling of hazardous waste.

13. (a) Describe the roles of key stake holder in integrated solid waste management.

Or

- (b) What are the methods of solid municipal waste?

14. (a) What are the benefits of ground water contamination?

Or

- (b) State salient features of MSW rules 2016.

15. (a) Discuss about Risk identification process.

Or

- (b) What are the characteristics of risk?

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss about classification of chemical in detail.

Or

- (b) Classify biomedical waste treatment with respect to option, category, treatment and disposal.

17. (a) Discuss the salient features of solid waste.

Or

- (b) Discuss about the types of radioactive wastes.

18. (a) Explain about the chemical treatment process for MSW.

Or

- (b) Explain the methods of risk assessment.
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M.B.A. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Environment and Industrial Safety

SAFETY MANAGEMENT IN HIGH HAZARDOUS AREAS

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Classify industrial equipment for hazardous gases.
2. Describe an expert system for safety assurance.
3. What is EIC?
4. Define NEC.
5. What is intrinsically safe equipment?
6. Define sparks flashovers.
7. Define dust ignition-proof enclosure.
8. What is limit energy?
9. What are passive barriers?
10. Explain ionization radiation.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss online monitoring systems for high hazardous areas.

Or

- (b) Explain in detail about design features for increased safety equipment.

12. (a) Discuss emission due to failure of gas dust and fibers.

Or

- (b) Illustrate in detail about the identification of substances, emission source, and their structure.

13. (a) Discuss sparks flashover and corona discharge associated with electrical plants.

Or

- (b) Explain in detail about permissible hot spot temperature and sand-filled installations.

14. (a) Discuss intrinsic safety with its types.

Or

- (b) Write short notes on pressurization and purging.

15. (a) Briefly discuss about static electricity and hot surface.

Or

- (b) Discuss various intrinsically safe barrier types.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Briefly explain industrial classification equipment for hazardous gases and vapours.

Or

- (b) Explain in detail about hazardous industrial zones and their class.

17. (a) Classify hazardous area and discuss the procedure for classification of hazard areas in a detailed manner.

Or

- (b) Describe faults and safety hazards of electrical equipment with investigation methods.

18. (a) Discuss explosion-proof enclosure and dust ignition proof enclosure.

Or

- (b) Explain in detail about various classes in NFPA standards.

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M.B.A. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Environment and Industrial Safety

SAFETY IN INDUSTRIAL PLANT LAYOUT DESIGN

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is a blueprint in plant layout?
2. Discuss the function of security towers.
3. Define territorial parameters.
4. List out the NDT testing methods.
5. Define ALDEP.
6. What is material flow analysis?
7. What are the principles of good ventilation?
8. List out the importance of good lighting in the industry.
9. What is conveying equipment?
10. Define slings.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss plant layout design and safe layout with distance.

Or

- (b) Describe in detail the necessary standards and codes for developing plant layouts.

12. (a) Discuss the selection parameters for the selection of location for industries.

Or

- (b) Explain in detail about plant inspection.

13. (a) Write short notes on quantitative models in the computerized workstation model.

Or

- (b) Illustrate in detail about manufacturing operation with JIT and TQM.

14. (a) Discuss ventilation and its importance in the industry.

Or

- (b) Explain in detail about the role of preventive maintenance in safety and health.

15. (a) Discuss sling methods of attachment and alloy chain slings and hooks.

Or

- (b) Explain in detail about sheaves and drums, lubrication with inspection, and replacement procedure.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss fire safety system and its equipment in industrial layout.

Or

- (b) Explain in detail about safe layout process for nuclear power plants.

17. (a) Explain the following NDT methods.

- (i) Ultrasonic testing and
- (ii) Radiographic testing

Or

- (b) Explain in detail about function and storage operation in the warehouse.

18. (a) Describe housekeeping principles and types of accidents due to poor housekeeping.

Or

- (b) Discuss about design, installation, operation, and maintenance of conveying equipment.

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30745

M.B.A. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Environment and Industrial Safety

INDUSTRIAL HYGIENE AND TOXICOLOGY

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is Industrial hygiene?
2. Define moving force.
3. List out types of ionization radiation.
4. Write short notes on zoonoses.
5. Classify the toxic materials.
6. What is HAZCHEM?
7. What is man-machine system?
8. Define WRULD.
9. Discuss the purpose of air sampling.
10. Define X-Ray.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the control system in the human body.

Or

- (b) Explain in detail about sense organs in the human body.

12. (a) What is hepatitis and its types? Detail its cause and effect.

Or

- (b) Explain in detail ventilation systems in the industrial workplace.

13. (a) Discuss routes of entry and absorption of dose.

Or

- (b) Explain in detail about blood damaging agents.

14. (a) Write short notes on workplace risk assessment.

Or

- (b) Explain in detail about the design of the job and workplace.

15. (a) Discuss the methods for sampling gases and vapours.

Or

- (b) Explain in detail about BEL.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Illustrate in detail about the digestive system in the human body.

Or

- (b) Describe the following terms in detail (i) HIV
(ii) Anthrax.

17. (a) Classify the toxic materials and explain each type in detail.

Or

- (b) Discuss in detail about metabolism, excretion, and response to toxins.

18. (a) Briefly discuss the factors affecting the performance of physical tasks.

Or

- (b) Explain in detail about neurological tests.

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30746

M.B.A. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Environment and Industrial Safety

SAFETY IN AVIATION AND SHIPYARD

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List the responsibilities of port authorities,
2. What is the purpose of a forum in safety legislation?
3. Mention types of the cargo ship.
4. Define safety means of access.
5. What are lifting appliances?
6. List out various types of ropes used for lifting.
7. Define conveyors.
8. What are dangerous goods?
9. What is cargo handling?
10. Mention some emergency action to be performed after gas leakage on the shipyard.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss the history of dock safety status in India.

Or

- (b) Explain in detail about the owner of the shipmaster and agent of the ship.

12. (a) Discuss in detail about the handling of hatch beam and hatch covers.

Or

- (b) Illustrate in detail about safety in chipping and painting operation onboard ships.

13. (a) Discuss in detail about different types of lifting appliances.

Or

- (b) Explain in detail about testing and examination of lifting appliances.

14. (a) Discuss restriction of loading and unloading operations.

Or

- (b) Illustrate in detail about safety operation handling of different types of cargo.

15. (a) Discuss emergency action plan for fire and explosion in ship dock.

Or

- (b) Illustrate in detail about the preparation of the on-site emergency plan.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Discuss in detail about dock workers act 1986 with rules and regulations.

Or

- (b) What are the port authority and dock welfare board? Explain their responsibilities.

17. (a) Illustrate in detail about electricity and electrical management in the onboard ship with storage types.

Or

- (b) Explain about safety procedures to be followed in lifting appliances and maintenance of various ropes used in lifting.

18. (a) Discuss in detail about testing, examination, and inspection of dangerous goods in containers.

Or

- (b) Explain in detail about the emergency action plan for gas leakage and collapse of lifting appliances in the ship dock.