

**C-3364**

**Sub. Code**

**91013**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**First Semester**  
**FIRE PREVENTION AND PROTECTION**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write about fire protection?
2. What are the four types of heat transfer?
3. What temperature does a heat detector get off?
4. List the different types detector used in industry.
5. What is a fire hydrant?
6. What are the difference between dry pipe and wet pipe sprinkler systems?
7. Define UEL and LEL?
8. What are the types of storage tanks?

9. What is hot work?
10. Differentiate between flammable and combustible liquids?

**Part B** (5 × 5 = 25)

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

11. (a) Give short note on importance of fire safety?
- Or
- (b) Explain about any two major fire accidents in India? Give control measure to prevent the accident.
12. (a) Describe the fire alarm system? Explain in detail about methods of alarm system used in industry.
- Or
- (b) Explain in detail about smoke sensing fire detector?
13. (a) Give short note on different class of fire with an example.
- Or
- (b) Briefly explain about types of fire extinguisher.
14. (a) Write about the containers and portable tanks used for transfer of combustible liquids?
- Or
- (b) Write short on storage tank and storage cabinets.
15. (a) Write short note on liquid piping system?
- Or
- (b) Explain about general precautions measure to be taken during hot work.

**Part C**

(3 × 10 = 30)

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

16. (a) Write about location of heat sensing fire detector with pros and cons?

Or

- (b) What are the procedure for inspection and testing of fire extinguisher?

17. (a) Explain the advantages of hybrid ventilation system over mechanical ventilation?

Or

- (b) What are the types of spray paint booths and their uses?

18. (a) Explain water based sprinkler system and sprinkler system inspection?

Or

- (b) Define explosion and its types of explosion based on the sources. Explain flammability range with LEL and UEL.
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**Sub. Code**

**91014**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**First Semester**  
**PERSONAL PROTECTIVE EQUIPMENTS**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by head protector? Give its types.
2. What are the noise level standards for industrial, residential and commercial areas?
3. How to prevent hand injuries at workplace?
4. What are the specifications of safety shoe?
5. Write some first aid measures to be taken for sulfuric acid exposure to skin?
6. Give short notes on identification labels?
7. What are the requirements of Oxygen in the atmosphere and workplace?

8. Define air purifying respirator. How to use such respirators at workplace?
9. Define standards for work at height?
10. Mention some international standards for health and safety.

**Part B**

(5 × 5 = 25)

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

11. (a) Define eye protection. Discuss various direct hazards which affect eye at the workplace?

Or

- (b) Give some control measures for excessive noise at workplace.

12. (a) How does one protect hand at workplace? How to protect hands?

Or

- (b) Give short notes on leg protection? Explain various direct and indirect hazards?

13. (a) Write the physical and chemical hazards affecting the skin at workplace. Give some control measures.

Or

- (b) Give specifications for ventilation and machine guarding in manufacturing industry with a neat sketch.

14. (a) Define respiratory protection. Explain the causes and consequences due to respiratory hazards? Give some control measures.

Or

- (b) How do you select protective equipment for respiratory system? Explain in detail about various protective equipment used at workplace.

15. (a) Explain health provisions of Factories Act, 1948?

Or

(b) Define fall arrestor? Explain various types of fall arrestors with specifications.

**Part C**

(3 × 10 = 30)

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

16. (a) What are the various types of radiation hazards? Explain the threshold values, checklist and emergency measures for containing radiation?

Or

(b) Explain the employment medical advisory service provisions under health and safety at Work Act, 1974?

17. (a) Explain the roles and responsibilities of Central and State government authorities under MSIHC rules?

Or

(b) What are the roles of inspecting staff under Factories Act, 1948?

18. (a) Explain safety provisions under Factories Act, 1948?

Or

(b) With respect to environment (Protection) Act, 1986 explain the following:

(i) Powers of Central Government to protect environment

(ii) Powers and functions of Officers.

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**Sub. Code**

**91015**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**First Semester**  
**ELECTRICAL SAFETY**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define CPR?
2. What is electrical inspectorate?
3. What should be the minimum distance between two earth pits?
4. What causes an electrical fire in an automobile?
5. What is difference between system grounding and equipment grounding?
6. How to prevent electrical hazard in workplace?
7. What is IE rule for earthing?

8. When should you not use power tools?
9. Classification of hazardous zones?
10. What is temperature classification?

**Part B**

(5 × 5 = 25)

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

11. (a) Write short notes on :
  - (i) Inductor
  - (ii) Ohm's law
  - (iii) Short circuits

Or

- (b) Explain briefly about types of faults in electrical power system?
12. (a) What are the five common causes of electrical fires?

Or

- (b) What is electrical earthing, different types of earthing and their application.
13. (a) (i) What is continuity test?  
(ii) How many types of tester are there?

Or

- (b) What is the purpose of guarding electrical equipment and write the guarding methods?
14. (a) Difference between interlock and protection?

Or

- (b) Explain any seven safety rules for working with electrical equipment?



15. (a) Write about the function of equipment certifying agencies?

Or

- (b) Describe the intrinsically safe and explosion proof electrical apparatus?

**Part C** (3 × 10 = 30)

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

16. (a) Explain the electrical hazards in detail?

Or

- (b) Explain permit work system and its types?

17. (a) Explain the electrical consequences in nervous system and muscular system?

Or

- (b) (i) Write about the MCB with diagram.  
(ii) Write about the ELCB with diagram?

18. (a) Write the quality standards for electrical earthing or ground system in building.

Or

- (b) Write the safety concerns in Indian electricity rules 1956?
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**Sub. Code**

**91023**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**SAFETY IN MATERIAL HANDLING**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is manual handling?
2. Define Ergonomics
3. Give the reason for crane accidents
4. Define safe load indicator
5. Define conveyor
6. What is hoist and period of maintenance?
7. What is rigging?
8. Write the types of sling.
9. Write about LPG trucks.
10. Write the operating principle of escalator.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the types of cranes.

Or

- (b) Write about wire rope requirements.

12. (a) Write short notes on structural failure of lifting tools and tackles.

Or

- (b) Explain safe load indicator.

13. (a) Give the safety sidelines for using powered conveyor.

Or

- (b) Write about riggers and its safety measures.

14. (a) Explain fibre rope and synthetic web slings.

