

**C-3886**

**Sub. Code**

**30611**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY AND HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**First Semester**  
**SAFETY IN FACILITY DESIGN**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define CNC.
2. Define : Equipment Layout.
3. What is ventilation?
4. What is LEV?
5. What is manual handling?
6. List out types of slings in material handlings.
7. What is conveyor?
8. Define : Team lifting and carrying.

9. Write about types of hoisting apparatus.
10. Write about territorial parameters in plant locations.

**Part B**

(5 × 5 = 25)

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

11. (a) Write about selection of plant locations.

Or

- (b) Draw the crane inspection checklist.

12. (a) What are the hazards present in manual material handling?

Or

- (b) Explain about location for waste treatment and disposal.

13. (a) Briefly explain about fire hydrant locations.

Or

- (b) Explain the operating principles, requirement and maintenance of powered industrial trucks.

14. (a) Write a short notes on dollies and wheel barrows safety.

Or

- (b) What is housekeeping? Explain about 5S.

15. (a) Explain : Local exhaust ventilation.

Or

- (b) Explain about conveyer safety.

**Part C**

(3 × 10 = 30)

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

16. (a) Write a short notes on safe layout for thermal power stations.

Or

- (b) Explain in details about storage and handling of cryogenic liquids.

17. (a) Write a short notes on LPG trucks safety.

Or

- (b) Explain in details about forklift safety.

18. (a) Explain about the accessories for manual handling.

Or

- (b) What do you mean by ventilation standards? Explain.

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**C-3891**

**Sub. Code**

**30621**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**BEHAVIOUR BASED SAFETY**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is Misbehaviour?
2. Define Attitude.
3. What is communication?
4. Why we need to build a team?
5. List out the merits of feedback.
6. What is mean by critical impact?
7. What is brainstorming?

8. Define health promotion training.
9. What is safety culture?
10. List out the barriers for BBS.

**Part B**

(5 × 5 = 25)

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

11. (a) What are the factors to be considered for an influencing perception?

Or

- (b) How to handle an Emotional labour?

12. (a) Write short notes on “Influence”.

Or

- (b) Briefly explain about interpersonal relations.

13. (a) Write the consequences of ABC Behaviour model.

Or

- (b) Briefly explain about addressing ergonomic hazards.

14. (a) Describe about occupational safety and health training.

Or

- (b) Distinguish between interpersonal and intra personal conversation.

15. (a) How to sustain employee's involvement in occupational safety?

Or

- (b) Describe a critical success factors for behaviour based safety.

**Part C** (3 × 10 = 30)

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

16. (a) What is Learning? And explain the types of learners.

Or

- (b) Explain in detail about interpersonal perception impression management.

17. (a) Describe in detail about Group decision making techniques.

Or

- (b) Explain in detail about ABC model of behaviour change.

18. (a) Explain in detail (i) Health promotion training (ii) INSITU safety training.

Or

- (b) List out the keys to getting the best from BBS coaching.

**C-3892**

**Sub. Code**

**30622**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY AND HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**LEGISLATIONS : ENVIRONMENT, HEALTH AND  
SAFETY**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. How many sections are available in factories act 1948?
2. What is meant by environmental pollution?
3. What is meant by air act 1981?
4. What is meant by account and audit?
5. Explain the duties of authorities.
6. What is mean toxic chemical?
7. What is meant by safety data sheet?

8. Expand SMPV.
9. What is mean by occupational safety and health?
10. Expand ANSI.

**Part B** (5 × 5 = 25)

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

11. (a) Explain the employment of young persons and its special provision.

Or

- (b) Explain about biomedical waste management and handling rule.

12. (a) Explain about the general power of the central government.

Or

- (b) Explain about accounts and audit penalties.

13. (a) Explain about the duties of authorities.

Or

- (b) Explain the list of hazardous and toxic chemicals.

14. (a) Explain about BOCW act 1996.

Or

- (b) Explain petroleum rules.



15. (a) Explain health and safety work act.

Or

(b) Explain ISO 14000.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain in detail about Tamil Nadu factories rule 1950.

Or

(b) Explain in detail about chapter of factories act 1948.

17. (a) Explain detail about batteries management and handling rules 2001.

Or

(b) Explain about prevention and control of air pollution and water pollution.

18. (a) Explain about motor vehicle rules.

Or

(b) Write short notes on:

(i) OSHAS 18000

(ii) ANSI.

**C-3893**

**Sub. Code**

**30623**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY AND HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**ELECTRICAL SAFETY**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is known as CPR?
2. Define IE Rule.
3. What is known as NEC code?
4. Define EMF.
5. Define Overload.
6. What is known as FRLS?
7. List out the types of cable joint.

8. Define LOTO.
9. What is PPE?
10. Define Hazardous Zone.

**Part B**

(5 × 5 = 25)

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

11. (a) Discuss the effect of shock.

Or

- (b) Explain briefly about resistance and capacitor.

12. (a) Explain the Heating Effect of Current.

Or

- (b) Discuss the Voltage Classifications.

13. (a) Explain the Electrical Guarding.

Or

- (b) How the ELCB is work?

14. (a) How the Discharge Rod Earthing is work.

Or

- (b) Write some important rules in IE rules.

15. (a) Explain the Grouping of Gases.

Or

- (b) Discuss the Explosion Proof Electrical Apparatus.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain briefly about IE Rule.

Or

- (b) Describe in detail about Lighting Arrestor and its working principle.

17. (a) Explain in detail about FUSE.

Or

- (b) Explain in detail about Grounding Techniques.

18. (a) Discuss the Permit to Work System.

Or

- (b) Explain in detail about the classification of Hazardous Location.

