

Unit B: Hazardous agents in the workplace

WEDNESDAY 16 JANUARY 2013
3 hours, 0930 to 1230

10 minutes reading time is allowed before the start of this examination. You may not write anything during this period.

Answer both Section A and Section B

SECTION A

This section contains six questions. Answer **ALL SIX** questions.

All questions carry equal marks.

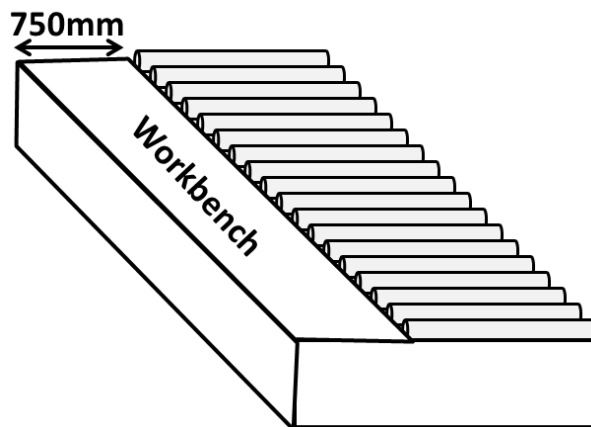
The maximum marks for each question, or part of a question, are shown in brackets.

You are advised to spend about **15 minutes** on each question.

Start each answer on a new page.

- 1 The Health and Safety Executive's (HSE) Stress Management standards include the following categories:
- (a) demands; (4)
 - (b) support; (2)
 - (c) relationships. (4)
- For **EACH** of these categories, **outline** the occupational factors that could contribute to stress amongst call centre workers **AND give** examples where relevant to illustrate your answer.
- 2 **Outline** the factors an employer should take into account when determining the provision of first-aid arrangements in the workplace. (10)
- 3 (a) The risk of contracting leptospirosis is a concern to windsurfers at a local water sports centre.
- (i) **Outline** the ill-health effects associated with this disease. (2)
 - (ii) **Outline** why windsurfers might be at risk. (2)
- (b) **Outline** the practical steps that the windsurfers can take to minimise the risk of contracting leptospirosis. (6)

- 4 An employee on a production line is required to stand in *front* of his workbench, which is 750mm deep and set at waist height. The employee must frequently lift a 20kg item of equipment from his workbench onto an unpowered roller conveyor which is *behind* it. The conveyor is set slightly higher than the workbench (see diagram).



- (a) **Explain** why the current method of working is not acceptable. (4)
- (b) **Outline** practical measures that might be considered in order to reduce the ergonomic-related risk to the employee. (6)

- 5 The Control of Lead at Work Regulations 2002 (CLAW) require that, where the exposure to lead of any employee is, or is likely to be '*significant*', the employer must ensure that the employee is under medical surveillance by a relevant doctor.

- (a) **Outline** the meaning of the term '*significant*' in relation to exposure to lead. (2)
- (b) In an organisation that manufactures lead-acid batteries, some of the employees handle lead oxide powder. These employees take part in biological monitoring to measure their lead-in-blood concentration. The results for two *general male employees*, X and Y, are shown in the table below.

Male employee	Lead-in-blood concentration($\mu\text{g/dl}$)
X	55
Y	65

- (i) **Explain** the relevance of the results for the two *general male employees*, with reference to CLAW. (4)
- (ii) Taking into account these results, **outline** the actions the employer should take in relation to *general male employee Y* in order to comply with the requirements of CLAW. (4)

- 6 An employer requests one of their maintenance workers to fit a new shelf, which involves drilling through some textured asbestos coating. It is estimated the task will take about 1 hour. The employer has determined that this task is classed as 'non-licensed' work under the Control of Asbestos Regulations 2012.
- (a) **Identify** the reasons why the employer has determined this task is classed as 'non-licensed'. (2)
- (b) The maintenance worker has been requested to follow the good practice set out by the Health and Safety Executive's (HSE) Asbestos Essentials Guidance.
- Outline** the procedure the maintenance worker should follow to carry out this work safely. (8)
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SECTION B

This section contains five questions. Answer **THREE** questions only.

All questions carry equal marks.

The maximum marks for each question, or part of a question, are shown in brackets.

You are advised to spend about **30 minutes** on each question.

Start each answer on a new page.

- 7 A catalogue distribution company has a workforce of 300, employed as drivers, warehouse operatives and office staff, processing telephone and internet orders.
- (a) **Identify** the possible functions of the distribution company's occupational health department:
- (i) when new employees commence employment; (5)
- (ii) when an employee returns to work after ill-health. (5)
- (b) **Outline** additional functions the occupational health department can undertake. (10)
- 8 (a) **Outline** the advantages and disadvantages of using animal testing as a model to predict the effects of hazardous substances on humans. (6)
- (b) A principle of the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) legislation, is that the testing of hazardous substances on animals should be done as a last resort only.
- Outline** how each of the following methods can be used to provide data on the effects of hazardous substances on humans without undertaking animal testing:
- (i) in vitro testing; (3)
- (ii) read-across; (3)
- (iii) Quantitative Structure Activity Relationship (QSAR). (2)
- (c) A UK company manufactures 3 tonnes/year of a new hazardous substance for sale within the European Union.
- Outline** the steps the company must take in order to comply with the requirements of the REACH legislation. (6)
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- 9 There are a number of methods available to determine noise attenuation offered by hearing protection.

An employer has selected hearing protection using the single number rating (SNR) method and information below.

Sound pressure level	91dB(C)
Single number rating (SNR) for selected hearing protection	29

- (a) **Explain** how to determine a realistic estimate of the A-weighted sound pressure level entering the ear of the operators wearing this hearing protection. (4)
- (b) **Explain** if the attenuation provided by this hearing protection is appropriate. (2)
- (c) **Identify TWO** other methods that could be used to determine if the hearing protection selected provides appropriate attenuation. (2)
- (d) For **EACH** of the methods identified in part (c), **outline** the data required in order to be able to calculate the attenuation provided by this hearing protection. (4)
- (e) Other than noise attenuation, **outline** factors the employer should consider when selecting hearing protection. (8)

- 10 You have been sent a copy of a local exhaust ventilation (LEV) examination and test report conducted by an external organisation. The report relates to an LEV system in one part of your company's production area. The production manager has asked you to comment on the suitability of this report before the company commissions further LEV examination and testing work throughout the rest of the factory.

- (a) **Outline** the measurements that you would expect to have been taken as part of the examination and testing of the LEV system. (4)
- (b) In addition to these measurements, **outline** other information that should be contained in the report. (16)

- 11 (a) The Ionising Radiations Regulations 1999 require an employer handling radioactive materials to appoint a radiation protection supervisor.
- Outline** the factors the employer should consider when deciding on this appointment. (7)
- (b) An employer can also be required to designate some employees working with radioactive materials as a 'classified person'.
- Outline** the circumstances that can result in this designation being necessary. (3)
- (c) For those employees designated as a 'classified person' the employer is required to assess their exposure to all ionising radiation. The employer can use film badges to make this assessment.
- (i) **Outline** the legal requirements relevant to making this assessment. (5)
- (ii) **Outline** how this assessment can be carried out using film badges. (5)