



Unit B: Hazardous agents in the workplace

WEDNESDAY 4 JULY 2012
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) **Outline** the meaning of the term '*vocational rehabilitation*'. (2)
- (b) **Outline** the benefits of vocational rehabilitation to the employer. (5)
- (c) **Identify THREE** health care practitioners who may be involved in the vocational rehabilitation of an employee. (3)

- 2 Employees can be exposed to corrosive substances.

- (a) **Give** the meaning of the term '*corrosive*'. (2)
- (b) The data below, for three forms of the same product, is taken from a supplier's catalogue.

Using the data **outline** the likely *routes of entry* **AND** *effects* of exposure when handling **EACH** of these products. (8)

Product code	Chemical name/formula	Concentration	Physical form
C1	Sodium Hydroxide (NaOH)	99.9%	Pellets
C2	Sodium Hydroxide (NaOH)	97%	Powder
C3	Sodium Hydroxide (NaOH)	50% in water	Liquid

- 3 (a) **Outline** the source **AND** symptoms of meticillin-resistant *Staphylococcus aureus* (MRSA). (4)
- (b) **Outline** control measures that can be used to minimise the risks from MRSA in a hospital environment. (6)
- 4 A Local Exhaust Ventilation (LEV) system is used to reduce exposure of workers to dust in a workplace.
- (a) **Identify THREE** visual inspection methods that could be used to give a simple *qualitative* assessment of the effectiveness of the LEV system. (3)
- (b) Transport velocity is one of the *quantitative* measurements undertaken to assess the performance of the LEV system.
- (i) **Outline** why transport velocity is an important parameter to measure when assessing the effectiveness of the LEV system. (2)
- (ii) **Outline** the methods that can be used to measure transport velocity in a LEV system. (5)
- 5 Display lasers are used in a night club.
- Outline** the control measures that should be put in place to minimise the risks to people in the night club from the display lasers. (10)
- 6 Stonemasons cutting and finishing stone are exposed to silica dust.
- Outline** factors to be considered when undertaking a suitable and sufficient assessment of the risks from exposure to silica dust. (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 The Workplace (Health, Safety and Welfare) Regulations 1992 require every workplace to have suitable and sufficient lighting.
- Outline** factors that should be considered when providing suitable and sufficient workplace lighting. (20)

- 8 (a) The Control of Vibration at Work Regulations 2005 set exposure values.

Give the meaning of the terms:

- (i) Exposure Limit Value (ELV); (2)
(ii) Exposure Action Value (EAV). (2)

- (b) A building contractor has been asked to remove a large area of concrete paving using a hand-held concrete breaker. The concrete breaker has a vibration magnitude of 10m/s^2 . The site manager estimates it will take approximately 4 hours for one worker to complete this task.

Using the information above and the Health and Safety Executive 'Vibration calculator' below, **explain** a range of practical steps the site manager could consider when determining how to complete this task with the *existing equipment* to comply with the Control of Vibration at Work Regulations 2005.

(10)

Vibration magnitude m/s^2	40	800									
	30	450	900								
	25	315	625	1250							
	20	200	400	800							
	19	180	360	720	1450						
	18	160	325	650	1300						
	17	145	290	580	1150						
	16	130	255	510	1000						
	15	115	225	450	900	1350					
	14	98	195	390	785	1200					
	13	85	170	340	675	1000	1350				
	12	72	145	290	575	865	1150	1450			
	11	61	120	240	485	725	970	1200	1450		
	10	50	100	200	400	600	800	1000	1200		
	9	41	81	160	325	485	650	810	970	1300	
	8	32	64	130	255	385	510	640	770	1000	1200
	7	25	49	98	195	295	390	490	590	785	865
	6	18	36	72	145	215	290	360	430	575	720
	5.5	15	30	61	120	180	240	305	365	485	605
	5	13	25	50	100	150	200	250	300	400	500
	4.5	10	20	41	81	120	160	205	245	325	405
	4	8	16	32	64	96	130	160	190	255	320
	3.5	6	12	25	49	74	98	125	145	195	245
	3	5	9	18	36	54	72	90	110	145	180
	2.5	3	6	13	25	38	50	63	75	100	125
	2	2	4	8	16	24	32	40	48	64	80
	1.5	1	2	5	9	14	18	23	27	36	45
	1	1	1	2	4	6	8	10	12	16	20
		15 mins	30 mins	1 hour	2 hours	3 hours	4 hours	5 hours	6 hours	8 hours	10 hours
Daily exposure time											

- (c) **Outline** *other* control measures that the site manager could put in place for similar work in the future.

(6)

- 9 Employees working in a busy 24 hour Accident and Emergency Department of a city centre hospital are exposed to the risk of workplace violence and aggression.
- (a) **Outline** factors that will increase the likelihood of these employees experiencing workplace violence and aggression. (6)
 - (b) **Outline** a range of practical controls that the hospital could introduce to minimise the risks to these employees from workplace violence and aggression. (10)
 - (c) A nurse is violently attacked by a relative of a patient they are treating and acts to defend herself.
- Explain** the legal criteria that would be considered when deciding if the nurse had acted within the law in these circumstances. (4)
- 10 A parcel sorting depot is experiencing a high number of manual handling related injuries. The employees handle a large number of different parcels and packages each day.
- (a) **Identify** the different types of hazard that may be inherent in the loads being handled. (6)
 - (b) In order to reduce the level of manual handling required, the employer has decided to invest in a range of non-powered handling devices such as trolleys and trucks.
- Outline** factors the employer should consider when *selecting* suitable devices. (10)
- (c) **Outline** a range of additional control measures that could be introduced to minimise the risks associated with these manual handling activities. (4)
- 11 A manufacturing process involves the use of a solvent which has a Workplace Exposure Limit (WEL).
- (a) **Explain** what is meant by the term WEL and how it relates to the term “adequate control” as defined in the Control of Substances Hazardous to Health (COSHH) Regulations 2002. (5)
 - (b) **Outline** a range of methods and equipment that could be used to measure the personal exposure of the process workers to this solvent. (7)
 - (c) Exposure of the process workers to this solvent is controlled by local exhaust ventilation (LEV) and personal protective equipment (PPE). The LEV system is regularly inspected and is subject to thorough examination and testing on an annual basis.
- Using results from personal exposure measurements and information relating to the control measures in use, **outline** how you could determine if the process workers’ exposure to this solvent is adequately controlled. (8)