

National Exams May 2009
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.

Front Page

Marking Scheme (marks)

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

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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 the basic purpose of a fault-tree analysis (FTA). Show the logic codes/basic gate symbols used in fault-tree diagrams.
(ii) Explain the analytical approach used in dealing with industrial hazards.
(iii) What is the purpose of job safety analysis? State the steps followed in conducting a job safety analysis.
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) State the various types of air contaminants. What are the basic approaches to measuring air contaminant exposure?
(ii) Define hypoxic hypoxia. What are the causes of hypoxic hypoxia?
(iii) What are the properties of the various chemicals used as air purifiers in canisters?
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 means by which damage resulting from a hazard can be minimized and controlled.
(ii) What are the order of preferences that should be followed as general principles for eliminating and controlling hazards in industry?
(iii) State the common precautionary measures that must be followed in the operation of all mechanical equipment.

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.