Or

- (b) Write briefly on selection procedure for LPG truck operators.

15. (a) Describe the ergonomic and safety consideration for man lifts.

Or

- (b) Write about gasoline operated trucks.

**Part C**

(3 × 10 = 30)

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

16. (a) What is steel strapping, shacking and explain?

Or

- (b) Explain PPE and its types.

17. (a) Outline the reason for crane accidents.

Or

(b) Explain preventive maintenance.

18. (a) How will you inspect the hoist and its checklist?

Or

(b) Write about metal mesh slings.

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**Sub. Code**

**91024**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**CHEMICAL SAFETY**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Give the example of radioactive hazards.
2. Define health surveillance.
3. Write about inventory and racking of chemicals.
4. Write about EIP.
5. Write example of corrosive substances.
6. Define compressed gas.
7. Give the operatic procedures of PHA.
8. Define incident.
9. Define segregation.
10. What autoclaving?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain the routes of entry.

Or

- (b) Draw the WHMIS symbols.

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

Or

- (b) Write about green chemistry.

13. (a) Explain oxidizing substances with example.

Or

- (b) Explain the general guidelines for safe storage and handling of hazardous chemicals.

14. (a) Write about pre-start up safety.

Or

- (b) Explain compliance audit.

15. (a) Explain the responsibilities of supervisors in chemical workplace.

Or

- (b) Explain personal safety and hygiene.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain chemical waste disposal methods.

Or

- (b) Define housekeeping and 5S technical incidents.

17. (a) Explain in detail about investigation of chemical incidents.

Or

(b) Outline the design consideration for chemical storage tanks.

18. (a) Explain the nano material and globally harmonized system.

Or

(b) Give the recommend practices for handling and storage of LPG.

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**C-3369**

**Sub. Code**

**91025**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**INDUSTRIAL HYGIENE**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define hygiene
2. What is respiration?
3. What is noise?
4. Write about Zoonoses
5. Define TLV and its limits.
6. What is HAZCHEM?
7. Define risk assessment
8. What are the factors affecting the performance of physical task?
9. What is gas and vapour?
10. Define microorganism with example.



**Part B**

(5 × 5 = 25)

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

11. (a) Explain digestive system.

Or

- (b) Explain defense system of human body.

12. (a) Give brief notes on local exhaust ventilation.

Or

- (b) Describe the PPE and its types.

13. (a) Write the classification of toxic materials in the air.

Or

- (b) Write about ACGIH.

14. (a) Explain Musculo-Skeletal disorder.

Or

- (b) Differentiate man vs machine.

15. (a) Explain audiometry

Or

- (b) Explain HVAC

**Part C**

(3 × 10 = 30)

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

16. (a) Give detailed notes on any two blood borne diseases.

Or

- (b) Explain dilution ventilation of industrial workplaces.

17. (a) Explain physical form of chemicals.

Or

(b) Describe in detail about manual handling.

18. (a) Write about nepro toxic agents and blood damaging agents.

Or

(b) Write the minimum ergonomic requirements for work station.

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**C-3370**

**Sub. Code**

**91026**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Semester**  
**PRINCIPLES OF SAFETY MANAGEMENT**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define incident recall technique.
2. Write the purpose of job safety analysis.
3. What is meant by safety audit and its types?
4. Define NCR.
5. Write the types of accident.
6. What is the principles of domino sequence?
7. Define safety committee.
8. What is the types of disabilities?
9. Define severity rate.
10. What is the purpose of pictorial representation?

**Part B**

(5 × 5 = 25)

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

11. (a) Write the role of supervisor and managers in safety.

Or

- (b) How to prepare the safety policy?

12. (a) Explain the components of safety audit?

Or

- (b) Short notes on non-conformity reporting.

13. (a) Differentiate the reportable and non-reportable accidents.

Or

- (b) Give short notes on role and safety committee.

14. (a) Write the elements of accident indices.

Or

- (b) Define safety T score.

15. (a) Write about safety pledge.

Or

- (b) Explain the safety training needs to workers.

**Part C**

(3 × 10 = 30)

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

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

Or

- (b) Detail notes on accident investigation techniques.

17. (a) Explain SR, FR and FSI.

Or

(b) Explain the Domino sequence.

18. (a) Design safety poster for height work.

Or

(b) Explain in detail about safety incentive scheme.

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**Sub. Code**

**91032**

**B.SC. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFTY MANAGEMENT**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**

**Third Semester**

**INDUSTRIAL SAFETY ND LEAN CONCEPTS**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Differentiate between risk and hazard.
2. Discuss MSDS
3. What are known as administrative sites?
4. List out the different causes of fire
5. What is ergonomics?
6. Mention the luminous intensity for the different working environment.
7. How to overcome poor housekeeping?
8. What are the types of lifting activities associated with heavy objects?
9. What are the principles of lean concept?
10. What is bench marking?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

Choosing either (a) or (b)

11. (a) Define – Chronic injury. Acute injury and employment injury with examples.

Or

- (b) Explain the selection and safety training for the process industries in brief.

12. (a) Explain the different kinds of maintenance.

Or

- (b) Write short notes on non-destructive testing.

13. (a) List out the primary air pollutants. Explain their subsequent effects.

Or

- (b) Explain the different occupational exposures to vibration in brief.

14. (a) Explain the symptoms, causes, prevention of slipped disc syndrome.

Or

- (b) What are safety aspects behind metal casting?

15. (a) What are the five principles of GEMBA principles?

Or

- (b) Write the importance of 5s in lean manufacturing.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

Choosing either (a) or (b)

16. (a) What is a human factor? Explain the relationship between the human-machine interaction concerning ergonomics.

Or

- (b) List and explain the possible causes of risk that occur primarily when chemicals are released as a result of leakage.
17. (a) Explain in detail about the biological hazards associated with industrial hygiene with effects, consequences and control measures.

Or

- (b) Explain in detail about the welding and thermal cutting of metals.
18. (a) Explain about the 12 step cycle in PDCA implementation.

