C–6347	Sub. Code 30621

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Industrial Safety and Hygiene

BEHAVIOUR BASED SAFETY

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How many types of personality defined?

2. Define emotion.

3. What do you understand by organization structure?

4. Short notes on communication.

5. What is BBS?

6. Define ergonomics hazard.

7. Define brain storming.

8. What is occupational safety?

9. Shortly write on Leadership.

10. How many myths are followed in BBS?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) How does measurement of value performed?

Or

(b) Define motivation and it's types.

12. (a) Explain interpersonal relation and it's effects.

Or

(b) Explain leadership and it's benefits.

13. (a) Explain ABC behavior model.

Or

(b) Describe safety coaching and it's importance in an organization.

14. (a) Explain the factors to be considered for health promotion training.

Or

(b) Justify brain storming is an effective tool in organizational improvement.

15. (a) Briefly explain the leadership qualities.

Or

(b) Explain the term Safety culture of an organisation and its impact.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Briefly explain the effect of motivation on worker behavior and performance.

Or

(b) What is group discussion techniques and its merits?

17. (a) Explain the integration of Behavior Safety principles in management systems.

Or

(b) Explain the behavior based recognition and celebration of ant firm.

18. (a) Explain how to sustain the involvement of employee in occupational safety.

Or

(b) What is learning and explain learning theories?

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C–6348	Sub. Code
	30622

M.Sc. DEGREE EXAMINATION, APRIL 2022.

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 hazardous process.

2. What is the employment age for young person?

3. What do you understand by PCB?

4. What is air pollution?

5. Which year hazardous chemical rule published?

6. Write full form of SDS?

7. Write full form of SMPV?

8. How compressed cylinders shall be stored?

9. OSHAS 18000 deals with...?

10. Write full form of ANSI.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Define young person and guidelines on employing them.

Or

(b) What is hazardous process and give examples of hazardous activity as per TN factories act.

12. (a) Explain role of TN pollution control board.

Or

(b) Short notes on Noise and environment pollution.

13. (a) Who all shall be notified in the event major accident and mention the time frame also?

Or

(b) List at least five chemicals which are declared as Hazardous and toxic as per TN factories act.

14. (a) Briefly explain the key points of TN Gas cylinders rules.

Or

(b) Briefly explain the key points of TN petroleum rules.

15. (a) List key points of occupational safety and health act of USA.

Or

(b) Briefly explain the difference between OSHAS 18000 and ISO 14001

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write briefly on special provisions for penalties and procedures in TN factories act 1950.

Or

(b) Explain prevention, control and abatement on environmental pollution.

17. (a) What is the duties of authorities and occupier in the event of major accident?

Or

(b) Explain building and other construction workers act 1996.

18. (a) Explain any four ANSI standards and the relevant industry.

Or

(b) What is noise pollution, applicability of exposure limits and relevant standard in force.

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C–6349	Sub. Code 30623

M.Sc. DEGREE EXAMINATION, APRIL 2022.

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. Define OHM's law.

2. What is electric shock?

3. What is voltage classification?

4. Purpose of lightning arrester.

5. What is FRLS insulation?

6. Write full form of GFCI?

7. What is LOTO?

8. Explain portable tools.

9. Explain of grouping of gases.

10. What is temperature classification?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the types of electrical fault.

Or

(b) Explain the effect of shock on Nervous system.

12. (a) Explain primary and secondary hazards.

Or

(b) What are the electrical causes of fire and explosion?

13. (a) Explain the protection against over voltage and under voltage.

Or

(b) Explain the purpose of GFCI.

14. (a) Explain earthing and requirements of earth pit.

Or

(b) Define cabling and methods of cable joints.

15. (a) Explain explosion proof electrical apparatus.

Or

(b) Briefly explain the barriers and isolators.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) What are the statutory requirements from electrical inspectorate to be complied by an organization?

Or

(b) Explain Excess energy, current surge, over current and short circuit current.

17. (a) Explain overload seven short circuit protection.

Or

(b) Explain permit to work system.

18. (a) Explain intrinsically safe devices and which zone they are used with examples.

