

National Exams May 2017
98-Ind-B10 - Industrial Safety and Health
3 hours duration

Notes:

1. If doubt exists as to the interpretation of any question, the candidate is urged to submit with the answer paper, a clear statement of any assumptions made.
2. This is a Closed Book exam. No calculators are allowed for this exam.
3. Any five questions constitute a complete paper. Only the first five questions as they appear in your answer book will be marked.
4. All questions are of equal value.
5. Write your answers in point-form whenever possible, but fully.

Marking Scheme (marks)

1. (i) 7, (ii) 7, (iii) 6
2. (i) 6, (ii) 7, (iii) 7
3. (i) 7, (ii) 7, (iii) 6
4. (i) 7, (ii) 7, (iii) 6
5. (i) 7, (ii) 6, (iii) 7
6. (i) 7, (ii) 7, (iii) 6
7. (i) 7, (ii) 7, (iii) 6

National Exams May 2017
98-Ind-B10 - Industrial Safety and Health

1. (i) Explain the emphasis placed by Occupational Health and Safety Act (OHSA) to deal with the new hazards in non-traditional sectors of industry that include service industries.
(ii) State the means by which workplace safety and health can be improved through information technology or electronic access to regulatory information and services.
(iii) What are the cooperative agreements the companies may establish with OHSA for maintaining safe and healthful employment to obtain exemption from certain formal inspections?
2. (i) State your understanding of the terms often used in accident control: (a) standard, (b) code, and (c) regulation.
(ii) What are the uses of standards, codes and regulations in product design?
(iii) What is the purpose of process safety management?
3. (i) Certain chemical agents are especially harmful to specific organs. Name the specific organs that are affected by such agents.
(ii) Explain the various types of damage caused by chemical agents to skin.
(iii) State the possible effects of toxic material on the operator.
4. (i) What are the responsibilities of facilities and equipment designers in providing safety measures for toxic materials?
(ii) How are the toxic agents detected? What are the typical industrial operations that require the use of respiratory protective equipment and protective clothing?
(iii) State the major types of respiratory protection equipment including their characteristics.
5. (i) Explain the role of process information, process analysis and operating procedures in providing process safety.
(ii) What are the basic ingredients of an effective training plan to ensure that the operators follow the operating procedure?
(iii) Explain the important hazardous chemical information needed for process safety analysis.
6. (i) State the features of an effective machine guard or safety device.
(ii) State the types of mechanical hazards in industry and the possible causes for such hazards.
(iii) What measures are taken to minimize mechanical hazards in industry?
7. A die setter and a co-worker had each rigged a chain around one end of a 5-ton die to move it by crane to a press line. The die setter did not double check his rigging. As he turned to walk away, his co-worker signaled the crane operator to take up the slack in the chain. The chain which the die setter had rigged was against the keeper pin instead of the die notch. The sudden pressure from the chain caused the keeper pin to shear off; it struck the die setter across the back of the head causing a fracture of his skull and knocking him unconscious.
(i) Determine the causes of the accident.
(ii) State the corrective actions required.
(iii) Suggest the follow-up action required.