Or

- (b) What is industrial toxicology? What are the various chemicals that tend to industrial toxicology? Give their effects and control measures.
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**Sub. Code**

**91033**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Semester**  
**SAFETY IN CONSTRUCTION SECTOR**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are some common hazards in the construction industry?
2. What are some PPE required while working in the construction industry?
3. What are some safety precautions to be taken while working in confined spaces?
4. Define blasting agent.
5. What is MEWP? How to identify and control hazards in MEWP?
6. What are the different purposes of cranes used in construction site?
7. What are some safety measures to be followed in scaffolding?

8. Describe some limitations of using ladders? How to safely use ladders in construction site?
9. What are some hazards involved in power machinery?
10. What are safety precautions to be followed while handling LPG?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain in detail about the legal requirement described in BOCW Act, 1996.  
Or  
(b) What are the various airborne contaminants commonly observed in construction site? Give some steps to be taken to reduce the contaminants at the site?
12. (a) Explain in detail about the various safety measures to be taken while undertaking excavation operation?  
Or  
(b) What is pilling? Explain in detail about the general precautions to be taken during pilling operation?
13. (a) Explain in detail about the road making process. What are the steps to be taken for traffic management during road construction and repair?  
Or  
(b) Explain in detail the erection process and safety devices for hoists?
14. (a) Describe the safety measures for handling the following:
  - (i) Acetylene
  - (ii) Steel sections
  - (iii) Timber componentsOr  
(b) Describe in detail about the safe practices while handling concrete?

15. (a) Describe in detail about various hand tools?

Or

(b) Explain in detail about the various hazards in welding and grinding operations? Give some control measures.

**Part C** (3 × 10 = 30)

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

16. (a) Explain in detail about the various legal provisions in Indian explosives Act, 1984.

Or

(b) Explain in detail about shot firing? Give some safety precautions for shot firing?

17. (a) Explain in detail various types of scaffolds?

Or

(b) Briefly explain about ladders. What are some safety precautions for shot firing?

18. (a) Describe in detail about the various measures to be followed to be in treatment of electric shock?

Or

(b) What is ergonomics? Describe in detail about the various safe working postures while working in sitting and standing positions.

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**C-3373**

**Sub. Code**

**91034**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Semester**  
**EHS LAWS AND ACTS**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Who is an occupier in Factories Act, 1948?
2. Define health officer under Tamil nadu Factories Rules, 1950? What are his roles and responsibilities?
3. Define control equipment under Air (Prevention and Control of pollution) Act, 1986?
4. What are the powers of Central Government to take measures to protect the environment?
5. Define MSDS.
6. What are major accident hazards (MAH) installations under the MSIHC rules, 1989.
7. How to report an accident under Indian Boiler Act, 1923?
8. What are the objectives and purpose of BOCW Act, 1996?

9. Define occupational safety and health standards as defined by OSHA 1970.
10. What are the roles and responsibilities of ANSI?

**Part B** (5 × 5 = 25)

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

11. (a) Explain the powers of inspector under Factories Act, 1948.

Or

- (b) Explain about the safety aspects under Factories Act, 1948.
12. (a) What are the measures to be taken to prevent air and water pollution caused due to industries?

Or

- (b) Explain about noise pollution (regulation and control rules), 2000.
13. (a) Explain about the emergency action plans and its types.

Or

- (b) Explain in detail about MSDS and its sections?
14. (a) How is the packaging, labeling and transport of hazardous wastes done?

Or

- (b) Explain about electricity act and rules?
15. (a) Explain about OSHA 1970?

Or

- (b) Explain about health and safety work act, 1974?

**Part C**

(3 × 10 = 30)

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

16. (a) Explain about health aspects in Tamilnadu Factories Rules, 1950.

Or

- (b) Give short notes on Welfare aspects in Indian Factories Act 1948?

17. (a) Give an elaborate account of the legislative procedure for environmental clearance in India.

Or

- (b) Explain in detail about The Batteries (Management and Handling Rules) 2001.

18. (a) Briefly explain about static and mobile pressure vessel rules (SWPV).

Or

- (b) Explain about Workman Compensation Act and rules.
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**Sub. Code**

**91035**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Third Semester**

**INCIDENT PREVENTION, CONTROL, INVESTIGATION  
AND REPORTING**

**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is an accident? What are the types of accidents?
2. Differentiate between reportable and non-reportable accidents?
3. What is the human factor theory of accident causation?
4. What is Bird's Triangle?
5. How can accident be prevented in the workplace?
6. Give some commonly used personal protective equipments.
7. Name some methods used for accident investigations?

8. What are the five main benefits of an accident investigation?
9. Differentiate between disabling and non-disabling injury?
10. What is frequency and severity rate?

**Part B**

(5 × 5 = 25)

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

11. (a) Briefly explain about accident reporting as given under Factories Act, 1948.

Or

- (b) Explain about accident reporting under BOCW Act, 1996.

12. (a) Describe in detail about Heinrich Domino theory.

Or

- (b) Describe in detail about Multi causation theory.

13. (a) Briefly explain about the hierarchy of accident prevention and control.

Or

- (b) Explain in detail the various type of PPE used in industrial applications.

14. (a) Explain in detail about accident investigation process.

Or

- (b) What is fault tree analysis (FTA)? Explain the steps involved in FTA with a neat diagram.



15. (a) Describe in detail about the various types of industrial accidents.

Or

- (b) Find the frequency rate, severity rate and incidence rates for the following years and tabulate them.

S.No.	Years	No. of accidents	No. of reportable accidents	Man days lost due to reportable accidents	Avg. No. employees present
1	2008-2009	4	4	24	70
2	2009-2010	1	2	3	68
3	2010-2011	5	4	66	102

**Part C**

(3 × 10 = 30)

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

16. (a) Briefly explain about the Barrier and change analysis.

Or

- (b) Explain in detail about the following:

- (i) Systemic Cause Analysis Technique (SCAT).
- (ii) Sequential Timed Events Plotting (STEP)
- (iii) MTO analysis

17. (a) Briefly explain about Biased liability theory.

Or

- (b) Briefly explain about behavioral theory.

18. (a) What is event tree analysis? With a neat diagram, explain the steps involved in event tree analysis?

Or

- (b) Define permanent disabilities and temporary total disabilities. How can one assess work injury?