Or

(b) Explain how electrical hazard can be a cause for fire and explosion.

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C–6350	Sub. Code
	30624

M.Sc. DEGREE EXAMINATION, APRIL 2022.

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 audit.

2. Define safety sampling.

3. Write down hazards posed by pedestrian.

4. What should be worn by road side workers in addition basic PPE?

5. Which body parts are affected by manual handling?

6. List few lifting equipment used in civil construction site.

7. What are the forms of chemical agent?

8. What are the forms of a biological agent?

9. Write the full form of HAZAN?

10. Define the term occupational safety.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the preliminary hazard analysis.

Or

(b) What do you understand by what if analysis?

12. (a) What is heat and radiation hazards in a work place?

Or

(b) How you can control the causes and violence in a workplace?

13. (a) How you will ensure safety in the use of lifting and moving equipment?

Or

(b) Explain the statutory requirement of examination of lifting equipment.

14. (a) Explain the term health surveillance and personal hygiene.

Or

(b) Explain the requirements of transporting hazardous substances by road.

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

Or

(b) Briefly explain the term fault tree analysis (FTA).

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain hierarchy of control in detail and why use of PPE is last option in control measure of a hazard.

Or

(b) What are the strategies to be followed to improve pedestrian safety and how you can control mobile equipment in work place?

17. (a) Explain the hazards in workplace equipment and the related control measures to minimize incident/accident?

Or

(b) Explain the routes of entry for a biological agent to enter human body and list the control measures to be implemented?

18. (a) Explain the five steps involved in HIRA (Hazard identification and risk assessment).

Or

(b) List the requirements of COSHH in handling toxic and hazardous chemicals.

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C–6326

Sub. Code
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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C–6351	Sub. Code 30625B

M.Sc. DEGREE EXAMINATION, APRIL 2022.

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. Define the term, Risk matrix?

2. Explain the term Hazard and Risk?

3. What is JSA?

4. Who is responsible for preparation of JSA?

5. What is SOP?

6. Write the full form of HAZOP and HAZAN.

7. List the types of accidents?

8. Where Dominos theory is used?

9. What is accident rate?

10. Define incident rate?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain Severity rate and Frequency rate.

Or

(b) Explain ALARP and why it has been used.

12. (a) What are the steps involved in preparation of JSA?

Or

(b) Why JSA is prepared and list the benefits of JSA?

13. (a) How SOP is different from risk assessment, explain your view?

Or

(b) Explain fault tree analysis with a diagram.

14. (a) Explain the Heinrich triangle with a line diagram.

Or

(b) Explain reportable and non-reportable accidents.

15. (a) Explain the term partial and total disability.

Or

(b) Briefly explain safety activity rate and its problems.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain the five steps of HIRA (Hazard Identification and Risk Assessment)?

Or

(b) Explain the procedures involved in preparation of SOP and how it is approved?

17. (a) What is HAZOP, why and when it is performed?

Or

(b) What is the difference between preventive action and corrective action, list the advantages over each other?

18. (a) Explain the calculations of accident indices and it's advantages and dis-advantages?

Or

(b) What is PPE and explain why PPE's cant rule out accidents/incidents in any manufacturing industry?

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C–6352	Sub. Code 30625C

M.Sc. DEGREE EXAMINATION, APRIL 2022.

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 Bacteria.

2. Explain the term Fungi.

3. What do you understand by food borne Hazard?

4. Explain the term Food poisoning.

5. How do you identify spoiled eggs?

6. What are all the preservatives added in canned foods?

7. Define the term Noise in manufacturing industry?

8. Explain the term vibration in manufacturing industry.

9. Write the full form of HACCP and country of origin?

10. Define hazard analysis.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the principles of microbiology.

Or

(b) Explain the factors influencing the growth of bacteria.

12. (a) What do you understand by Poisonous plants and give example?

Or

(b) Explain Salmonellas, campylobacter, and Aures.

13. (a) Explain the spoilage of fish and Shellfish.

Or

(b) Explain spoilage of cereal based foods with examples.

14. (a) Explain the importance of ventilation and air-conditioning in handling food materials.