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**C-3894**

**Sub. Code**

**30624**

**M.Sc. DEGREE EXAMINATION**

**INDUSTRIAL SAFETY HYGIENE**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**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 hazard.
2. What is meant by PPE?
3. Write some heat related occupational disease.
4. Write some hazards related to vehicle operation.
5. Define machine guarding.
6. What is mean by inspection?
7. Define voltage.

8. Write some portable electrical appliances.
9. What is mean by risk?
10. Write the types of accident investigation techniques.

**Part B** (5 × 5 = 25)

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

11. (a) Write short notes on about safety inspection.

Or

- (b) Discuss about incident recall techniques.

12. (a) Write short notes about prevention of workplace hazards.

Or

- (b) What are the precautions taken while using mobile work equipment?

13. (a) Write short notes on mechanical machinery hazards.

Or

- (b) Write the requirements for the statutory examination of lifting equipment.

14. (a) Write the requirements of COSHH regulations.

Or

- (b) Explain the forms of chemical agents.

15. (a) Write the steps of HIRA.

Or

(b) Write short notes on SOP.

**Part C**

(3 × 10 = 30)

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

16. (a) Do HIRA for the excavation work?

Or

(b) Explain about HAZOP.

17. (a) Briefly explain about the hazard assessment and its procedure.

Or

(b) What are the hazards related to while using chemicals?

18. (a) Explain Do's and Don'ts while using electricity.

Or

(b) Briefly explain about the root cause analysis.

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**C-3895**

**Sub. Code**

**30625B**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY AND HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**HAZARD AND RISK ANALYSIS**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. List out the Hierarchy of Controls.
2. What are the types of disabilities?
3. Explain about Incident Rate.
4. What is the difference between Hazard and Risk?
5. Describe – Permanent Partial disability.
6. List out the types of Industrial Hazard.
7. Write about the purpose of AIR.



8. Explain about HAZAN.
9. What is known as RCA?
10. Why JSA is required?

**Part B**

(5 × 5 = 25)

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

11. (a) Draw the Risk Matrix Table.

Or

- (b) Explain about Ranking of Hazard.

12. (a) Describe FTA.

Or

- (b) What are the benefits of JSA?

13. (a) Write about Domino's Sequence.

Or

- (b) Write about JSA format.

14. (a) What are types of Disabilities?

Or

- (b) Write short notes on Safety Activity Rate.

15. (a) Write about ALARA.

Or

- (b) Write about HAZOP.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain the terms “
- (i) Frequency Rate
  - (ii) Severity Rate
  - (iii) Accident Rate
  - (iv) Incident Rate
  - (v) Safe “T” Score.

Or

- (b) Briefly explain about Hazard Identification and Risk Assessment.

17. (a) Write a short notes on JSA.

Or

- (b) Write about FMEA.

18. (a) Write about :

- (i) ETA
- (ii) FTA.

Or

- (b) Briefly explain about Accident Investigation Report.

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**C-3870**

**Sub. Code**

**30725c/  
30625c**

**M.B.A./M.Sc. DEGREE EXAMINATION**

**COMMON FOR M.B.A. ENVIRONMENT AND  
INDUSTRIAL SAFETY / HEALTH SAFETY  
ENVIRONMENT**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**HAZARD AND RISK MANAGEMENT**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define Hazard and Risk.
2. Define Frequency Rate and Severity Rate with formula.
3. What are the benefits of JSA?
4. List few potential hazards in Fireworks.
5. Define FMEA.
6. Write short notes on SOP.
7. Define Heinrich triangle.

8. Write any two unsafe act?
9. What is Safe-T-Score?
10. Classify disabilities.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain about hierarchy of accident prevention.

Or

- (b) What are the types of hazards? Explain each hazard with suitable examples.

12. (a) What is JSA? Explain steps of JSA in detail.

Or

- (b) Explain about HAZOP. Mention any six keywords with examples.

13. (a) Explain in detail about Event Tree Analysis.

Or

- (b) Explain in detail about Fault Tree Analysis.

14. (a) Define accident. What are the types of accident? Explain about types of accidents.

Or

- (b) Explain the following.
  - (i) Domino's sequence
  - (ii) SHELL model.

15. (a) Write short notes on accident indices calculation.

Or

(b) Write the importance of safety performance monitoring.

**Part C** (3 × 10 = 30)

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

16. (a) Conduct HIRA for any six activities at a construction site.

Or

(b) Prepare a checklist of JSA with suitable example.

17. (a) Describe the importance of safety management tools in risk management.

Or

(b) What is meant by accident investigation and reporting? What are the steps involved in AIR?

18. (a) Explain in detail about “Bhopal Gas Tragedy” case study.

Or

(b) Explain in detail about the following :

(i) Causes of Accidents.

(ii) Scope of the safety professional.

**C-3897**

**Sub. Code**

**30626**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY AND HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**INTERNATIONAL HEALTH AND SAFETY STANDARDS**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Why does ISO 14001 sometimes use “effects” and sometimes impact?
2. What is relationship between clauses 4.1 and 4.2?
3. What are the potential benefits of adopting ISO 45001?
4. Define accident reports.
5. Write the employment medical service.
6. How to control the harmful emission into atmosphere?
7. Define ANSI.

8. Write the safe work programme.
9. Define IMS policy.
10. Who is IMS certify body?

**Part B**

(5 × 5 = 25)

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

11. (a) What happened to all the required procedures in ISO 14001:2004?

Or

- (b) What is the intent of the phrase enhance environment performance?

12. (a) Explain about investigation corrective action.

Or

- (b) What is the process and procedures of recording?

13. (a) Explain power of commission to direct investigation and inquires.

Or

- (b) Explain of inspector.

14. (a) What are the ILO provision concerning working time?

Or

- (b) Discuss about general functions of commission and the executive.