**C-3375**

**Sub. Code**

**91042**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**FIRE DESIGN ENGINEERING**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write short notes on "Fire properties".
2. Define fire growth.
3. Classify the fire extinguisher.
4. Define fire blanket.
5. Mention few components of fire hydrants.
6. Define water monitoring.
7. Classify the types of fire.
8. Write short notes on "Fire tender".
9. List any four detectors used for safety.
10. Define maintenance.

**Part B**

(5 × 5 = 25)

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

11. (a) Discuss fire fighting techniques.  
Or  
(b) Write short notes on fire hazards.
12. (a) List the importance of active fire protection system.  
Or  
(b) Describe the installation of modular fire extinguisher.
13. (a) Explain hydrant fitting methods.  
Or  
(b) Explain the roles and responsibilities of fire extinguisher.
14. (a) Discuss the installation of CO<sub>2</sub> suppression system.  
Or  
(b) Explain the safety awareness methods in any industry.
15. (a) List the type of fire alarms and its applications.  
Or  
(b) Explain the fire alarm system designing.

**Part C**

(3 × 10 = 30)

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

16. (a) Discuss about the PPE used for fire protection.  
Or  
(b) Describe the recent developments in fire design engineering.

17. (a) Explain the major components used in the fighting system.

Or

(b) Explain the principle and construction of fire sprinkler system.

18. (a) Discuss the communication techniques for fire technicians.

Or

(b) Discuss the roles and responsibilities of fire service.

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**C-3376**

**Sub. Code**

**91043**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**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 safety systems.
2. Write the importance of ventilation.
3. What is called PHA?
4. Explain on the job training
5. Write short notes on mechanical integrity.
6. Define the term quality assurance.
7. What is called trade secrets?
8. Write the objectives of process safety management.

9. Mention any four safety awareness methods.
10. What is called permit system?

**Part B** (5 × 5 = 25)

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

11. (a) Write short notes on relief system design.
- Or
- (b) Write the importance of process safety information.
12. (a) Describe HAZOP in detail.
- Or
- (b) Write the limitation of PHA.
13. (a) Write short notes on management of change.
- Or
- (b) Explain pre-start up review in detail.
14. (a) Discuss about employee participation in detail.
- Or
- (b) Discuss about the investigation methodologies.
15. (a) Write short notes on contractor selection.
- Or
- (b) Elaborate the importance of emergency planning.

**Part C** (3 × 10 = 30)

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

16. (a) Discuss the standards and codes for process design.
- Or
- (b) Explain the various elements of operating procedure in detail.

17. (a) Discuss the pre-start up review and compliance audit.

Or

(b) Describe the incident investigation procedures in detail.

18. (a) Explain the principal responsibilities of employer in detail.

Or

(b) Discuss FMEA in detail.

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**C-3377**

**Sub. Code**

**91044**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Fourth Semester**

**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 ranking.
2. Define severity rate with formula.
3. What are the benefits of risk management?
4. List few potential hazards in fireworks.
5. Define fault tree analysis.
6. Write short notes on data collection.
7. Define risk priority number.
8. Write any two unsafe act?
9. What is safety life cycle?
10. Classify maintenance.



**Part B**

(5 × 5 = 25)

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

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

Or

- (b) Write short notes on plant ageing.

12. (a) Explain steps of PHA in detail.

Or

- (b) Explain about HAZID with examples.

13. (a) Explain in detail about check list analysis.

Or

- (b) Explain in detail about what if analysis.

14. (a) Explain about HAZOP. Mention any six keywords with examples.

Or

- (b) Explain the following:

(i) SIL calculation

(ii) Risk priority number.

15. (a) Write short notes on third party certifications of instruments.

Or

- (b) Write short notes on explosion protection.

**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 check list 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.
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**C-3378**

**Sub. Code**

**91045**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Fourth Semester**  
**SAFETY INSPECTION AND AUDIT**  
**(2019 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. How to prepare a report in safety inspection?
2. List few hazards in the work place.
3. What are the components of safety audit?
4. Write few pre audit activities.
5. Write the benefits of ISO 14001:1996 guidelines.
6. Name the levels of documentation for ISO 14001 guidelines.
7. Write few merits of safety training.
8. Define record retention.
9. Write few benefits of certification
10. Brief HLS.

**Part B**

(5 × 5 = 25)

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

11. (a) Write short notes on inspection team.

Or

- (b) Describe the frequency of inspection.

12. (a) Describe the audit checklists and reports.

Or

- (b) Explain the implementation of audit indications.

13. (a) Write short notes of LCA.

Or

- (b) Write short notes on type 1 and type 2 labels.

14. (a) Explain the objectives of health audit.

Or

- (b) Describe the ISI 14489 : 1998

15. (a) Discuss the process and procedure of reporting accidents.

Or

- (b) Explain the benefits and features of OSHA 180001 guidelines.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain the procedures for safety inspection.

Or

- (b) What are the various steps involved in developing an 'Inspection report'? Make a sample report.

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

Or

(b) Distinguish between ISO 14001:1996 and ISO 9001 1994.

18. (a) Discuss the objectives, advantages and scope of safety audit elaborated.

Or

(b) Explain the key changes in ISO 145001.

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**C-3379**

**Sub. Code**

**91012**

**B.Sc. DEGREE EXAMINATION  
FIRE AND INDUSTRIAL SAFETY  
APRIL 2021 EXAMINATION  
&  
APRIL 2020 ARREAR EXAMINATION  
First Year  
COMMUNICATIVE ENGLISH LANGUAGE  
(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer the following questions.

1. What is our greatest wealth?
2. What is the real duty of the artist to the society?
3. To what is the pen composed in "On Habits"?
4. What punishment did the teacher give the boy?
5. What inedible dishes were described in Seton's "Wildwood Wisdom"?
6. What are the two rivers flowing through Allahabad? How does Sarojini Naidu describe them?
7. Define verb with examples.
8. What is meant by adjective clause?
9. What is called definite article?
10. Charge the following into superlative degree and comparative degree.

Very few metals are as light as potassium.

**Part B**

(5 × 5 = 25)

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

11. (a) Write a short note on Kalam's visions.

Or

- (b) Substantiate Indira Gandhi's view that the youth are the backbone of India.

12. (a) What does a glory has departed mean?

Or

- (b) What is the usefulness of forming habits?

13. (a) What book did Margaret Atwood enjoy reading?

Or

- (b) How did the conjures take revenge?