Or

(b) Explain general principles and structural techniques in construction and lay out.

15. (a) Explain the raw material control and process control.

Or

(b) Explain critical control point and critical control limit.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain the characteristics of Bacteria and Fungi.

Or

(b) Explain the bacterial food poisoning and incidences of food poisoning.

17. (a) What is food spoilage and how it can be prevented different categories of foods?

Or

(b) Explain the importance of employee service and welfare areas in promoting employee participation.

18. (a) Explain HACCP, quality schemes, objectives and origin of HACCP.

Or

(b) Explain the spoilage of frozen foods, spoilage of dehydrated foods, spoilage of irradiated foods and spoilage of canned foods?

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C–6353	Sub. Code 30626

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

International Health and Safety Standards

INDUSTRIAL SAFETY AND HYGIENE

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Legal compliance?

2. Explain the difference between internal and external audit.

3. Explain performance measurement.

4. Define emergency planning.

5. Define the purpose of investigation.

6. Explain the term working atmosphere.

7. What is the purpose of labour inspection?

8. What do you understand by small scale industry?

9. Explain the purpose of reporting system.

10. Explain the purpose of recording and review.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) What is EMS, explain the salient features of EMS?

Or

(b) Explain ISO 14004 and its advantages.

12. (a) Explain the purpose of ISO 45001, structures and features.

Or

(b) Explain purpose monitoring and reporting.

13. (a) Explain the benefits of health and safety regulation in improving company reputation.

Or

(b) Explain the requirements of medical advisory service.

14. (a) What do you understand by ANSI and what are the areas applicable under ANSI?

Or

(b) Explain the term occupational safety and who are all responsible in ensuring employees occupational safety.

15. (a) Compare between ISO 45001 and OSHAS 18000 and mention the advantages.

Or

(b) Explain the benefits of IMS with respect to audit of an organization.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) List down the requirements competence of auditor.

Or

(b) Explain the operation planning control and emergency planning and control.

17. (a) Explain the responsibilities of authorities responsible for enforcement of relevant statutory provisions.

Or

(b) What is ANSI/AIHA/ASSE Z10-2012 and explain its salient features?

18. (a) Explain IMS policy, certifying body, and certification process and validity of certification.

Or

(b) Explain the purpose of ILO and its action through standards and other instruments for employee benefits.

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C–6354	Sub. Code 30631

M.Sc. DEGREE EXAMINATION, APRIL 2022.

Third Semester

Industrial Safety and Hygine

CONSTRUCTION SAFETY ANALYSIS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define airborne contaminants.

2. Why housekeeping is important in construction site?

3. Define shoring and when it is used.

4. What are the safety precautions followed to enter the confined space.

5. How far a human factor is important in accident prevention?

6. Safety precautions in lifting tools.

7. Define scaffolding and its use.

8. What are occupational diseases caused due to handling of cement?

9. What is ergonomics and why it is important?

10. List out the safety precautions while performing grinding and cutting operations.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Give short notes on any five occupational hazards and its effects in a construction site.

Or

(b) Write short notes on the PPEs used in the construction site.

12. (a) Briefly explain the Indian Explosives Act, 1984.

Or

(b) General precautions to be followed in piling and Deep foundations.

13. (a) Write short notes on Traffic Management during Road construction and repair.

Or

(b) What are the SOPs to be followed in cranes?

14. (a) Mention and explain the parts of the scaffolding.

Or

(b) General precautions in material handling.

15. (a) What are recommended working postures while performing a lifting operation?

Or

(b) Give short notes on LOTO procedure for electrical maintenance work.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Write short notes on welfare facilities to be provided in the construction site.

Or

(b) Explain the step by step activities in deep foundations and its precautions.

17. (a) Write short notes on risks in tunnelling operations and how to mitigate it.

Or

(b) What are the equipment's used in road making? And write in detail about the SOP of any two

18. (a) Write short notes on precautions in erection works.

Or

(b) What is electric shock? Ways to prevent it. Also explain the treatment of electric shock.

