

C-0426

Sub. Code

30611

M.Sc. DEGREE EXAMINATION, APRIL 2019

First Semester

Health Safety Environment

SAFETY IN FACILITY DESIGN

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Define static electricity.
2. What do you mean by engineering control?
3. What are the types of fire hydrant system?
4. Define ETP.
5. What are the types of ventilation?
6. Define glaring and its types.
7. Name any four tackles used for lifting.
8. Name any four hand tools.
9. What are the types of cranes?
10. Define PPE. What are its types?

Part B (5 × 5 = 25)Answer **all** the questions.

11. (a) What are the hazards of electricity?
Or
(b) What are the hazards of chemical storage?
12. (a) Discuss about fire hydrant room design and layout.
Or
(b) Discuss about design and layout of food processing industry.
13. (a) Explain about housekeeping and 5 S.
Or
(b) What are the ventilation requirements of a chemical industry? Explain why.
14. (a) What are the hazards arising put of improper manual material handling?
Or
(b) Discuss about problems with storage of hazardous materials.
15. (a) Prepare an inspection checklist for forklift.
Or
(b) Explain about conveyor safety.

Part C (3 × 10 = 30)Answer **all** the questions.

16. (a) Explain in detail about design and layout for fireworks industry.
Or
(b) Explain how a waste treatment plant should be designed and why.

17. (a) List out the safety requirements to be followed while handling hand tools and power tools.

Or

- (b) Explain about safety requirements for a fireworks industry.

18. (a) Discuss about safety requirements for a nuclear power station.

Or

- (b) Prepare a HSE plan for rigging operation using cranes.

C-0427

Sub. Code

30612

M.Sc. DEGREE EXAMINATION, APRIL 2019

First Semester

Health Safety Environment

HUMAN FACTORS IN ENGINEERING

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Define ergonomics.
2. What is meant by WRULD?
3. Define accident.
4. Define motivation.
5. What is anthropometry?
6. What is meant by visual display unit?
7. What is repetitive work? Give one example.
8. What is meant by work related musculo skeletal disorder?
9. Define auditory display.
10. Define virtual environment.

Part B**(5 × 5 = 25)**Answer **all** the questions.

11. (a) Explain about history of ergonomics.
Or
(b) Explain about anatomy of spine and MSD in workplace.
12. (a) Discuss about factors contributing to personality.
Or
(b) Discuss about job enrichment theory.
13. (a) Explain about principles of applied anthropometry.
Or
(b) Explain about applications of anthropometry.
14. (a) Briefly explain about bio mechanics of manual handling.
Or
(b) Discuss about prevention of manual handling injuries in workplace.
15. (a) Explain about cognitive system.
Or
(b) Explain about principles for design of visual displays.

Part C**(3 × 10 = 30)**Answer **all** the questions.

16. (a) Explain about modern ergonomics.
Or
(b) Explain about management theories of motivation.

17. (a) Discuss about the applications of human factors engineering.

Or

- (b) Explain about MSD, WRULD, CTS, and HAVS.

18. (a) How to design visual controls & displays for better ergonomics?

Or

- (b) How to design the workstation for standing & sitting workers?
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C-0428

Sub. Code

30613

M.Sc. DEGREE EXAMINATION, APRIL 2019

First Semester

Health, Safety Environment

BASICS OF SAFETY ENGINEERING

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by JSA?
2. How to analysis the workers performance?
3. What are the types of audit?
4. What is the use of check list?
5. What is meant by safety committee?
6. What is the difference between UA and UC?
7. What is meant by frequency severity?
8. What is the difference between permanent total disabilities and permanent partial disabilities?
9. What is the use of induction training?
10. What are the types of training?

Part B

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the term “SAFETY POLICY”.

Or

- (b) How to increase the productivity with out compromise the safety?

12. (a) Design any one of the auditing check list.

Or

- (b) Write some unsafe act and unsafe condition.

13. (a) Explain the role of safety committee.

Or

- (b) What are the impacts occur in case of accident happen in the industry?

14. (a) Explain the following terms.

- (i) Temporary total disabilities
- (ii) Accident rate.

Or

- (b) Explain the ANSI (z16.1) recommended practices.

15. (a) Explain about safety posters.

Or

- (b) How to promote the safety to the workers?

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain about JSA.

Or

(b) What are the types of audit and also explain about each section?

17. (a) What are the types of accident and give some example of each one?

Or

(b) Briefly explain about domino sequence.

18. (a) How to communicate the safety to the worker?

Or

(b) Write some measures to encourage the worker.

