



International Diploma in Occupational Safety and Health

Unit 1 Examination

Principles of Health and Safety Management

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until the invigilator tells you to do so.

You are allowed **THREE HOURS** to complete this examination.

There are two sections to this paper.

Section A has one question worth a total of 20 marks.

You are advised to spend no more than **ONE HOUR** on Section A.

Section B has eight questions each worth 10 marks (total 80 marks).

You are advised to spend no more than **TWO HOURS** on Section B.

Answer ALL questions. The questions may be answered in any order.

Marks for part questions are shown in square brackets.

Your answers should include reference to examples from the workplace wherever appropriate.

Write your answers in the answer booklet provided using a black or blue pen.

You may make notes on this question paper, in the resource booklet, in the answer booklet or on separate sheets of paper, but any notes you make must be handed in at the end of the examination.

Scenario

Your company undertakes a range of steel fabrication activities. It supplies a range of mild steel and stainless steel fabricated products to the construction and petro-chemical sectors.

Processes undertaken by the company include the following:

- Mild and stainless steel welding (see Figure 1a)
- Mild and stainless steel grinding (see Figure 1b)
- Shot blasting of steel products
- Range of machining of finished articles

The work is carried out in a large, open designed fabrication shop with good natural ventilation. There are overhead cranes and other mechanical aids to lift and move product.

The company employs 50 staff working a standard 48 hour weekly shift pattern.

The quality of the product is high. However, there has been an increase in the instances of poor health and safety practice, leading to a significant risk in accidents and near misses.

Poor practices identified during a recent health and safety audit included the following:

- Poor housekeeping and accumulation of waste product
- Operators failing to use correct personal protective equipment
- Fork lift trucks being overloaded (leading to damage of product and near misses)
- Operators complaining of hearing problems
- Excessive accumulation of fume in the fabrication shop
- Extraction system filters being blocked
- Operators complaining of a loss of feeling in their fingers
- An increase rate of slip, trip and fall accidents
- An increase in first aid injuries
- Failing to undertake and induction and other training in the last 12 months

It appears that a group of welders and grinders are experiencing the most problems at the company - this is based on their higher rate of accidents and the ill-health conditions being recorded.

You have been recently appointed to take a lead in improving all health and safety standards at the company with particular responsibility for addressing the health and safety of the welders and grinders.



Figure 1a



Figure 1b

SECTION A

Question 1 (Refer to the Scenario)

1. (a) **Outline** the main hazards associated with welding and grinding that could be encountered at this company. [4]
- (b) **Describe** and **justify** suitable controls to prevent and minimise the health and safety risks associated with welding and grinding activities. [6]
- (c) **Describe** the steps you would take in developing a management action plan based on the current and future risks at this company. This should focus on the risks associated with welding and grinding activities but the plan should also include the wider health and safety issues relevant to this company. Your plan should include clear recommendations, priorities and timescales. [10]

SECTION B

2. (a) **Outline** the main areas to consider when implementing an accident prevention strategy suitable for a large multi-national petro-chemical company. [10]
3. OHSAS 18001:2007 is based on the methodology known as Plan-Do-Check-Act (PDCA). [10]
Outline how each of these elements can contribute to continual improvement in health & safety performance.
4. (a) **Explain** the advantages and disadvantages of using **qualitative** evaluation techniques when undertaking risk assessments. [3]
- (b) **Explain** the advantages and disadvantages of using **quantitative** evaluation techniques when undertaking risk assessments. [3]
- (c) **Explain** with the use of relevant examples when dynamic risk assessments are commonly used. (4)
5. A large construction project has recorded an accident frequency rate much worse than the industry benchmark for the sector. The majority of the accidents involved sub-contractors.
Explain how an 'End of contract review' could assist in improving the health and safety performance on future projects. [10]

<p>4.Fire and Explosion</p> <ul style="list-style-type: none"> • There is an urgent need to provide separate well ventilated area for storage of gas cylinder, oil and diesel. • Acetylene cylinder and oxygen cylinder stored in a separately. • Required adequate safety signage at store area. • Required adequate fire extinguisher and fire buckets (2 no's 10 kg DCP and 9 kg CO2) (2 Set fire buckets). • Poor electrical installation should be replaced at store. • Provision of fire dictator and fire alarm in newly constructing gas cylinder and oil, diesel storage room. • IITS. 	<p>Construction materials all are available at site .Two masons with helper will complete this work within 5 days. After constructing storage two workers can allocated this.</p> <p>New signage,04 pounds and it can fit by one worker within one hours.</p> <p>New fire extinguishers, 150 pounds, easy to install by a two workers.</p> <p>It can do by maintenance electricians, Double insulated core cable and other fittings available at store only.</p> <p>As soon as possible</p> <p>IITS can be implemented in little cost</p>	<p>H</p>	<p>07/05/2015</p>
<p>5.Housekeeping</p> <ul style="list-style-type: none"> • Required cleaning work at store. And want to be removed all un wanted materials. • Identification and place should be designating for material s stacking at site. • To be removed obstructing materials in the emergency exit at office. • Required 5 no's material stacking rack at store. 	<p>No additional cost for cleaning work, it can do one day by 4 unskilled workers.</p> <p>Signage for identification marking ,10 pounds Segregation of materials can do one day by 10 unskilled workers.</p> <p>Half day work for one person. 250 pounds maximum for 5 no's rack</p>	<p>M</p>	<p>10/05/2015</p>

6. (a) Outline the types of personal protective equipment (PPE) used for the protection of: [3]
i. Hearing [3]
ii. Respiratory
- (b) Outline why it is important to assess the compatibility of PPE when selecting and using more than one type at any one time. [4]
7. Explain what constitutes competence in the context of the roles performed by employees and supervisors. [10]
8. (a) Explain the essential features of fire propagation. [4]
(b) Using a large modern office facility as an example, explain the essential elements [6]
9. (a) Outline the main hazards associated with mechanical handling and lifting operations and explain how they may cause harm. [4]
(b) Outline how the safety risks associated with the use of fork-lift trucks can be effectively managed. [6]