

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

**CLASS: MSc  
BRANCH: ENVIRONMENTAL SCIENCE AND MANAGEMENT**

**SEMESTER : III  
SESSION : MO/2025**

**SUBJECT: ES517 INDUSTRIAL HEALTH AND SAFETY**

**TIME: 3 Hours**

**FULL MARKS: 50**

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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|        |   | CO     | BL |
|--------|---|--------|----|
| Q.1(a) | Explain how concepts of hazard, risk, and disaster management have shaped modern safety practices and capacity building in industries.          | [5] 01 | 03 |
| Q.1(b) | Discuss the different types of hazards existing in industries and workplaces.   | [5] 01 | 02 |
| Q.2(a) | Explain the process of Hazard Identification and Risk Assessment (HIRA) in industries and diagrammatically illustrate the hierarchy of control. | [5] 02 | 03 |
| Q.2(b) | Write a note on on-site and off-site emergency planning.  | [5] 02 | 02 |
| Q.3(a) | Explain the major causes of industrial fires, and discuss the key fire prevention and protection systems.                                       | [5] 03 | 02 |
| Q.3(b) | Describe the health effects of noise and vibration  | [5] 03 | 02 |
| Q.4(a) | Briefly describe the evolution of OSHE in India and highlight key provisions of the OSHWC Code, 2020.   | [5] 04 | 03 |
| Q.4(b) | Explain the role of BIS, and OSHA in improving industrial safety and environmental management.  | [5] 04 | 03 |
| Q.5(a) | Discuss the main objectives and key provisions of the Environment (Protection) Act, 1986.   | [5] 05 | 02 |
| Q.5(b) | Describe the key safety, health, and welfare provisions for mine workers under the Mines Act, 1952.   | [5] 05 | 02 |

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