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Sub. Code

30621

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Health Safety Environment

BEHAVIOUR BASED SAFETY

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What are the types of misbehaviors?
2. Define emotional intelligence.
3. Define organizational structure.
4. What is meant by interpersonal relationship?
5. Define BBS.
6. Define ergonomics.
7. Define safety culture.
8. What are the types of training related to OHS?
9. Define brainstorming.
10. Define perception.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain about effects of motivation on work behavior.

Or

- (b) Explain about factors influencing perception.

12. (a) Explain about organizational structure and also its importance in team building.

Or

- (b) Explain about interpersonal relations and communication.

13. (a) Explain about ABC model of behavior.

Or

- (b) How to address ergonomic hazards through behavior based observations?

14. (a) Explain about do's and don'ts at brainstorming session.

Or

- (b) What are the barriers to break through performance? Explain.

15. (a) Explain about behavior based recognition and celebration.

Or

- (b) Explain how to sustain employee's involvement in occupational safety.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail theories on emotional intelligence.

Or

- (b) Discuss about role of safety in improving behavior of workers.

17. (a) Explain about 7 lessons from behavior based safety to increase PPE usage.

Or

- (b) Explain about critical success factors.

18. (a) Discuss about 10 myths of BBS.

Or

- (b) Explain about safety culture, its importance and the ways to improve safety culture.

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30622

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Health Safety Environment

LEGAL ASPECTS OF HEALTH AND SAFETY

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Write the permissible working hours as per Factories Act 1948.
2. How many sections are available in Factories Act 1948?
3. How many chapters are available in BOCW Act 1996 and which chapter related to safety and health?
4. How much wages should be given for over time as mention in the BOCW Act 1996?
5. List out some legal requirement for environment protection.
6. What is meant by public liability insurance?
7. What is meant by E waste?
8. What is bio medical waste?
9. Write some dangerous machines.
10. What is meant by permissible noise level?

Part B

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the power of inspectors.
Or
(b) What are the qualifications for safety officer as per Indian Factories Act 1948?
12. (a) Explain about BOCW Act 1996.
Or
(b) Explain report to accidents in BOCW Act 1996.
13. (a) Write short notes about Water Act 1996.
Or
(b) Discuss in short about Environment Tribunal Act 1995.
14. (a) How to dispose E waste according to the act?
Or
(b) What is the importance of Batteries management and handling rules 2001?
15. (a) Write short notes about noise rules 2000.
Or
(b) List out the compensation details as per Workmen's Compensation Act 1923.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain in detail about precautions in case of fire as per Factories Act 1948.
Or
(b) Explain the duties and responsibilities of safety officer as per Factories Act 1948.

17. (a) Explain in detail about notice of accidents and dangerous machines.

Or

- (b) Explain in detail about Public Liability Insurance Act 1991.

18. (a) Explain the Indian Boilers Act 1923.

Or

- (b) What is meant by Form 14 in BOCW Act 1996 and explain it.
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Sub. Code

30623

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Health Safety Environment

ELECTRICAL SAFETY ENGINEERING

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by stored energy?
2. What is meant by CPR?
3. What is meant by spark?
4. What are the classifications of insulation?
5. Expand GFCI.
6. What is meant by OLR?
7. What is meant by LOTO?
8. What are the types of cable joints?
9. What are the classifications of temperatures?
10. What is the use of isolators?

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Explain the statutory requirements from electrical inspectorate.

Or

- (b) Explain the international standards on electrical safety.

12. (a) Explain heating effects of current.

Or

- (b) Write the types of earthing and specification.

13. (a) How to maintain the ground resistance?

Or

- (b) Explain GFCI.

14. (a) Explain self diagnostic features.

Or

- (b) Explain the earthing devices safety in the use of portable tools.

15. (a) Explain about equipment certifying agencies.

Or

- (b) Explain the classification of hazardous zones.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain about ELCB.

Or

(b) Explain about cabling and cable joints.

17. (a) Explain static electricity and its effects.

Or

(b) Explain about Indian electricity act.

18. (a) Explain LOTO procedure.

Or

(b) Explain the importance of PTW.

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Sub. Code

30624

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Health Safety Environment

CHEMICAL SAFETY ENGINEERING

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is meant by inherently safety design?
2. What are the types of chemical reactor?
3. What is leak testing?
4. What is meant by pipe line inspection?
5. What is PTW?
6. What is meant by trip systems?
7. Define confined space.
8. What is meant by APELL?
9. What is meant by toxic gases?
10. What is the difference between LPG and LNG?