14. (a) Write a note on the three types of adjectives.

Or

- (b) Write about pronoun and its kinds.

15. (a) Identify the sentence pattern :

- (i) Boy are playing in the ground.
- (ii) Kalpana cooks very well.
- (iii) They made her my secretary.
- (iv) Sentries have been posted ale round the building.
- (v) I teach him English.

Or

- (b) Change the following sentence into Indirect speech :
- (i) He said to me, "May you live long!".
  - (ii) I said, "How lucky I am!".
  - (iii) He said to me, "Write it again".
  - (iv) Rafiq said, "I shall leave for London tomorrow".
  - (v) She says, "She is writing a letter to my brother".

**Part C**

(3 × 10 = 30)

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

16. (a) What are Livingstone's views on education?

Or

- (b) Write an essay on Indira Gandhi's views on "On the power of Youth".

17. (a) Write an essay on the inter relationship between the rich student and the poor teacher.

Or

- (b) Write an essay on Sarojini Naidu's vision of love, religion and patriotism.

18. (a) Write an essay on the uses of tenses.

Or

- (b) Fill in the blank with suitable preposition :

- (i) He took ill \_\_\_\_\_ the 10<sup>th</sup> of June.
- (ii) The picture is \_\_\_\_\_ the table.
- (iii) He jumped \_\_\_\_\_ the wall.
- (iv) He is \_\_\_\_\_ melur.



- (v) He ran \_\_\_\_\_ the house.
- (vi) He has been singing here \_\_\_\_\_ 8 O' clock.
- (vii) The boy has not attended class \_\_\_\_\_ a week.
- (viii) He ran \_\_\_\_\_ the road.
- (ix) He went \_\_\_\_\_ Madras.
- (x) I worked \_\_\_\_\_ four O' clock.
- \_\_\_\_\_

**C-3380**

**Sub. Code**

**91013**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**First Year**

**FIRE SAFETY – PREVENTION AND CONTROL**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Brief fire statistics
2. Define fire load
3. Write the properties of natural gas
4. List the purposes fire the hydrant.
5. Define fire safety regulations.
6. Write the major causes of fire accident in EDP installation.
7. Mention any two causes of explosions
8. Differentiate LPG and LNG.

9. List out the importance of ELCB.
10. Define vulnerable material.

**Part B** (5 × 5 = 25)

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

11. (a) Explain the following terms :
  - (i) Flash point (2)
  - (ii) First aid (3)

Or

- (b) Write about the petroleum act.
12. (a) Write about the design criteria of fire water pump.

Or

- (b) Briefly write about customer safety at petrol pump.
13. (a) Write about the safety measures in educational institution.

Or

- (b) Explain about the fire safety in godowns.
14. (a) Explain about inventor safety.

Or

- (b) Explain about the safety precaution in vehicles operated by LPG.

15. (a) What are the safety measures in the installation of DG set?

Or

- (b) Brief about the application and use of RCCB.

**Part C** (3 × 10 = 30)

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

16. (a) Explain about various types of fire.

Or

- (b) Brief the points on :

- (i) Fire insurance (5)  
(ii) Fire escape plan. (5)

17. (a) Explain the fire safety precautions at warehouses.

Or

- (b) Briefly write about the safety measure in small scale industries.

18. (a) Explain about the transportation of hazard goods in detail.

Or

- (b) How to prevent electrical accidents in detail.

**C-3381**

**Sub. Code**

**91014**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**First Year**  
**PERSONAL PROTECTIVE EQUIPMENTS**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are the hazards associated with head injury?
2. Define noise control.
3. Write the types of head protectors.
4. List few PPE used for leg protection.
5. What are the four things to be kept in mind while selecting PPE?
6. What are the causes of job related skin diseases and injury?
7. List out the safety measures in respiratory protection.
8. Differentiate smoke and fume.
9. Write the objective of the factories act 1948.
10. What are the responsibilities of management?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain IR and UV radiation.  
Or  
(b) List out the different types of ear protections.
12. (a) Explain the types of hand protection.  
Or  
(b) Explain about the different types of safety shoes and its applications.
13. (a) Write short notes on skin protection.  
Or  
(b) Explain the terms housekeeping and machine guard.
14. (a) Explain the harmful contaminants in details.  
Or  
(b) List the type of air pollutant and its prevention method.
15. (a) What are the maintenance requirements for safety shoe?  
Or  
(b) Write briefly about MSIHC rules.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain major eye protection methods in detail.  
Or  
(b) What are the 3 basic types of PPE? Explain them in detail.

17. (a) Explain about physical and chemical hazards.

Or

(b) Explain in detail about leg injury. What are the control measures to be taken to avoid leg injury.

18. (a) Explain the respiration protection devices selection and its applications.

Or

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

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**C-3382**

**Sub. Code**

**91015**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**First Year**

**LIFTING EQUIPMENTS AND TRANSPORT SAFETY**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define work environment.
2. What are the ways to reduce forklift incidents?
3. Define factors of safety.
4. Write the types of contaminates?
5. Write few unsafe acts in material handling?
6. Write the major components of OET cranes.
7. Define choker stress formula
8. What is the major hazard in transportation?
9. Mention any four tips for motorists
10. Define Hazmat.



**Part B**

(5 × 5 = 25)

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

11. (a) Write short note on forklift safety.

Or

- (b) Briefly explain about workers training.

12. (a) Write a short note on storage of gas cylinders.

Or

- (b) What are the safety precautions in manual material handling,

13. (a) What are the common defects to which the wire rope slings are to be discarded?

Or

- (b) What are the qualification and conduct of crane operators?

14. (a) Explain about accident prevent formula.

Or

- (b) Explain about road safety management plan.

15. (a) Write a short note on Rule 129.

Or

- (b) Write about the factors affecting petrol consumption.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain about hazard control measure in heavy engineering industries.

Or

- (b) Explain the safety precautions in storing corrosive substances.

17. (a) Explain any five rules of Hazardous goods transportation.

Or

(b) Explain the signaling and rigging process in detail.

18. (a) Explain the six conditions which an expert driver must consider while driving.

Or

(b) Explain the statutory requirements of motor vehicle maintenance.

