

National Exams December 2014
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) 6, (iii) 7
7. (i) 6, (ii) 7, (iii) 7

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1.
 - (i) State the costs associated with Occupational Health and Safety Act (OHSA) and OHSA Standards that companies, especially the smaller ones, generally object to because they feel that such costs for improvement are not economically justifiable.
 - (ii) What is your understanding of the concept of “system safety”, while dealing with accident causation or avoidance?
 - (iii) State the new hazards in non-traditional sectors in industry that are emphasized by the OHSA Act.

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) Explain the manner by which engineering deficiencies can cause or contribute to accidents.
 - (ii) State the means by which accidents can be prevented in industry.
 - (iii) Describe the various safety features that can be installed in hand drills to prevent accidents.

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) Give some examples of hazard elimination and accident avoidance.
 - (ii) Explain the means by which hazard levels may be limited.
 - (iii) Explain your understanding of initiating and contributing hazards resulting in injury and damage of a pressurized steel tank.

7. A drill-press operator was drilling holes while wearing gloves in metal fasteners to be used in aircraft wing gas tank assemblies. She then attempted to make a tool change while the machine was operating at a slow speed. While she was doing so, the glove on her right hand caught on the revolving drill and caused an amputation of the middle finger on her right hand.
 - (i) Determine the cause of the accident.
 - (ii) State the corrective actions required.
 - (iii) Suggest the follow-up action required.