15. (a) Explain briefly about ISO 14001.

Or

(b) Difference between the ISO 45001 and OSHAS 18001.

**Part C**

(3 × 10 = 30)

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

16. (a) What is the intent of clause 4.3 determining the scope of the EMS?

Or

(b) Explain about emergency planning and control.

17. (a) What are the general duties of employer and employees?

Or

(b) Explain health and safety at work act 1974.

18. (a) We are currently developing an OSH management system for our company what are the elements and process we need to bear in mind.

Or

(b) Explain general principles and stages of LCA.

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**C-3905**

**Sub. Code**

**30641**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**ENVIRONMENTAL SAFETY MANAGEMENT**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is ultra violet radiation?
2. What is OZONE layer?
3. Mention the classification water pollutants.
4. Write the purpose of water treatment.
5. What do you understand by recycle and reuse of waste?
6. What do you understand by reduce and recover from waste?
7. What is electrostatic precipitator?
8. What is Gas chromatograph?

9. Define the term pollution in general.
10. What is the major role of pollution control board with respect to general public?

**Part B** (5 × 5 = 25)

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

11. (a) Explain the effect of air pollutants on human beings.

Or

- (b) How quality of air is affected by automobile exhaust?

12. (a) List the different industrial effluents and their treatment process.

Or

- (b) Explain purpose of water sampling and analysis.

13. (a) Explain the different methods of collection and disposal of solid waste.

Or

- (b) Explain the methods of collection of liquid waste and disposal.

14. (a) What is Atomic Absorption spectrometer?

Or

- (b) What is cyclone separators?

15. (a) Explain the pollution created from paper roll manufacturing industries in brief.

Or

- (b) Explain the pollution control process in petroleum industries.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain how automobile industry is one of the causes for air pollution.

Or

- (b) What are all the health hazards related with water pollution and mention few control measures to improve health of personnel?

17. (a) Explain the term incineration and vitrification with respect to waste management?

Or

- (b) What are the parameters shall be measured for safe environment and associated control measure to keep the environment safe?

18. (a) Explain the effect on environment and natural resources from the industries of textiles and tanneries?

Or

- (b) Explain the purpose of common effluent treatment in an industrial estate and its merits and demerits.

**C-3906**

**Sub. Code**

**30642**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**EHS MANAGEMENT STANDARDS**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. When OSHAS 18000 series issued for implementation?
2. What are the benefits of certification on EMS?
3. Explain objectives and targets.
4. Define action plan.
5. Who all are considered as top management in an organization?
6. Why training of personnel is important for a establishment?
7. What do you understand Audit?

8. What is Environmental policy?
9. Define LCA (Life Cycle Assessment).
10. Define environmental impact.

**Part B** (5 × 5 = 25)

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

11. (a) Explain the structures and features of OSHAS 18001.

Or

- (b) Explain the guidelines for implementation of OSHAS 18001.

12. (a) Explain the content of OH and S policy.

Or

- (b) Explain the purpose benefit and cost of action plan.

13. (a) How do you identify the needs of training and what is training matrix?

Or

- (b) Explain the accident report and record keeping.

14. (a) What is Environmental policy, its objectives and specification?

Or

- (b) What is three levels of documentation for ISO 14000 based EMS?

15. (a) Explain the types of EIA and its methodology.

Or

(b) Explain the ISO 14020 and its principles.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain OH and S management system elements, specification and scope.

Or

(b) Explain the methodology for developing action plan, analysis and priorities and setting targets with objectives.

17. (a) Explain the guidelines for structure and responsibilities of top management, middle management, coordinator and employees.

Or

(b) What are the general principles of environmental audit, audit plan, steps and duties of auditor?

18. (a) Explain the ISO 14040 its general principles, stages report and review.

Or

(b) Explain the purpose of ISO 18002:2000 and its salient points in detail.

**C-3908**

**Sub. Code**

**30643B**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**SAFETY IN LOGISTICS AND WAREHOUSE**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define the term inventory control.
2. What do you understand meaning of ware house?
3. Define TERM card.
4. What is DDT (Defensive Driving Training)?
5. List few safety precautions to be observed by forklift operator while driving.
6. What is SWL marked on forklift?
7. What is the weight limitation in manual handling with reference any national/international standard?
8. List at least four examples of lifting gears.

9. How many exists are mandatory for a residential building apart from lift?
10. Define the term explosion.

**Part B**

(5 × 5 = 25)

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

11. (a) Define logistics system and logistics management.

Or

- (b) Explain the function of a ware house.

12. (a) What are the information are mandatory in a TREM card and mention the regulation for reference?

Or

- (b) Describe static electricity and its effect on tanker lorries and how it can be neutralized.

13. (a) What are the associated risks involved in using mechanical handling equipment?

Or

- (b) What are all the hazards involved in battery charging and mention the control measures to be applied?

14. (a) Describe the sequence and procedure for manual lifting.

Or

- (b) Name any five defects associated with lifting gears.



15. (a) Explain the different types fire extinguisher are used in manufacturing industry.

Or

- (b) How fire load is calculated, briefly explain with a suitable example?

**Part C**

(3 × 10 = 30)

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

16. (a) Explain the different types of ware house, functions, and ware housing cost.

Or

- (b) What are the factors to be considered for developing a driver safety programme and list the different training topics essential for a safe driving?

17. (a) Explain ware house safety and how you will ensure ware house safety.

Or

- (b) Describe the handling and storage requirements of compressed cylinders both flammable and non-flammable.

18. (a) What is fire detection and alarm system, list the types and explain any one type in detail?

Or

- (b) Explain the inspection and maintenance requirements of vehicle and prepare a daily inspection checklist for tanker lorries.