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C–6355	Sub. Code 30632

M.Sc. DEGREE EXAMINATION, APRIL 2022

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. List any two criteria in selection of a plant location.

2. What are the types of plant layouts?

3. Write about policy of ZMS.

4. List the necessity of good guarding systems.

5. Name any two personal protective equipment for welding?

6. Give colour codes for industrial gas supply.

7. What do you mean by sand blasting?

8. What is a radiation hazard?

9. What is the necessity for OSHA certification?

10. List the principles of OSHA.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the site selection criteria for fireworks and match industry.

Or

(b) Write short notes on disposal of waste and treatment.

12. (a) What are the types of machine guarding?

Or

(b) Discuss the advantages of good guarding systems.

13. (a) List the safety precautions for resistance welding.

Or

(b) List the safety precautions for oxygen cutting.

14. (a) Discuss the steps in safety check for a pressure vessel.

Or

(b) List the safety precautions for paint booths.

15. (a) What are the benefits of OH & S policy?

Or

(b) What are the benefits of OSHA certification?

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) With a line sketch explain the layout for fireworks and match industry.

Or

(b) Discuss in detail about good guarding systems for mechanical equipment.

17. (a) Discuss in detail about gas cylinder-storage, leak detection and handling.

Or

(b) Discuss about radiation hazards-its harmful effects and preventive measures

18. (a) With a block diagram explain OSHA 1800 certification process.

Or

(b) Write notes on safety checks for suitability [a] pulleys [b] belts.

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C–6356	Sub. Code 30633

M.Sc. DEGREE EXAMINATION, APRIL 2022

Third Semester

Industrial Safety and Hygiene

EVOLUTION OF MODERN SAFETY CONCEPT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define JSA.

2. What is safety budgeting?

3. What do we mean by management theories?

4. What is Herzberg's motivation factors?

5. What is risk analysis?

6. What is meant by failure mode and effect analysis?

7. What does domino theory mean?

8. Define Near Miss.

9. What is Pareto analysis?

10. What is life testing?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Briefly explain about Incident Recall Technique.

Or

(b) Explain in detail about Safety Sampling and Safety Survey.

12. (a) Explain in detail about Management styles.

Or

(b) Write short notes on McGregor's Theory X and Theory Y.

13. (a) Explain FTA.

Or

(b) Explain about Risk Assessment concepts.

14. (a) Explain in detail about Human factor theory.

Or

(b) Explain about gross hazard analysis.

15. (a) Explain in detail about Product techniques.

Or

(b) Explain in detail about Optimization in reliability.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) (i) Explain in detail about performance evaluation for supervisors on safety.

(ii) Write short notes on Safety inspection.

Or

(b) Explain in detail about Herzberg Motivational Theory.

17. (a) Explain the concepts involved in Hazard Assessment.

Or

(b) Explain Domino theory.

18. (a) Explain in detail about JSA with examples.

Or

(b) Explain in detail about Life testing.

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C–6357	Sub. Code 30634

M.Sc. DEGREE EXAMINATION, APRIL 2022.

Third Semester

Industrial Safety and Hygine

COMPUTER AIDED HAZARD ANALYSIS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define checklist analysis.

2. Write the steps involved in preliminary hazard analysis.

3. What are the advantages of DSC?

4. Draw and label a neat figure of the impact sensitivity testing machine.

5. Write short note on safety integrity level.

6. What is meant by fault tree analysis?

7. Define consequence analysis.

8. Write short note on hazard identification.

9. Write a note on Bhopal gas tragedy.

10. What is risk assessment?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain in detail about hazard identification based on the properties of the chemicals.

Or

(b) Explain about the chemical inventory analysis.

12. (a) Write short notes on heat radiation effects.

Or

(b) Write short notes on pool fire and jet fire.

13. (a) Explain the construction and working of a BAM friction tester.

Or

(b) Write short notes on what-if analysis.

14. (a) Discuss basic concepts of reliability.

Or

(b) Discuss human error analysis.

15. (a) Explain in detail the steps involved in performing FETI.

Or

(b) Write shorts notes on Flixborough disaster.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) What is HAZOP? How is it conducted? Explain in detail with a case study.

