



**M.E DEGREE EXAMINATIONS: NOV/DEC 2023**

(Regulation 2018)

First Semester.

**ENVIRONMENTAL ENGINEERING**

P18EEE0009: Occupational Health & Safety

**COURSE OUTCOMES**

**CO1:** Incorporate the health and safety systems by the legal code and practice

**CO2:** Categorize and monitor the health hazards and risks

**CO3:** Implement satisfactory and safe design of work premises

**CO4:** Assess the plant safety and control techniques

**CO5:** Train in Environmental health and safety management

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. **Assertion (A):** EHS (Environmental, Health, and Safety) is crucial because it safeguards human well-being and the planet. CO1 [K<sub>2</sub>]  
**Reason (R):** EHS Reduces workplace risks, enhancing employee morale and productivity  
a) Both A and R are Individually true, and R is the correct explanation of A      b) Both A and R are Individually true, but R is not the correct explanation of A  
c) A is false but R is true      d) A is true but R is false
2. The Ergonomics principle suggests that CO1 [K<sub>1</sub>]  
a) Monitoring displays should be placed outside peripheral limitations.      b) Glow-in-the-dark dials made of reflective substances are good for viewing in the nights  
c) Visual systems should be preferred over auditory systems in noisy locations      d) Audio systems should be preferred over Visual systems in noisy locations
3. Name the system used to identify the hazardous and toxic substances in the working area CO2 [K<sub>2</sub>]  
a) Clean water and hygiene system      b) Resource recovery system  
c) Pollution control system      d) Chemical Management system

4. Matching type item with multiple choice code

CO2 [K<sub>2</sub>]

List I	List II
A. Class A fire	1. Combustible Metals
B. Class B fire	2. Flammable Liquids & Gases
C. Class C fire	3. Electrical Fires
D. Class D Fire	4. Ordinary Combustibles

	A	B	C	D
a)	1	2	3	4
b)	4	3	2	1
c)	4	2	3	1
d)	3	2	1	4

5. **Assertion (A):** Personal Protective Equipment (PPE) should be selected based primarily on the hazards identified during the assessment. CO3 [K<sub>2</sub>]

**Reason (R):** PPE that fits well and is comfortable to wear will encourage employees to use it

- a) Both A and R are Individually true, and R is the correct explanation of A      b) Both A and R are Individually true, but R is not the correct explanation of A
- c) A is false but R is true      d) A is true but R is false

6. The process of extinguishing the fire by stopping the oxygen supply using blankets, sand, etc is called CO3 [K<sub>2</sub>]

- a) Arching      b) Smothering
- c) Starving      d) Cooling

7. In connection with wet floor safety find the correct statements CO4 [K<sub>2</sub>]

- Use mats with beveled edges in entrance areas with a backing material that will not slide.
- Display “Wet Floor” cones and signs to make people aware of the potential hazard.
- If there is liquid spillage, clean it up or decide it to be cleaned as soon as possible.
- Provision of the Audio facility to create the safe walk on wet floors

- a) 1,2,3, and 4      b) 1,2, and 3
- c) 1 and 2      d) 1 only

8. **Assertion (A):** Plant safety Inspection is the process of ensuring by the assessment that a facility reaches the necessary standard of quality or performance & that the level is maintained. CO4 [K<sub>2</sub>]

**Reason (R):** Plant safety aims are to identify potential hazards, confirm the existing safety measures are effective, ensure safety tools availability and to check safety protection devices functions

- a) Both A and R are Individually true, and R is the correct explanation of A      b) Both A and R are Individually true, but R is not the correct explanation of A
- c) A is false but R is true      d) A is true but R is false

9. At work places the loud noises are classified as CO5 [K<sub>2</sub>]
- a) Biological Hazard b) Physical Hazard
- c) Chemical Hazard d) Ergonomic Hazard
10. Arrange the the 4 components of OSHA standard as per order. CO5 [K<sub>2</sub>]
1. Management commitment and employee involvement,
  2. Worksite safety analysis,
  3. Hazard prevention and control,
  4. Safety and health training.
- a) 1-2-3-4 b) 2-4-3-1
- c) 4-3-2-1 d) 1-3-2-4

**PART B (10 x 2 = 20 Marks)**

11. What is the role of trade union in India? CO1 [K<sub>2</sub>]
12. Name the three E's" of workplace safety CO1 [K<sub>2</sub>]
13. List the four fundamental ways of noise control at workplace CO2 [K<sub>2</sub>]
14. Mention the causes for high stress at workplace CO2 [K<sub>2</sub>]
15. Give any four examples for Process Safety System CO3 [K<sub>2</sub>]
16. Why is good lighting important in the workplace? CO3 [K<sub>2</sub>]
17. Differentiate Onsite and Offsite Emergency Plans with an example CO4 [K<sub>2</sub>]
18. Mention the importance of accident investigation in an industry CO4 [K<sub>2</sub>]
19. State the OSHA requirements for employees in a workplace CO5 [K<sub>2</sub>]
20. What is capacity building in the workplace? CO5 [K<sub>2</sub>]

**PART C (10 x 5 = 50 Marks)**

21. Explain the five aspects ergonomics in workplace CO1 [K<sub>2</sub>]
22. What is ILO and explain its functions? CO1 [K<sub>2</sub>]
23. Describe the five categories of health hazard with suitable example CO2 [K<sub>2</sub>]
24. Darw a sketch and explain the hierarchy of risk control measures at workplace CO2 [K<sub>2</sub>]
25. Discuss the 5S concept of housekeeping in a workplace CO3 [K<sub>2</sub>]
26. Discuss the safety guidelines for working from heights CO3 [K<sub>2</sub>]
27. Explain the various techniques used to assess hazards and risks CO4 [K<sub>2</sub>]
28. Discuss the safety rules for hazard material handling and transportation CO4 [K<sub>2</sub>]
29. Describe the various measures of capacity building CO5 [K<sub>2</sub>]
30. Explain the PDCA Cycle in EHS Management CO5 [K<sub>2</sub>]

**Answer any TWO Questions**

**PART D (2 x 10 = 20 Marks)**

31. Discuss the importance Electrical, Fire and Process Control Safety in a workplace 10 CO2 [K<sub>2</sub>]
32. Write a brief note on the Occupational Safety and Health Administration (OSHA) Standards for Safety and Compliance 10 CO5 [K<sub>2</sub>]
33. Integrate the Sustainable Development Goals (SDGs) and workplace health and safety 10 CO1 [K<sub>2</sub>]

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