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**C-3383**

**Sub. Code**

**91016**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**First Year**

**SAFETY ON ELECTRICAL AND CHEMICAL HAZARD**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. List few safety precautions to avoid electrical accidents?
2. Define electrocution
3. What is static electricity
4. Write few electro static hazards
5. Define hazardous acids
6. List any four PPE used in chemical industries
7. Brief the Rule 1956?
8. Write the general duties of occupier.
9. Define safety audit.
10. What is called MSDC?

**Part B**

(5 × 5 = 25)

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

11. (a) Write the features of electrical equipments in detail.

Or

- (b) How will you give treatment to a victim from electrical shock?

12. (a) Explain electro static hazards and its prevention methods.

Or

- (b) Write short notes on strainers and filters.

13. (a) Classify hazardous chemicals.

Or

- (b) Write short notes on first aid for chemical accident.

14. (a) Write about OSHA Act.

Or

- (b) Briefly explain the general duties of manufacturers.

15. (a) What are the details to be furnished in Offsite emergency plan.

Or

- (b) Explain the term modular check list.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain the importance of safety management in industries.

Or

- (b) Explain the static electricity, hazards associated with static electricity and also write the control measures for it.

17. (a) Explain the classification of flammable liquids and write the control measures for it.

Or

- (b) Describe the Indian electricity Act 1910.

18. (a) Explain Bhopal disaster and the lessons learnt.

Or

- (b) Explain about Health and Safety Act 1974.

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**C-3384**

**Sub. Code**

**91022**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Year**

**COMMUNICATIVE ENGLISH LANGUAGE - ADVANCE**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are called barriers of communication?
2. What are the Do's in telephone conversation?
3. Define Homophones with example.
4. What is meant by free composition?
5. Give two example for confusion of number.
6. How many consonants are in English?
7. Find the error in the following sentences :
  - (a) He need scissors.
  - (b) I want for have a cup of coffee.

8. What are the uses of visual aids for communication?
9. What is meant by secondary stress?
10. Abbreviate 'SQ3R'.

**Part B**

(5 × 5 = 25)

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

11. (a) Write a note on non-verbal communication.

Or

- (b) Give a note on the ways of challenging the barriers of communication.
12. (a) Change the following sentences from active into passive voice.
    - (i) I am going to meet the principal tomorrow.
    - (ii) They gave me a radio yesterday.
    - (iii) Give the signal properly.
    - (iv) We have to punish him.
    - (v) He has got a medal from the officer.

Or

- (b) What are the ways to develop our creative competency?
13. (a) Write a note on definite article with examples.

Or

- (b) Elaborate the wrong position of adverbs.

14. (a) Write about the uses of falling and rising intonation.

Or

(b) How can you develop topic sentences into paragraphs?

15. (a) Write briefly on the uses of loud reading.

Or

(b) What are the salient features of visual / audio aids for communication?

**Part C**

(3 × 10 = 30)

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

16. (a) Write an essay on kinds of interview and its techniques.

Or

(b) Write a note on the following :

(i) Relative clause

(ii) Conditional clause

(iii) Guided composition.

17. (a) Write an essay on common errors on articles in English language.

Or

(b) Explain the different types of visual aids for communication.

18. (a) Explain briefly on SQ3R.

Or

(b) Explain on note-taking and note-making.



**C-3385**

**Sub. Code**

**91023**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Second Year**  
**GENERAL SAFETY MANAGEMENT**  
**(PRINCIPLES AND POLICIES)**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write short notes on safety need.
2. Define incident recall technique. Why it is necessary?
3. Explain LPG safety precautions.
4. Write few unsafe acts.
5. Define the employee compensations act.
6. Explain noise control method. Why it is necessary?
7. List the PPE used for leg protection.
8. Define PPE standards.
9. What is the need for behavioural based safety?
10. Define brainstorming.

**Part B**

(5 × 5 = 25)

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

11. (a) Describe the various safety management systems in detail.

Or

- (b) Brief about the frequency rate and severity rate.

12. (a) Explain the principles of accident prevention in domestic safety.

Or

- (b) Write short notes on home safety.

13. (a) Discuss Indian safety standard in detail.

Or

- (b) Write about the noise pollution.

14. (a) Discuss about the colors of canisters and cartridges.

Or

- (b) Classify the respiratory protective equipments.

15. (a) Explain the importance of safety education in detail.

Or

- (b) Write short notes on home safety health promotion.

**Part C**

(3 × 10 = 30)

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

16. (a) Discuss the overview of Indian safety standards in detail.

Or

- (b) Write about precautions of all hazards in domestic work.

17. (a) Describe the MSME development act 1923.

Or

(b) What is the significance of PPE standards.

18. (a) How do you identify the training need? Develop a program to celebrate safety week?

Or

(b) Explain about the stages of brainstorming.

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**C-3386**

**Sub. Code**

**91024**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Year**

**HEALTH ASPECTS, FOOD HYGIENE AND SAFETY  
(HACCP)**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define – HACCP
2. Write the causes of diabetic.
3. Define borne microorganism
4. Write the basic principal of food preservation.
5. How to store the meal and fish item.
6. What are the types of hazards in food safety?
7. Write the necessity of personal hygiene.
8. What are the types of pest control?

9. List few emerging diseases.
10. Brief food labeling.

**Part B**

(5 × 5 = 25)

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

11. (a) Describe about the dengue fever and its prevention methods.

Or

- (b) List the benefits of physical activities.

12. (a) Explain the factors affecting growth of microbes.

Or

- (b) Classify the food on the basis of shelf life.

13. (a) Write the general guidance for food storage.

Or

- (b) Describe the common faults in food preparation.

14. (a) Write short notes on water pollution.

Or

- (b) Describe the necessity for an effective cleaning program.

15. (a) Explain the food safety and standard act 2006.

Or

- (b) List the benefits of HACCP.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain the principles of HACCP in detail.

Or

- (b) Describe about the methods of food preservation.

17. (a) Explain about the special food operations.

Or

- (b) Describe various cleaning machines with sketches.

18. (a) Enumerate the new trend in food packaging technology.

Or

- (b) Describe the ISO 9000 quality management system.