Or

(b) What is meant by FMEA? Explain its types. Also explain in detail the steps involved in performing it.

17. (a) Explain the significance of TGA. Mention its applications, advantages and disadvantages.

Or

(b) What is hazard monitoring? Explain in detail the hazard assessment procedure and methodology.

18. (a) How can the past accident analysis act as an information source for hazard and consequence analysis?

Or

(b) Conduct a hazard assessment study of non-nuclear installations.

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C–6358	Sub. Code 30635C

M.Sc. DEGREE EXAMINATION, APRIL 2022.

Third Semester

Industrial Safety Hygiene

HAZARDOUS WASTE MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define solid waste.

2. Define integrated solid waste management.

3. What is TCLP?

4. What is Volatization?

5. Mention any two precautions to be taken while handling hazardous waste.

6. Define compatibility and flexibility of chemicals.

7. State the principal of vermicomposting.

8. State the difference between biomedical waste and hazardous waste.

9. Define oxidation and reduction.

10. What is anaerobic decomposition?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write a short notes on transport of hazardous waste.

Or

(b) What are the sections of SDS and when should the SDS and chemical label be reviewed?

12. (a) What are the salient features on Indian legislation pertaining to lead acid batteries?

Or

(b) What are the salient features on Indian legislation pertaining to plastic waste?

13. (a) Explain EPA identification of toxic and hazardous wastes.

Or

(b) Give a brief note on landfill covers.

14. (a) What is engineered landfill? Why it is essential?

Or

(b) Write a short notes on Leachate collection and removal.

15. (a) Explain in detail about advantages and limitation of incineration.

Or

(b) Write a short notes on slurry phase bioreactor.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) What are the major challenges in implementation of integrated solid waste Management in India?

Or

(b) Explain briefly on chemical SDS.

17. (a) What are the salient features on Indian legislation pertaining to Biomedical waste management?

Or

(b) Explain briefly on Radioactive waste.

18. (a) Explain the different factors that control the performance of composting.

Or

(b) With neat sketch explain on principle element that should be considered on planning, design and operation of landfills.

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C–6359	Sub. Code 30641

M.Sc. DEGREE EXAMINATION, APRIL 2022.

Fourth Semester

Industrial Safety and Hygiene

ENVIRONMENTAL SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define air pollution. Give examples.

2. Mention the effects of air pollution on living beings.

3. Define water pollution and Sampling.

4. Elaborate BOD, COD, TSS, TDS, ETP, STP.

5. Define waste and the steps involved in waste management.

6. Define Verification.

7. Mention the difference between sampling and Analysis.

8. What is Lux meter? What is the unit of measurement?

9. Define Absorption with an example.

10. Define pH meter.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain briefly the concept of clean coal combustion technology.

Or

(b) Mark the difference between UV radiation and infrared radiation.

12. (a) Write a brief note classification of water pollutants and its hazards.

Or

(b) Write a brief on different industrial effluents and their treatment.

13. (a) Explain briefly on treatment and disposal of Hazardous Waste.

Or

(b) Mark the difference between Incineration and Verification.

14. (a) Write a short note on Dust Monitoring.

Or

(b) Write a short note on Electro Static Precipitator.

15. (a) Define Process. Explain the process steps involved in cement industry.

Or

(b) What are the pollution control methods in textile industry?

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Write a brief note on chemical factory stack emission.

Or

(b) Explain briefly on chemical industry effluent, treatment and disposal.

17. (a) Write a brief note on Hazards due to bio-process Dilution.

Or

(b) What are the standards and restrictions to be considered for hazardous waste generated?

18. (a) With neat diagram explain on Cyclone Separators and Electrostatic precipitator.

Or

(b) Explain in brief about pollution control in Dyeing and Pigment Industry.

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C–6360	Sub. Code 30642

M.Sc. DEGREE EXAMINATION, APRIL 2022.

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. Write the certification procedure OSHAS 18001.