**C-3910**

**Sub. Code**

**30644A**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**SAFETY IN FIREWORKS INDUSTRIES**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define the basic components of sustained fire.
2. Can friction be a cause of fire?
3. Define static charge.
4. Which are all termed as Fireworks?
5. What is the SAFETY DISTANCE between buildings involved in fireworks manufacturing?
6. Define the term safe quantity.
7. Which are the equipment used for manual handling?

8. What type of fire extinguisher shall be used in godown?
9. Define consumer anxiety.
10. What are the categories of burn?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the flammable characteristics of potassium nitrate and potassium chlorate.

Or

- (b) Explain the flammable characteristics of barium nitrate and calcium nitrate.

12. (a) What is Bio logical barrier and explain?

Or

- (b) What is lighting arrester and brief the effect of lightning?

13. (a) What are the safety precautions to be followed during filling and fusing of fireworks?

Or

- (b) What are the safety precautions to be followed during drying and packing of fireworks?

14. (a) Explain the safety precautions required in handling nitric acid used snake egg manufacturing.

Or

- (b) How the habit of driver can be threat of fire while transporting fireworks?

15. (a) Explain the concept waste and types of waste generated in fireworks industry.

Or

- (b) What is role of Fire Officer?

**Part C**

(3 × 10 = 30)

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

16. (a) Explain how sensitivity and impact can be a cause for fire and explosion.

Or

- (b) Explain the impact on environmental pollution from fireworks industry.

17. (a) Explain the prevention and control requirements in fireworks industry.

Or

- (b) Explain the different ways of safe handling of fireworks material to avoid impact and fire.

18. (a) What is Hazard communication (HAZCOM), briefly explain with a template?

Or

- (b) Explain the restriction on using a generic transport for transporting fireworks material and finished product.

**C-3911**

**Sub. Code**

**30644B**

**M.Sc. DEGREE EXAMINATION**  
**INDUSTRIAL SAFETY AND HYGIENE**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**PROCESS SAFETY MANAGEMENT**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define the term ventilation.
2. Why relief system is essential in a process line?
3. Define purpose of refresher training.
4. What is a training matrix?
5. What is the difference between audit and inspection?
6. Define the term quality assurance.
7. What is incident investigation?
8. List the available methods of incident investigation.
9. Which department is responsible for emergency response?
10. Define the duties of fire watcher.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the design codes and standards requirements for ventilation.

Or

- (b) What is process chemistry and how it related with process safety?

12. (a) Explain the need of HAZOP and when it shall be carried out.

Or

- (b) Explain the factors deciding the methods of PHA.

13. (a) Explain how reliability is rely on mechanical integrity in any manufacturing industry.

Or

- (b) Explain internal audit, external audit and compliance audit in short.

14. (a) How trade secrets are key to success of a organization?

Or

- (b) Why incidents are investigated and list the benefits of investigation?

15. (a) Explain the safety precautions to be followed for HOT work.

Or

- (b) Explain the accident prevention control.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain the purpose of relief system and list out the design and legal requirements.

Or

- (b) Explain the different types of training in brief.
17. (a) Explain prestart up safety review, when and who shall perform the review.

Or

- (b) What are all the ways to improve employee participation in an industry?
18. (a) Explain the how do you decide a contractor before awarding any work.

Or

- (b) Explain the procedure for conduct of FEMA and FTA.
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**C-3913**

**Sub. Code**

**30611**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**First Semester**  
**SAFETY IN FACILITY DESIGN**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write about CNG.
2. What is propellant? Give one example.
3. Define : Equipment layout.
4. What do you mean by pesticides?
5. Write the principles of good ventilation.
6. Define : Local exhaust ventilation.
7. What is manual handling?
8. Give the types of slings.



9. Write about conveyor.
10. What are the types of drives?

**Part B**

(5 × 5 = 25)

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

11. (a) Write about selection of plant locations.

Or

- (b) Explain about location for waste treatment and disposal.

12. (a) Briefly explain about fire hydrant locations.

Or

- (b) Discuss about safe layout for process industries.

13. (a) Write about Air conditioning.

Or

- (b) Explain : 5s.

14. (a) Write a short notes on accessories for manual handling.

Or

- (b) Explain in details about storage and handling of cryogenic liquids.

15. (a) Explain : Conveyor safety.

Or

- (b) Write short notes on manual handling hazards.

**Part C**

(3 × 10 = 30)

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

16. (a) Write a short notes on LPG trucks.

Or

- (b) Explain : Power elevators.

17. (a) Draw the safe layout for pharmaceuticals.

Or

- (b) Explain in details about lighting purpose, types of lighting.

18. (a) What do you mean by ventilation standards? Explain.

Or

- (b) Write about looks and its attachment.

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**C-3861**

**Sub. Code**

**30615a/  
30715a**

**M.B.A./M.Sc. DEGREE EXAMINATION**

**COMMON FOR M.Sc. (HSE)/M.B.A. (E&IS)**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**First Semester**

**OCCUPATIONAL HEALTH AND SAFETY  
MANAGEMENT**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Name any four physical hazards.
2. What do you mean by audiometry?
3. Name any four chemical hazards.
4. What are the types of chemicals?
5. Define CTS.
6. Define MSD.
7. Define occupational health.

8. What is meant by carcinogenic? Give one example.
9. Define occupational physiology.
10. Define personal hygiene.

**Part B** (5 × 5 = 25)

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

11. (a) Briefly explain about hearing conservation.

Or

- (b) What is meant by vibration? What are the causes and effects of vibration?

12. (a) Define TLV, IDLH, STEL, LC50, LD50.

Or

- (b) Name any five chemical hazards, its impact on human body and its control measures.

13. (a) Explain about bio hazard control program.