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Explain reactor safety.
- Or
- (b) Explain Heat exchangers.
12. (a) Explain pre-commissioning documents.
- Or
- (b) Explain pre line inspection.
13. (a) Explain start up procedure.
- Or
- (b) Explain the operation of fired heaters.
14. (a) Explain purging.
- Or
- (b) Explain about tank cleaning system.
15. (a) Explain about flame arrestors.
- Or
- (b) Explain about any two storage system.

Part C**(3 × 10 = 30)**Answer **all** questions.

16. (a) Explain detail about LPG and LNG related hazards in the storage system.
- Or
- (b) Explain detail about Emergency planning.

17. (a) Explain detail about Exposure of personnel.

Or

(b) What are the types of testing conducted in plant commissioning?

18. (a) What will be happen at the time of pressure system failure?

Or

(b) Explain detail about Ammonia storage.

C-0433

Sub. Code

30625b

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Health Safety Environment

APPLIED INDUSTRIAL ERGONOMICS

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Ergonomics.
2. What is the importance of ergonomics?
3. Define Inspection.
4. List out the types of guarding.
5. What are the types of PPE?
6. Define incident.
7. What are the types of displays?
8. What are the various machine tools?
9. What are the hazards associated with work demands?
10. Name some safety devices in machines.

Part B

(5 × 5 = 25)

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

11. (a) What is the ergonomical consideration in personal protective equipment design?
Or
(b) What is the importance of training?
12. (a) Explain the importance of supervision.
Or
(b) Explain the fatigue and vigilance.
13. (a) Explain the personal risk factor.
Or
(b) Explain the principles of motion economy.
14. (a) Explain the types of PPE.
Or
(b) Explain the machine foundation.
15. (a) Explain the importance of machine layout.
Or
(b) Explain Inspection and Testing.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain in detail about the methods and movements at the workplace.
Or
(b) Explain in detail about the work platform and layout of electrical panels.

17. (a) Explain the following
- (i) Procurement
 - (ii) Storage
 - (iii) Inspection
 - (iv) Quality.

Or

- (b) Briefly explain the machine guarding.
18. (a) Explain the guidelines for safe design and postures.

Or

- (b) Explain the evaluation and methods of reducing posture strain.
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C-0434

Sub. Code

30631

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Health, Safety Environment

SAFETY IN CONSTRUCTION SECTOR

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Write some causes of accident in construction site.
2. Write some regulation followed in the construction.
3. What is meant by “Fatal Four”?
4. Write some hazards related to the excavation work.
5. What is meant by PFAS?
6. What are the types of ladder?
7. Write some construction machinery.
8. Write some portable electrical tools.
9. What are the types of demolition work?
10. What is meant by first aid?

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Explain about pre construction meeting.

Or

- (b) How the design factors involved in the safety?

12. (a) How to inspect the scaffolding in the construction site?

Or

- (b) What are health hazards related in the high rise building construction work?

13. (a) What is the difference between fall protection and fall prevention?

Or

- (b) What is the use of PTW?

14. (a) How to inspect the excavators in the construction site?

Or

- (b) Write some regulation followed for scaffolding.

15. (a) What are the precautions followed during demolition work?

Or

- (b) Explain about safe clearance zone.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain about how the human factors associated with the construction site accident.

Or

- (b) Explain about excavation and what are the hazards related to them.

17. (a) Briefly explain about PFAS.

Or

- (b) What are the hazards related in the earth moving equipments?

18. (a) Briefly explain about demolition work based health hazards.

Or

- (b) Briefly explain about BOCW ACT 1996.

C-0435

Sub. Code

30632

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Health Safety Environment

INDUSTRIAL SAFETY ENGINEERING

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Zero Mechanical State (ZMS).
2. What are the types of guarding?
3. List out the hazards in hot work.
4. What is flashback arrestor?
5. What is LPG?
6. What is CNG?
7. Define electroplating.
8. Define radiography.
9. What is hydro testing?
10. List out the physical and chemical properties of acetylene.

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Explain the safe location of chemical storage.

Or

- (b) Explain the welding process and its types.

12. (a) Explain the electroplating process.

Or

- (b) Explain dynamic balancing.

13. (a) What are the industrial gases and mention its colour coding?

Or

- (b) Explain the storage and handling of gas cylinders.

14. (a) Explain inspection and testing.

Or

- (b) Explain hydra testing.

15. (a) Explain the structure of OHSAS 18001.

Or

- (b) Explain continual improvement.

Part C**(3 × 10 = 30)**Answer **all** questions.

16. (a) Explain in detail about plant location and layout.

Or

- (b) Explain in detail about performance measurement and monitoring.