2. Define Occupational Health and safety management system.

3. Why safety policy is more important?

4. Define short Time Action plan.

5. What is reactive and proactive monitoring?

6. How to identify the training needs?

7. Write the objectives of ISO 14001.

8. What are the steps involved in Audit plan.

9. Give the general principles of LCA.

10. List the types of EIA.

Part B (5 × 5 = 25)

Answer **all** the questions.

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

Or

(b) Write the guidelines for implementing OSHAS 18001.

12. (a) Write short notes on Development of Action plan.

Or

(b) Write the general principle and special goals of OH&S policy.

13. (a) Describe the role of Top-Level management and Middle Level Management.

Or

(b) Why it is important to maintain the accident reports. Mention its purpose.

14. (a) Write short notes on the objectives and the Environmental policy of ISO 14001.

Or

(b) What is Audit plan? Explain the role of Auditor.

15. (a) Generally, Explain the Audit Methodology.

Or

(b) Write the History of Environmental Impact Assessment.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Write the correspondence between OSHAS 18001, ISO 14001:1996 and ISO 9001:1994.

Or

(b) Briefly Explain the three levels of Documentations for ISO 14000 based EMS.

17. (a) What are the steps involved while investigating an accident? Briefly explain the corrective action and follow up.

Or

(b) Briefly Explain the ISO 14001, its implementation plan and its importance to the management.

18. (a) Detail the ISO 14040. Explain its General principle and its stages.

Or

(b) If you are appointed as a safety officer for a industry, how will you develop a policy for your industry and how will you review it.

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M.Sc. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Industrial Safety Hygiene

SAFETY IN LOGISTICS AND WAREHOUSE

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define logistic system.

2. What are the types of warehouse?

3. What is warning symbol? Give example

4. What is static electricity?

5. Mention any four criteria ton select drivers.

6. What is safety to be considered for workers on foot at work place?

7. Mention any two hazards due to chain defects at workplace.

8. What is manual material handling

9. Define explosion

10. Define fire and types of fire.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write a short notes on storage and distribution of goods.

Or

(b) Write a shorts on maximum and minimum inventory control systems

12. (a) Write a short notes on earth chains and static electricity

Or

(b) Write short notes on driver safety program.

13. (a) Write a short notes on motor vehicle transport workers act.

Or

(b) Write a short notes on driver relaxation and rest pauses

14. (a) Write a short notes on forklift training

Or

(b) What are fire resistance building material?

15. (a) What are the salient features of toxicity index?

Or

(b) Write short notes on periodic inspection and operation of fire extinguishers.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain on types and function of warehouse.

Or

(b) What are the significance of warehousing in logistics also explain in brief about WMS?

17. (a) Explain in brief about the conditions and Functions of TREM.

Or

(b) Write shortly oil accident report, accident investigation and fleet accident frequency.

18. (a) Write short notes on servicing and maintenance of forklift at warehouse.

Or

(b) What are the types of fire detection and alarm systems? Explain

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M.Sc. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Industrial Safety and Hygiene

PROCESS SAFETY MANAGEMENT

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is process chemistry?
2. Write short notes on safety relief system.
3. What is on job training?
4. What is HAZOP?
5. Why is mechanical integrity important?
6. What is the purpose of a compliance audit?
7. What are the steps in the incident investigation process?
8. What is employee participation?
9. What is the purpose of hot work permit?
10. What is the purpose of emergency response plan?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain about Electrical classification.

Or

(b) Write short notes on materials of construction.

12. (a) Explain about FMEA.

Or

(b) Write short notes on Intermittent training.

13. (a) Explain about Pre-start up review.

Or

(b) Explain about Management of change.

14. (a) Explain about investigation methodologies.

Or

(b) Write about Trade Secrets.

15. (a) Write in detail about Emergency planning and response.

Or

(b) Explain about the process in contractor selection.

Part C (3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail piping and instrumentation diagrams.

Or

(b) Explain about What if and RAZOR.

17. (a) Write in detail about Initial training, On Job training and Refresher training.

Or

(b) Write in detail about Mechanical integrity.

18. (a) Explain in detail about incident investigation.

Or

(b) Write short notes on Principle employer responsibilities and Contractor employer responsibilities.

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