Or

- (b) What are the effects of ergonomical hazards and discuss about its control measures?

14. (a) What is meant by occupational diseases? Name any four occupational diseases and their causes.

Or

- (b) Explain about industrial toxicology.

15. (a) Explain about causes and effects of fatigue.

Or

(b) Explain about laboratory safety.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain in detail about ionizing radiation and its types and effects.

Or

(b) Explain about the hazards of cold extreme and hot extreme.

17. (a) Explain in detail about engineering controls and administrative controls which are needed to be implemented to prevent chemical hazards.

Or

(b) Write in detail about training and education requirements to identify and eliminate hazards in workplace.

18. (a) Explain about gas poisoning. Its effects and prevention.

Or

(b) Explain in detail about industrial hygiene.

**C-3862**

**Sub. Code**

**30615b/  
30715b**

**M.B.A./M.Sc. DEGREE EXAMINATION**

**COMMON FOR M.B.A. ENVIRONMENT AND  
INDUSTRIAL SAFETY/M.Sc. HEALTH SAFETY  
ENVIRONMENT**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**First Semester**

**SAFETY IN MINING INDUSTRY**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define explosion.
2. What do you mean by friction sensitivity?
3. What is meant by earthing?
4. Define non respirable biological barriers.
5. What is fuse cutting?
6. What is fuse fixing?
7. What types of extinguishers can be used against fire on chemicals?

8. What are the hazards of nitric acid?
9. What are the rules in Tamil Nadu that are applicable to fireworks industry?
10. Name any two hazards arising due to working in fireworks industry.

**Part B** (5 × 5 = 25)

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

11. (a) Briefly explain about properties of chemicals which are used in fireworks industry.

Or

- (b) Define static electricity. Discuss about hazards of static electricity in fireworks industry.

12. (a) Discuss briefly about environmental concerns arising out of fireworks industry.

Or

- (b) Discuss briefly about pollution prevention in fireworks industry.

13. (a) Briefly discuss about factories act.

Or

- (b) Briefly discuss about explosives act.

14. (a) Discuss about the hazards of transportation of explosive materials.

Or

- (b) What is the training requirements related to fireworks industry?

15. (a) Discuss about the wastes generated in fireworks industries and their disposal methods.

Or

- (b) What are the fire safety advices to be given to consumers? Explain in brief.

**Part C**

(3 × 10 = 30)

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

16. (a) Prepare a risk assessment of fireworks industry.

Or

- (b) Prepare an environmental impact assessment of firework industry.

17. (a) Explain about PPE's required in fireworks industry.

Or

- (b) Explain about fire prevention and control required in firework industry.

18. (a) Explain about handling of chemicals and its hazards in fireworks industry; also explain about its control measures.

Or

- (b) Explain about hazards and control measures associated with explosives.



**C-3863**

**Sub. Code**

**30615c/  
30715c**

**M.B.A./M.Sc. DEGREE EXAMINATION**

**COMMON FOR M.B.A. ENVIRONMENT AND  
INDUSTRIAL SAFETY/ M.Sc. HEALTH SAFETY  
ENVIRONMENT**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**First Semester**

**SAFETY IN FIREWORKS INDUSTRY**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by friction sensitivity?
2. Write any four chemicals which are used in fireworks industry.
3. Define earthing.
4. Define static electricity.
5. Mention any four hand tools.
6. Mention any four power tools.
7. What are the hazards of manual handling?

8. Define TREM card.
9. What is the first aid measures for fire burns?
10. Name the chemicals inside DCP and foam fire extinguishers.

**Part B** (5 × 5 = 25)

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

11. (a) Briefly explain about chemical fires in fireworks industry.

Or

- (b) How impact and friction will create fire explosion in fireworks industry? Explain.

12. (a) Briefly explain about causes and effects of static electricity in fireworks industry.

Or

- (b) Explain about respirable and non respirable dusts and their effects on human.

13. (a) Explain about hazards and control during mixing, filling and fuse fixing.

Or

- (b) Explain about hazards and control during finishing, packing and storing of fireworks.

14. (a) Write about the safety guidelines to be followed in fireworks godown.

Or

- (b) Write in detail about fire extinguishers and its importance in fireworks industry.

15. (a) Briefly explain about waste generation and their hazards in fireworks industry.

Or

- (b) Briefly explain about storage and disposal of wastes in fireworks industry.

**Part C**

(3 × 10 = 30)

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

16. (a) What are the electrical safety measures which are to be followed in fireworks industry?

Or

- (b) Explain about PPE in fireworks industry.

17. (a) Pollution prevention in fireworks industry. Explain.

Or

- (b) Discuss about legal requirements in fireworks industry.

18. (a) Prepare risk assessment for fireworks industry.

Or

- (b) Discuss about safe storage and transportation of explosives.

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**C-3916**

**Sub. Code**

**30621**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**BEHAVIOUR BASED SAFETY**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define Organizational Behavior.
2. What is the need for Organizational Behavior?
3. What is attitude?
4. Define organization structure.
5. Differentiate Group Vs Team.
6. Define BBS.
7. What is meant by brainstorming?
8. Define leadership.

9. Write some leadership qualities.
10. What is meant by communication?

**Part B**

(5 × 5 = 25)

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

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

Or

- (b) Define emotion and explain about the emotional intelligent.

12. (a) Draw and explain in details about Organization Structure.

Or

- (b) Explain about emergence of informal leaders and working norms.

13. (a) Why BBS is important for an industry?

Or

- (b) How will you addressing ergonomic hazards through behaviour based observation?

14. (a) Explain about the occupational safety and health training.

Or

- (b) Explain about the stages of brainstorming.

15. (a) Write about the ten leadership qualities for total safety culture.

Or

- (b) How will you involve the employees in occupational safety?