17. (a) Explain in detail about internal audit.

Or

(b) Explain the OHSAS certification process.

18. (a) Explain detail about the principles of machine guarding.

Or

(b) Discuss the occupational health and safety management systems specification and scope.

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Sub. Code

30633

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Health Safety Environment

DISASTER MANAGEMENT AND RESPONSE

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What are the types of manmade disaster?
2. What is mitigation?
3. What is technological disaster?
4. What is known as APELL?
5. What is global warming?
6. What is bio-diversity?
7. What is marine pollution?
8. Define nuclear waste.
9. What is ecology?
10. What is environmental protection?

Part B

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain the philosophy of disaster management.
Or
(b) Explain the forest related disaster.
12. (a) What are the emergencies and control measurements during disaster?
Or
(b) Explain OFFSITE emergencies plan.
13. (a) Explain atmospheric pollution.
Or
(b) Explain the ECO FRIENDLY products.
14. (a) Explain MARINE POLLUTION and control.
Or
(b) Explain extreme event analysis.
15. (a) Explain the environmental education system.
Or
(b) Explain forecasting and warning.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain in detail about DEFORESTATION.
Or
(b) Explain in detail about WIND AND WATER related disaster.

17. (a) Write short notes on
- (i) Explain emergency centers and their functions throughout the country
 - (ii) Explain monitoring devices for detection of gases in the atmosphere.

Or

- (b) Explain in detail about TOXIC, HAZARDOUS AND NUCLEAR WASTE.
18. (a) Briefly explain any one environmental protection law.

Or

- (b) Write short notes on
- (i) Natural resources conservation
 - (ii) Forecasting and warning.
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C-0437

Sub. Code

30634

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Health, Safety Environment

HAZARD ANALYSIS

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What do you mean by risk estimation?
2. Define safety audit.
3. What do you mean by HAZOP?
4. Define the term risk.
5. Expand FTA and ETA.
6. What are the types of fire?
7. What is BLEVE?
8. What do you mean by risk analysis?
9. What is thermo calorimetry?
10. Define the term ACARA.

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Explain the checklist analysis.
Or
(b) Explain the safety warning systems.
12. (a) Explain the applications of computer aided instruments.
Or
(b) Discuss about the logic symbols.
13. (a) Explain the effects of heat radiation.
Or
(b) Explain UVCE.
14. (a) Explain confined explosion.
Or
(b) Explain two phase release.
15. (a) Explain reaction system screening tool.
Or
(b) Explain minimum ignition energy test.

Part C**(3 × 10 = 30)**Answer **all** questions.

16. (a) Explain in detail about reaction system screening tool.
Or
(b) Explain fire explosion and toxicity index (FETI).

17. (a) Explain HIRA.

Or

(b) Explain Preliminary Hazard Analysis.

18. (a) Explain HAZOP.

Or

(b) Explain the reactor safety study of nuclear power plant.

C-0438

Sub. Code

30642

M.Sc. DEGREE EXAMINATION, APRIL 2019

Fourth Semester

Health Safety Environment

EHS MANAGEMENT STANDARDS

(2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What are the elements of OH&S management system?
2. Define ISO 14001.
3. What are the objectives of OHSAS 18001?
4. What are the benefits of OHSAS 18001 policy?
5. What is reactive monitoring?
6. What is PDCA cycle?
7. List out the steps involved in environmental audit.
8. What is the objective of ISO14001?
9. What are the types of EIA?
10. What are the stages of LCA?

Part B

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Discuss about the guidelines for implementing OHSAS 18001.

Or

- (b) Describe about the correspondence between OHSAS 18001 and ISO 14001:1996.

12. (a) Discuss about the methodology steps in developing action plan of OHSAS 18001.

Or

- (b) Discuss about the objective and targets of OHSAS 18001.

13. (a) Discuss about the performance measurement and monitoring system in OHSAS 18001.

Or

- (b) Describe about the structure and responsibilities of middle level management.

14. (a) Discuss about the specifications and objective of ISO 14001.

Or

- (b) Describe about the documentation requirements for ISO 14000.

15. (a) What are the rules for Eco-labeling before company for it?

Or

- (b) Describe about the methodology of EIA.

Part C

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Describe about the certification procedure for OHSAS 18001.

Or

- (b) Discuss about the content and developing of OH&S policy.
17. (a) Discuss about the records and records management and also handling of documentation in OHSAS 18001.

Or

- (b) Explain in detail about the ISO14001.
18. (a) Explain in detail about the ISO 14040.

Or

- (b) Discuss about the types of EIA and benefits of EIA.
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