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**C-3387**

**Sub. Code**

**91025**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Year**

**OCCUPATIONAL HEALTH AND SAFETY  
MANAGEMENT**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define risk.
2. Write the first and procedure for electrical shock.
3. What is called work place climate?
4. How to keep the body cool?
5. What is called genetic effect?
6. Differentiate acute and chronic diseases.
7. What are the basic requirements of the work chair?
8. What are the problems of shift work?
9. Mention few electrical safety devices.
10. What is meant by hazardous objects.

**Part B**

(5 × 5 = 25)

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

11. (a) List the precautions steps for power driven machines.

Or

- (b) Write a short note on boilers.

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

- (i) Heat exhaustion
- (ii) Material handling.

Or

- (b) Write the methods of noise control in detail.

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

- (i) Occupational skin diseases
- (ii) Maintenance

Or

- (b) Write a short note on the following:

- (i) Ventilation and maintenance
- (ii) Ventilation in car plants and workshops.

14. (a) Explain the safety conditions for working at height.

Or

- (b) Write the easy to improve work organization.

15. (a) Discuss the welfare facilities to improve living conditions.

Or

- (b) Write short notes on hand tools safety.



**Part C**

(3 × 10 = 30)

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

16. (a) Explain various types of accidents and its precaution methods.

Or

- (b) Explain welding safety in detail.

17. (a) Explain the necessity of proper lighting in detail.

Or

- (b) Explain in detail about various PPE.

18. (a) Explain the safety awareness procedure in detail.

Or

- (b) Discuss the health and safety standards for better working environment.
-

**C-3388**

**Sub. Code**

**91026**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Second Year**

**EHS LAWS – (INTERNATIONAL STANDARDS AND  
REGULATIONS)**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write the objectives of battery act.
2. Define tag out
3. What is called PTW?
4. Define Housekeeping
5. Mention the importance of guarding of machineries.
6. List the methods of fire prevention
7. Mention the types of lifts.
8. What are the classifications of scaffolds?
9. Define plant hygiene
10. Brief HASAWA?

**Part B**

(5 × 5 = 25)

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

11. (a) Describe in brief about Factory act,1948.  
Or  
(b) Describe in brief about IBR.
12. (a) Mention the duties and responsibilities of safety officer.  
Or  
(b) Write short notes on lighting and ventilation.
13. (a) Discuss in detail about safe operating practices procedures.  
Or  
(b) Define 5 'S' and housekeeping.
14. (a) Describe briefly about manual material handling.  
Or  
(b) What are the safety requirements while working at height?
15. (a) What is ISO 19001? Explain in detail.  
Or  
(b) Explain about industrial hygiene and workplace monitoring.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain in detail about gas cylinder rules.  
Or  
(b) Explain in detail accident prevention and investigating.

17. (a) Explain in detail about the selection of PPE as per standards.

Or

(b) Explain in detail storage of hazardous chemicals.

18. (a) Explain in detail about OHSAS 18001.

Or

(b) Explain in detail about ISO 14001.

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**C-3389**

**Sub. Code**

**91031**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Semester**  
**DISASTER MANAGEMENT**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define disaster management.
2. Write the duties of voluntary agencies?
3. Define risk inventory.
4. List any four causes of chemical disaster.
5. Write short notes on emergency waste management.
6. Mention the criteria for earthquake resistance.
7. Differentiate onshore and offshore hazards.
8. Write short notes on liability.
9. Write the objectives of emergency plan?
10. Name few natural disaster in India.

**Part B**

(5 × 5 = 25)

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

11. (a) What is the organizational structure for disaster management?  
Or  
(b) Explain the disaster management plan for districts.
12. (a) Explain the national disaster management medical preparedness.  
Or  
(b) Write short notes on creating awareness while natural disaster?
13. (a) Describe the general structural safety.  
Or  
(b) Explain about IS 1893 2002
14. (a) Explain about the guidelines for emergency drill.  
Or  
(b) Write short notes on Indian scenario of trauma care.
15. (a) Write a case study about Indian T-tsunami in December 2004?  
Or  
(b) Write a case study about Gajja cyclone in 2018 disaster.

**Part C**

(3 × 10 = 30)

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

16. (a) Describe the disaster management act 2003.  
Or  
(b) Discuss about the identification and vulnerability analysis.

17. (a) Describe the guidelines of UNEP and OCHA in detail.

Or

(b) Explain about current global environmental issues and remedies.

18. (a) Explain the components of emergency planning in detail.

Or

(b) Discuss about Bhuj-Kutch earthquake affected.

**C-3390**

**Sub. Code**

**91032**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Year**  
**CONSTRUCTION SAFETY MANAGEMENT**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Mention any four unsafe acts in construction site.
2. Define safety checklist
3. Define fragile roof
4. Write any four chemical hazard
5. List the causes of fire accident
6. Write short notes on Bombay Lift Act 1939
7. Write a short note on earthquake resistance structure
8. Define National Building code
9. Write about falling object protection
10. Mention the types of scaffolds



**Part B**

(5 × 5 = 25)

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

11. (a) Explain briefly about safety work cycles at construction sites.

Or

- (b) Write short notes on  
(i) Excavations  
(ii) Morning safety meeting

12. (a) Discuss about various PPE used in chemical work.

Or

- (b) Explain the safety precautions for underground works.

13. (a) Explain the safe use of electrical equipments.

Or

- (b) Write down the additional provisions for excavation or tunneling work.

14. (a) Explain the BIS standard.

Or

- (b) Write a short note about repair and seismic strengthening of buildings.

15. (a) What are the safety requirements for work over water?

Or

- (b) Discuss about various types of ladder used in construction.

**Part C**

(3 × 10 = 30)

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

16. (a) Discuss about the safety and health provisions for construction workers under BOCW Act 1996.

Or

- (b) Discuss about the responsibilities of safety manager.

17. (a) Write down the various health effects related chemical hazards.

Or

- (b) Describe the maintenance and inspection of scaffoldings.

18. (a) Explain IS 13920 1993 in detail.

Or

- (b) How will you conduct a safety awareness program in the construction site? Explain in detail.
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**C-3391**

**Sub. Code**

**91033**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Year**  
**INDUSTRIAL SAFETY & RISK MANAGEMENT**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write the function of safety committee.
2. Define safety management
3. Define human factor
4. Mention the qualification of a safety manager
5. What is called permit to work?
6. Write about Forklift safety
7. Define gas cutting
8. Write faulty handling of equipments
9. What is meant by lapse in safety organizations?
10. What is meant by fire watch?