**Part C** (3 × 10 = 30)

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

16. (a) Explain in detail about the types of learners.

Or

- (b) What do you mean by Organizational Behaviour Models? Explain in detail.

17. (a) Explain about group decision making technique.

Or

- (b) Explain in detail about ABC model of behavior change.

18. (a) Explain in detail about the Do's and Don't's during brainstorming session.

Or

- (b) Write about the ten myths of behavior based safety.

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**C-3917**

**Sub. Code**

**30622**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**LEGAL ASPECTS OF HEALTH AND SAFETY**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by ventilation?
2. Which form is used to report an accident in industry?
3. What does the chapter 7 is about in BOCW act 1996?
4. What is meant by reportable accident?
5. What is meant by national environment tribunal?
6. Write some control measures about water pollution.
7. What is meant by hazardous waste management?
8. What are the types of batteries used in the industry?

9. What is the purpose of boiler?  
10. What is meant by high level noise?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the precautions against dangerous fumes and gases.

Or

- (b) Write short notes on protection of eyes.

12. (a) Explain about welfare facilities to workers.

Or

- (b) Explain about special provisions to workers.

13. (a) What is the main objective of environment act?

Or

- (b) Write some control measures about air pollution as per air act 1981.

14. (a) Explain the importance of bio medical waste management.

Or

- (b) How to dispose the fault batteries as per batteries management and handling rules 2001?

15. (a) List out some dangerous machines.

Or

- (b) What is meant by static and mobile pressure vessels?



**Part C**

(3 × 10 = 30)

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

16. (a) Explain the qualification, duties and responsibilities of safety officer as per factories act 1948.

Or

- (b) Explain the following term in BOCW act 1996.  
(i) safety and health (ii) Hours of work.

17. (a) Explain some important point about hazardous chemical rules 1989.

Or

- (b) Explain in e-waste management and handling rules 2011.

18. (a) Explain workmen's compensation act 1923.

Or

- (b) What is importance of BOCW act 1996.

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**C-3918**

**Sub. Code**

**30623**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**ELECTRICAL SAFETY ENGINEERING**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define : Electrostatics.
2. What is EMI?
3. How will you treat electrical burns?
4. What is earthing?
5. Define : Circuit breaker.
6. Write about safe limits of amperage.
7. What is work permit system?

8. Define : lock out.
9. What do you mean by hazardous zones?
10. Write about explosion proof electrical apparatus.

**Part B** (5 × 5 = 25)

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

11. (a) Explain : Electromagnetism.  

Or

(b) Write about international standards on electrical safety.
12. (a) What do you mean by over current and short circuit current? Explain.  

Or

(b) Explain in details about National Electrical Safety Code.
13. (a) Give the protection measures against over voltage and under voltage.  

Or

(b) Write about safety in handling of handheld electrical applications.
14. (a) Explain : Preventive maintenance.  

Or

(b) Discuss in details about the self diagnostic features and fail safe concept.

15. (a) Write about the classification of hazardous zones.

Or

(b) Explain in detail about grouping of gases.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain : ELCB.

Or

(b) Explain in detail about earth resistance, earth pit maintenance.

17. (a) Write a short notes on CPR.

Or

(b) Explain : Indian electricity act and rules.

18. (a) What do you mean by “excess energy current surges”? Explain.

Or

(b) Explain : Static electricity.

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**C-3919**

**Sub. Code**

**30624**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**CHEMICAL SAFETY ENGINEERING**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Differentiate : Conceptual design and detail design.
2. What is batch reactor?
3. What is process commissioning?
4. Define : plant inspection.
5. Write about trip systems.
6. What do you mean by exposure of personnel?
7. Define : Confined space.
8. What is emergency planning?
9. Define : Secondary containment.
10. Write about hydrogen storages.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain : Reactor safety.

Or

- (b) Write about pressure relief devices and design.

12. (a) Write about post commissioning documentation.

Or

- (b) Explain : Pressure testing.

13. (a) Explain : Operating discipline, procedure of a chemical plant.

Or

- (b) Write about hazards in chemical plants.

14. (a) Explain : permit system.

Or

- (b) What is onsite and offsite emergency? Explain.

15. (a) Explain : Fire prevention and protection.

Or

- (b) Write about chlorine storages.

**Part C**

(3 × 10 = 30)

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

16. (a) Write a short notes on flare and vent systems.

Or

- (b) Explain : Heat exchangers.

17. (a) Explain : Pressure piping system.

Or

- (b) Explain : APELL.

18. (a) What do you mean by acoustic emission? Explain.

Or

- (b) Discuss in details about pipeline inspection.
-

**C-3868**

**Sub. Code**

**30725a/  
30625a**

**M.B.A./M.Sc. DEGREE EXAMINATION**

**COMMON FOR M.B.A. ENVIRONMENT AND  
INDUSTRIAL SAFETY/M.Sc. HEALTH SAFETY  
ENVIRONMENT**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Semester**

**SAFETY IN OIL AND GAS INDUSTRY**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write the importance of safety in oil and gas industry.
2. List few consequences of human error.
3. Explain root cause analysis.
4. Define FMEA.
5. Differentiate onshore and offshore.
6. Write the lessons learnt from piper alpha accident.
7. Write major factors contributing to accident.



8. Give your recommendation to reduce fatal accidents.
9. What are the sources available for collecting accident data?
10. What is called mitigation?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain bath tub curve.

Or

- (b) Discuss the causes of work injuries and mechanical injuries.

12. (a) Explain the methods for performing reliability analysis.

Or

- (b) List the merits and demerits of FTA.

13. (a) Write short notes on offshore accident reporting approach.

Or

- (b) Enumerate anyone case study of offshore accident and list the preventive measures.

