

National Exams May 2008
98-CS-2-Engineering in Society - Health, Safety and the Environment
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

National Exams May 2008
98-CS-2-Engineering in Society - Health, Safety and the Environment

- 1 (i) State the responsibilities of employers and employees under the Occupational Health and Safety Act (OHSA)
(ii) What factors or aspects are considered in performing economic analyses of safety and of actual or potential losses?
(iii) 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
- 2 (i) Explain the manner by which engineering design deficiencies can contribute to other causes of accidents
(ii) State the order of preference that should be followed as general principles for eliminating and controlling hazards in industry
(iii) What are the various safety features that can be installed in hand drills to prevent accidents?
- 3 (i) What is the purpose of monitoring devices? State the manner by which monitors are employed for surveillance of equipment or process
(ii) State the purpose of warning means and devices What are the various human senses used as warning devices?
(iii) What are the means by which damage resulting from an accident can be minimized and contained?
- 4 (i) What are the most dangerous industries from a fire hazard standpoint? State the best way to deal with fires
(ii) Explain the characteristics of fire extinguishing systems
(iii) What are the possible effects of fire hazards?
- 5 (i) What is hypoxia? What are the effects of hypoxia on people?
(ii) Explain the major types of respiratory protective equipment
(iii) State the characteristics of the various chemicals used as air purifiers in canisters
- 6 (i) What are the adverse effects of vibration and noise?
(ii) Explain the use of good engineering measures that are used to reduce noise levels in industry
(iii) What are the effects of vibration and noise on personnel, equipment and operation?
- 7 An employee in a foundry was using an over-head wall-mounted electrically controlled crane to move a heavy casting from one position to another at his workstation The casting weighed approximately 3,000 pounds While he was moving the casting, it fell, causing the hoist cables to snap and strike the employee a glancing blow to his head Fortunately, he was wearing protective head gear, or the blow could have been fatal when the hoist eyebolt assembly failed
(i) Determine the causes of the accident
(ii) State the corrective actions required
(iii) Suggest the follow-up action required

National Examination May 2008
98-CS-2-Engineering in Society - Health, Safety and the Environment

Marking Scheme (marks)

1	(i) 6,	(ii) 6,	(iii) 8
2	(i) 7,	(ii) 6,	(iii) 7
3	(i) 7,	(ii) 7,	(iii) 6
4	(i) 6,	(ii) 7,	(iii) 7
5	(i) 6,	(ii) 7,	(iii) 7
6	(i) 6,	(ii) 7,	(iii) 7
7	(i) 6,	(ii) 8,	(iii) 6