



Unit B: Hazardous agents in the workplace

WEDNESDAY 6 JULY 2011
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** A catalogue distribution company employs 300 employees as drivers, warehouse operatives and office staff, processing telephone and internet orders.

Identify the possible functions of *this* company's occupational health department:

- (a) when new employees commence employment; (5)
- (b) when an employee returns to work after ill-health. (5)

- 2** A company producing pre-prepared pasta dishes requires operatives to pick up small pasta pieces from a delivery conveyor and transfer them to foil trays on a separate conveyor. This work is carried out standing in front of the conveyors on an 8 hour shift basis.

Following complaints from a number of employees about pains in their arms and shoulders you have been asked to undertake an ergonomic risk assessment for this operation and make recommendations.

- (a) **Identify** the ergonomic risk factors to be taken into account when making such an assessment **AND outline** how these may be contributing to the problems experienced by the employees in this situation. (5)
- (b) Total automation of the process is not possible. **Outline** other control measures that could be taken to reduce the ill-health effects being experienced by employees. (5)

- 3 (a) **Explain** the meaning of the term '*carcinogen*'. (2)
- (b) **Outline** the role of Workplace Exposure Limits (WELs) when deciding if exposure to a carcinogen is ~~adequately controlled~~for the purposes of the Control of Substances Hazardous to Health (COSHH) Regulations 2002. (2)
- (c) Under COSHH exposure to substances hazardous to health (including carcinogens) shall only be treated as adequate if the ~~principles of good practice~~are applied. (6)
- Outline SIX** of these principles. (6)
- 4 (a) **Give** the meaning of the term '*biological monitoring*'. (2)
- (b) **Outline** the circumstances in which biological monitoring may be appropriate. (4)
- (c) **Outline** the practical difficulties that an employer must take into account when introducing a programme of biological monitoring. (4)
- 5 Drivers of tracked earth moving machinery at a large construction site have reported incidences of back pain which they believe are caused by exposure to whole body vibration.
- (a) **Outline** a range of control measures that could be used to minimise the risk of the drivers experiencing back pain caused by exposure to whole body vibration. (7)
- (b) **Outline THREE** other possible work-related causes of the back pain being experienced by these drivers. (3)
- 6 A housing association employs 20 housing officers. They regularly visit a range of rented properties to interview existing tenants and to show prospective tenants around vacant properties.
- Outline** a set of practical guidelines that the housing officers can follow in order to minimise their risks from violence and aggression whilst undertaking these work activities. (10)

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 large livestock farm employs a number of people who are involved in caring for animals, cleaning out animal enclosures and disposing of waste materials.
- The farm manager has identified that during such work employees may be exposed to zoonoses.
- (a) **Give** the meaning of the term 'zoonose'. (2)
- (b) Cryptosporidiosis and Leptospirosis are two commonly occurring zoonoses.
- Outline** how and when the farm employees are likely to be exposed to **EACH** of these. (6)
- (c) **Outline** a range of practical control measures that should be used to minimise the risks associated with exposure to zoonoses. (10)
- (d) **Identify TWO** other zoonoses that employees working on the farm could be exposed to. (2)
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- 8** A large manufacturer uses hydrochloric acid in a large open tank to remove rust from sheet steel. This creates acid mist in the immediate work area and the company has decided to install a local exhaust ventilation (LEV) system. This system consists of an inlet, ducting, air cleaner, air mover and exhaust.
- (a) For **EACH** of the components listed above **outline** the design features required for the LEV system to be effective. (10)
- (b) **Explain** the requirements of the Control of Substances Hazardous to Health (COSHH) Regulations 2002 for inspection and testing of the LEV system. (3)
- (c) The LEV system breaks down and will take a number of weeks to repair. In the meantime the employees will need to use respiratory protective equipment (RPE) to control their exposure to the acid mist.
- Outline** factors to be considered when selecting the RPE to protect the employees whilst engineers are repairing the LEV system. (7)

- 9 (a) **Identify BOTH** the acute **AND** chronic effects that could result from exposure to ultra-violet (UV) radiation. (4)
- (b) A leisure spa is planning to install UV tanning equipment. The equipment uses UV sources with a higher intensity than normal sunlight in order to accelerate tanning.
- Outline** control measures that should be put in place for **BOTH** employees **AND** customers for the safe operation of this facility. (16)
- 10 (a) **Describe** the ways the body may defend itself against inhaled dusts. (12)
- (b) A company uses a substance in the form of a powder, which is added directly to a mixing vessel from sacks, during the manufacture of paints.
- Outline** the practical control measures that could be used to minimise exposure during the addition. (8)
- 11 A small printing company operates a number of printing machines which are located in an open plan workshop. Following a noise survey the company discovers that their employees are being exposed to noise levels of 86dB(A) $L_{EP,d}$.
- (a) **Outline** the significance of this noise level to an employer. (5)
- (b) **Describe** the range of technical **AND** organisational control measures that could be introduced. (15)