14. (a) List the major factors contributing to accidents in oil and gas industry.

Or

- (b) Describe oil field fatality analysis.

15. (a) Write short notes on worldwide accident data bank.

Or

(b) Write the lessons learnt from landmark offshore oil and gas accident.

**Part C** (3 × 10 = 30)

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

16. (a) Describe product hazard classification in detail.

Or

(b) Discuss the importance of laws and standards in oil and gas industry.

17. (a) Describe sea crest drillship accident.

Or

(b) Explain human factors causation in oil and gas industry.

18. (a) List the general precautions to be considered in oil and gas industry to avoid accidents.

Or

(b) Explain ocean ranger accident in detail.

**C-3920**

**Sub. Code**

**30625B**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**APPLIED INDUSTRIAL ERGONOMICS**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define productivity.
2. What is Ergonomics standard?
3. What you meant by workplace safety?
4. Give some examples of ergonomics standard work benches.
5. Explain the safety standards in ISO 45001.
6. Give the important of Human Factors.
7. What is called machine guarding?
8. Write an expansion of 5S methods.
9. Define types of display.
10. Define PPE's.

**Part B**

(5 × 5 = 25)

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

11. (a) Write a short notes on productivity quality and safety.

Or

- (b) Write about FAS Panel working structure.

12. (a) Explain briefly about Ergonomic principles in shop floor.

Or

- (b) Discuss briefly safe manual handling posture.

13. (a) Explain the purpose of standard work platform.

Or

- (b) Explain about importance of barriers.

14. (a) Explain the safety guarding systems.

Or

- (b) Explain a concept for control hazards and prevention.

15. (a) Explain about job and personal risk factors.

Or

- (b) Explain a standards selection and training.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain in detail about layout of electrical panels.

Or

- (b) Write a methods of inspection and testing in mechanical equipment.

17. (a) Detail about to design PPE's.

Or

- (b) Explain a hazard and prevention methods.

18. (a) Mention a detailed about guide lines for safe design.

Or

- (b) Explain in detail about types of control methods in Hazardous Operation.

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**C-3921**

**Sub. Code**

**30631**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH, SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Semester**  
**SAFETY IN CONSTRUCTION SECTOR**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define PTW.
2. Give any two cause of fatal accident.
3. What is meant by trench?
4. Define excavations.
5. What is meant by work over water?
6. Define scaffold.
7. What is the use of safety nets?
8. What is meant by portable electrical tool?
9. Define SWL.
10. What is meant by safe clearance zone?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain human factors associated with accident.

Or

- (b) Explain in detail about the PTW systems.

12. (a) Explain safety precaution for installing underground water line.

Or

- (b) Explain about pre blasting and post blasting.

13. (a) Write short note on safe use of ladder.

Or

- (b) What are safety precautions to be taken while working on fragile roof?

14. (a) Frame inspection checklist for mobile crane.

Or

- (b) Mention the parts used in scaffolding system.

15. (a) What are the things to be checked in pre survey inspection?

Or

- (b) Briefly explain about the fire hazards in demolition work.

**Part C**

(3 × 10 = 30)

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

16. (a) How to select the contractor for construction work activity?

Or

- (b) Explain in detail about the blasting, pre blasting and post blasting inspection.

17. (a) Briefly explain about the safety belts, safety nets and fall arrestors.

Or

- (b) Explain about the safety precaution followed in hand and portable electrical tools.

18. (a) Describe about the safety in earth moving equipments.

Or

- (b) As a safety officer what are the safety precautions to be taken during demolition work.

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**C-3923**

**Sub. Code**

**30633**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Semester**  
**DISASTER MANAGEMENT AND RESPONSE**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define disaster.
2. What is meant by crisis management group?
3. List out any four software on emergency controls.
4. Define global warming.
5. What is meant by EIA?
6. What is life cycle?
7. Define immune systems.
8. Define earth quake.

9. What are the different types of land use planning?
10. State the various environmental protection laws.

**Part B**

(5 × 5 = 25)

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

11. (a) What is disaster mitigation? and What are the requirements of an effective mitigation?

Or

- (b) Explain in detail about the use of space technology.

12. (a) Explain in detail about APELL process.

Or

- (b) Mention the importance of right to know act.

13. (a) Discuss the importance of conservation of bio diversity in detail.

Or

- (b) Mention the reason for climate change and its effects.

14. (a) Write a short note on control of fire.

Or

- (b) Explain marine pollution and control.

15. (a) Discuss briefly about the public liability insurances.

Or

- (b) Explain in detail about the risk assessment process.

**Part C**

(3 × 10 = 30)

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

16. (a) Bhopal gas tragedy-frame case study towards disaster assessment.

Or

- (b) Explain in detail about the onsite and offsite emergencies.

17. (a) Discuss any one manmade disaster in detail.

Or

- (b) Write a short notes on Environmental Impact Assessment (EIA) and state the key elements of EIA.

18. (a) Write short notes on the following :

- (i) Environmental education
- (ii) Carcinogens
- (iii) Proofs and limits.

Or

- (b) Write short notes on the following
- (i) Population and community ecology
  - (ii) Natural resource conservation.

**C-3922**

**Sub. Code**

**30632**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Semester**  
**INDUSTRIAL SAFETY ENGINEERING**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is electron eye?
2. Write the policy for ZMS.
3. What is effluent?
4. What is CNG?
5. What is gas welding?
6. Define : Leak detection.
7. Define : Sand and Shot blasting.
8. Write about radiation hazards.

9. Give the benefits of OSHAS 18001 certification.
10. Write the goals of OH and S policy.

**Part B**

(5 × 5 = 25)

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

11. (a) Draw the safe layout the fertilizer industries.

Or

- (b) Draw the equipment layout for fire hydrant locations.