**Part B**

(5 × 5 = 25)

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

11. (a) Briefly discuss about the elements of safety program.

Or

- (b) Draw a safety poster to create safety awareness in construction site.

12. (a) Define the following terms:

- (i) Risk
- (ii) Injury
- (iii) Incident
- (iv) Carelessness

Or

- (b) Explain in detail about occupational health and safety.

13. (a) Write short notes on static electricity.

Or

- (b) Write short notes on hydrocarbons.

14. (a) Discuss the lapse in safety organization.

Or

- (b) Explain about manufacturing of ID fan.

15. (a) Write short notes on explosion.

Or

- (b) Explain about safe chemical handling.

**Part C**

(3 × 10 = 30)

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

16. (a) Explain safety education and training development in detail.

Or

- (b) Explain the following:
- (i) Causes of accidents
  - (ii) Scope of the safety professional
  - (iii) Safety systems
  - (iv) Space hazards

17. (a) Explain case study in detail about "Machine and Equipment"

Or

- (b) What are the preventive measures for gas cylinder storage?

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

Or

- (b) Explain in detail about the following:
- (i) Fork lifts hazard control
  - (ii) Tractor overturns.
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**C-3392**

**Sub. Code**

**91034**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Year**  
**INDUSTRIAL HYGIENE AND SAFETY AUDITING**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define industrial hygiene.
2. What are the components of safety audit?
3. What is called facility walkthrough?
4. Define physical stress.
5. Write the importance of management system audit.
6. Define gap analysis.
7. What do you meant by corrective actions?
8. Define post audit.
9. Write the merits of PPE.
10. Define ionizing radiation.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain in detail about various types of audit.  
Or  
(b) Explain the benefits of the audit process.
12. (a) What does an occupational health compliance audit include? Explain in detail.  
Or  
(b) Write short notes on hazard communication.
13. (a) Write the importance of management system audit.  
Or  
(b) Explain onsite audit activities.
14. (a) Write short notes on audit process critiques.  
Or  
(b) Write short notes on audit program status report.
15. (a) Discuss the various respiratory protection program.  
Or  
(b) Explain local exhaust ventilation.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

Choosing either (a) or (b)

16. (a) Prepare the check list for safety audit and explain it.  
Or  
(b) Enumerate the duties and responsibilities of a safety auditor.

17. (a) Discuss the scope of an occupational health compliance audit.

Or

(b) Discuss about the industrial hygiene implementing procedure in warehouse.

18. (a) Describe the hazardous chemical emergencies.

Or

(b) Discuss the various equipments used for workers safety.

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**C-3393**

**Sub. Code**

**91035**

**B.Sc. DEGREE EXAMINATION**  
**FIRE AND INDUSTRIAL SAFETY**  
**APRIL 2021 EXAMINATION**  
**&**  
**APRIL 2020 ARREAR EXAMINATION**  
**Third Year**  
**SAFETY AT OIL, GAS & NUCLEAR PROJECTS**  
**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define safety induction
2. Write the importance of safety in oil and gas industry
3. Draw any four safety signs
4. Mention any two safety slogans
5. What is called excavation?
6. Define abrasive blasting
7. Write the importance of work permit
8. Give your recommendation to reduce fatal accidents
9. What are the major duties of safety officer?
10. What is called first aid?

**Part B**

(5 × 5 = 25)

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

11. (a) Explain safety induction training.  
Or  
(b) Discuss the causes of work injuries and mechanical injuries.
12. (a) Explain the safe methods for confined space entry.  
Or  
(b) List the merits of safety displays.
13. (a) Write short notes on safety in crane operation.  
Or  
(b) Enumerate the importance of safety in hot working area.
14. (a) List the major factors contributing to accidents in oil and gas industry.  
Or  
(b) Describe manual material handling.
15. (a) Write short notes on near miss incidents reporting.  
Or  
(b) Write the lessons learnt from any one oil and gas accident.

**Part C**

(3 × 10 = 30)

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

16. (a) Discuss the importance of laws and standards in nuclear projects.  
Or  
(b) Discuss the importance of PPE in oil and gas industry.

17. (a) Describe the safe waste disposal methods used in nuclear projects.

Or

(b) Explain about electrical safety in detail.

18. (a) List the general precautions to be considered in nuclear industry.

Or

(b) Explain the various types of fire extinguishers and its applications.

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**C-3394**

**Sub. Code**

**91036**

**B.Sc. DEGREE EXAMINATION**

**FIRE AND INDUSTRIAL SAFETY**

**APRIL 2021 EXAMINATION**

**&**

**APRIL 2020 ARREAR EXAMINATION**

**Third Year**

**ENVIRONMENTAL SAFETY AND HAZARDOUS WASTE  
MANAGEMENT**

**(2016 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write the objectives of national environmental policy.
2. Define EIA
3. Write the causes of air pollution
4. List out the industries that cause major water pollution problems
5. What is meant by eco labeling?
6. Write the element of charter.
7. Define hazard waste transportation.
8. What is called authorization?
9. List the merits of rain water harvesting.
10. Define particulate matter.

**Part B**

(5 × 5 = 25)

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

11. (a) Explain key environmental challenges in 2020.

Or

- (b) Write the procedures for environmental clearance.

12. (a) Define water pollution and explain classification of water pollution with suitable examples.

Or

- (b) Briefly explain about the NAAQS.

13. (a) Discuss about the corporate responsibilities for environmental protection.

Or

- (b) Describe ISO standards for environmental safety.

14. (a) Discuss briefly about biomedical wastes.

Or

- (b) Explain the methods of collection and disposal of municipal solid wastes.

15. (a) Write a brief note on noise pollution.

Or

- (b) Describe WHO guidelines for drinking water quality.

**Part C**

(3 × 10 = 30)

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

16. (a) Discuss the environmental standards and management systems.

Or

- (b) Explain the public liability insurance act and rules 1991.

17. (a) Describe the safety precautions standards in soap and detergent manufacturing process.

Or

(b) Explain the safe E-waste disposal strategies in detail.

18. (a) Discuss the vehicular emission control methods in detail.

Or

(b) Discuss the various HW rules in detail.

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