12. (a) Explain the benefits of good guarding system.

Or

- (b) Explain : ZMS.

13. (a) Explain the safety precautions in brazing and soldering.

Or

- (b) Explain : Arc welding and cutting.

14. (a) Write about boiler drums and headers.

Or

- (b) Explain : Air leak test.

15. (a) Explain : OSHAS 18001 features.

Or

- (b) Explain : OH & S Policy.

**Part C**

(3 × 10 = 30)

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

16. (a) Define :

- (i) Lathe
- (ii) Drilling
- (iii) Boring
- (iv) Milling
- (v) Grinding.

Or

(b) Explain : Pressure vessels.

17. (a) Give the consideration of land, water, electricity in plant locations.

Or

(b) Explain : PPE.

18. (a) Explain : Storage and Handling of LPG cylinders.

Or

(b) Explain the scope, element and specifications of OH & S management system.

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**C-3924**

**Sub. Code**

**30634**

**M.Sc. DEGREE EXAMINATION, APRIL 2021**

**HEALTH, SAFETY ENVIRONMENT**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Third Semester**

**HAZARD ANALYSIS**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define hazard.
2. Define safety audit.
3. What is meant by TGA?
4. What is meant by ignition test?
5. Define FTA.
6. State minimal cut set ranking.
7. Define flash point.
8. Define Jet fire.
9. What is meant by UVCE?
10. Name any two industrial disaster.

**Part B**

(5 × 5 = 25)

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

11. (a) Frame a checklist for safety audit.

Or

- (b) Explain the safety warning systems.

12. (a) Write a short note on Differential scanning calorimeter.

Or

- (b) Differentiate deflagration test and detonation test.

13. (a) Discuss the logic symbols in detail.

Or

- (b) Mention any two software used in hazard analysis.

14. (a) Discuss briefly about chemical inventory analysis.

Or

- (b) Write short note on the following :

- (i) Gas or vapour release
- (ii) Liquid release.

15. (a) Explain in detail about flixborough disaster.

Or

- (b) Write a short note on RIJIMOND Report.



**Part C**

(3 × 10 = 30)

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

16. (a) Discuss briefly about preliminary hazard analysis and human error analysis.

Or

- (b) Explain in detail about what if analysis and frame a checklist for what if analysis.

17. (a) Write short note on the following :

- (i) Accelerated rate calorimeter
- (ii) Reactive calorimeter.

Or

- (b) Explain in detail about the FMEA tool used in risk analysis.

18. (a) Write short notes on the following

- (i) BLEVE
- (ii) Pool fire.

Or

- (b) Describe briefly about port Hudson disaster.

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**C-3877**

**Sub. Code**

**30635c/  
30735c**

**M.B.A./M.Sc. DEGREE EXAMINATION**

**COMMON FOR M.B.A. ENVIRONMENT AND  
INDUSTRIAL SAFETY/ M.Sc. HEALTH SAFETY  
ENVIRONMENT**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Third Semester**

**HAZARDOUS WASTE MANAGEMENT**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are the characteristics of hazardous waste?
2. Define SDS.
3. What is Bio-medical waste?
4. What is flammability of chemicals?
5. What is radioactive waste?
6. What are the waste disposal option in nuclear power plant?
7. Define incineration.

8. Define autoclave.
9. Define stabilization.
10. Define chemical oxidant.

**Part B**

(5 × 5 = 25)

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

11. (a) Describe about the transport of hazardous waste.

Or

- (b) Explain about the manifest system.

12. (a) Discuss about the transportation of chemical.

Or

- (b) Discuss about the fly ash rules.

13. (a) Discuss about the collection and separation of solid waste.

Or

- (b) Write about the treatment option of solid waste.

14. (a) Write about the autoclave.

Or

- (b) Write about the microclave.

15. (a) Discuss about the slurry phase bioreactor.

Or

(b) Write a note on IN-SITU remediation.

**Part C**

(3 × 10 = 30)

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

16. (a) Describe in detail about the UN classification of chemicals.

Or

(b) Describe in detail about the Bio-medical waste handling rules.

17. (a) Discuss in detail about the land fill design for hazardous waste.

Or

(b) Write a note about the environment risk assessment.

18. (a) Write in detail about the chemical treatment processes for municipal solid waste.

Or

(b) Discuss about the MSIHC rules 1989.

**C-3925**

**Sub. Code**

**30642**

**M.Sc. DEGREE EXAMINATION**  
**HEALTH SAFETY ENVIRONMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**EHS MANAGEMENT STANDARDS**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define OSHAS.
2. Explain about ISO standards.
3. Explain about BMS system.
4. What do you meant by STP?
5. Discuss about PCB.
6. Explain about pm 2.5
7. What is meant by AAQ?
8. How do we check indoor air quality?
9. Types of EIA.
10. What is impact assessment?

**Part B**

(5 × 5 = 25)

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

11. (a) Write briefly about ISO 14001 : 1996.

Or

- (b) Explain about Dust monitoring system.

12. (a) Write a short notes on recording and investigation.

Or

- (b) Discuss briefly about concerns for factory license.

13. (a) Discuss the general auditing points ISO 14004.

Or

- (b) Discuss about steps in ISO 14001.

14. (a) Explain some important points in environmental management plan.

Or

- (b) Types of EIA explain each briefly

15. (a) Write a Type I labels and Type II labels.

Or

- (b) Explain a short notes on management review.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain in detail about policy and planning of OSHAS 18001.

Or

- (b) Write a detail report about levels of documentation.

17. (a) Detail about general principles of work study methods.

Or

(b) Write the advantages and disadvantages of EIA.

18. (a) Explain in detailed about sewage treatment plant.

Or

(b) Explain about pollution control monitoring system.

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