
Examiners' Report

NEBOSH NATIONAL DIPLOMA IN OCCUPATIONAL HEALTH AND SAFETY

UNIT B: HAZARDOUS AGENTS IN THE WORKPLACE

JANUARY 2018



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Introduction

NEBOSH (The National Examination Board in Occupational Safety and Health) was formed in 1979 as an independent examining board and awarding body with charitable status. We offer a comprehensive range of globally-recognised, vocationally-related qualifications designed to meet the health, safety, environmental and risk management needs of all places of work in both the private and public sectors.

Courses leading to NEBOSH qualifications attract around 50,000 candidates annually and are offered by over 600 course providers, with examinations taken in over 120 countries around the world. Our qualifications are recognised by the relevant professional membership bodies including the Institution of Occupational Safety and Health (IOSH) and the International Institute of Risk and Safety Management (IIRSM).

NEBOSH is an awarding body that applies best practice setting, assessment and marking and applies to Scottish Qualifications Authority (SQA) Accreditation regulatory requirements.

This report provides guidance for candidates and course providers for use in preparation for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content and the application of assessment criteria.

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General comments

Many candidates are well prepared for this unit assessment and provide comprehensive and relevant answers in response to the demands of the question paper. This includes the ability to demonstrate understanding of knowledge by applying it to workplace situations.

There are other candidates, however, who appear to be unprepared for the unit assessment and who show both a lack of knowledge of the syllabus content and a lack of understanding of how key concepts should be applied to workplace situations, which is an essential requirement at Diploma level.

This report has been prepared to provide feedback on the standard date examination sitting in January 2018.

Feedback is presented in these key areas: responses to questions, examination technique and command words and is designed to assist candidates and course providers prepare for future assessments in this unit.

Candidates and course providers will also benefit from use of the 'Guide to the NEBOSH National Diploma in Occupational Health and Safety' which is available via the NEBOSH website. In particular, the guide sets out in detail the syllabus content for Unit B and tutor reference documents for each Element.

Additional guidance on command words is provided in 'Guidance on command words used in learning outcomes and question papers' which is also available via the NEBOSH website.

Candidates and course providers should also make reference to the Unit B 'Example question paper and Examiners' feedback on expected answers' which provides example questions and details Examiners' expectations and typical areas of underperformance.

Unit B

Hazardous agents in the workplace

Question 1 **Outline** what an employer should consider when carrying out an assessment to determine the first-aid provision needed in the workplace. **(10)**

This question assessed candidates' knowledge and understanding of learning outcome 10.4: Explain the requirements and provision for first aid in the workplace.

The question required candidates to think about what an employer should consider when determining the first aid provision needed in a workplace. The HSE require employers to take a risk assessment-based approach rather than rigidly specifying fixed numbers of trained individuals. Therefore those candidates who wrote at length about numbers of first aiders, emergency first aiders or appointed persons that were required for a particular size of workforce did not gain marks.

Relevant considerations include the numbers of employees, shift patterns and closeness to medical facilities or hospitals with accident and emergency departments. Some candidates recognised the importance of the nature and degree of hazards present in the workplace and the possible requirement for specialist training for first aid personnel. For example, if employees are exposed to certain hazardous substances. Few candidates mentioned consideration of employees who travel or those who work remotely.

Some candidates wasted time writing in detail about first-aid box contents and first-aid rooms arrangements and did not gain marks for this.

Course providers should direct candidates to the first-aid needs assessment in the HSE document L74. This is one of the documents listed as a relevant reference in the syllabus.

The performance on this question was reasonable with an average mark above half marks.

Question 2 (a) **Give** the meaning of the term '*occupational health*'. **(2)**

A large organisation is outsourcing its occupational health service to a contractor. It has been advised to choose a contractor that carries the SEQOHS logo.

(b) (i) **Identify** what SEQOHS stands for. **(1)**

(ii) **Outline** how SEQOHS operates. **(5)**

(c) **Outline TWO** benefits to an *employee* of having access to an occupational health service at work. **(2)**

This question assessed candidates' knowledge and understanding of learning outcomes 1.1: Outline the nature of occupational health; and 1.3: Outline the management of occupational health (including the practical and legal aspects).

More specifically, in this question: 'The meaning of occupational health'; benefits of occupational health services; 'The importance of auditing against standards in occupational health provision with specific reference to SEQOHS'.

The overall performance on this question was limited and the average mark was around a quarter of the ten marks available. It appeared that few candidates had any knowledge or understanding of SEQOHS. Course providers should check that their training materials make adequate reference to this accreditation scheme. SEQOHS stands for Safe, Effective, Quality Occupational Health. Sufficient detail about this can be found on the SEQOHS website. <https://www.seqohs.org>. This link is provided in the list of references given in the syllabus.

As many practitioners will be involved in procuring occupational health services from external providers it is important they have an understanding of what constitutes a safe, effective and quality assured occupational health provider.

In part (a) many candidates were unable to give a basic definition of occupational health and instead wrote about a range of possible services an occupational health department could provide. Some candidates used this same approach in answer to part (c). However, part (c) asked for two benefits to **employees**.

Some candidates did recognise that benefits are to identify early signs of ill-health issues and to assure the employee that they have a caring employer. Few candidates outlined other benefits to employees such as providing an opportunity to raise concerns about the effects of work on their health.

Question 3

Employees in a chemical plant are provided with gloves to protect against the harmful effects of the chemicals, but a significant number of employees are reporting hand and lower arm skin complaints.

Outline possible reasons why these skin complaints may be occurring even though employees are provided with gloves.

(10)

This question assessed candidates' knowledge and understanding of learning outcome 3.4: Explain the effectiveness of various types of personal protective equipment (PPE) and the factors to consider in selection of PPE.

Candidates were able to outline a good range of possible reasons why the gloves provided may not be working as a control measure and employees were reporting problems. Those candidates who outlined reasons that were both technical and organisational gained good marks. Simple reasons such as the employees not wearing the gloves, not having sufficient information or training on their correct use or an inadequate supply of the gloves were all relevant. Those candidates who understood more about the technical issues associated with glove selection and use were able to gain more marks. Possible reasons for the problems being reported were the selection of the wrong type of glove, so the chemical was permeating through the glove material and contaminating the skin, ie the breakthrough times for the gloves were not adequate. A few candidates indicated that the skin problems may have occurred because of an allergy to the glove material or because the gloves were being worn for extended periods of times and the hands were sweating inside the gloves.

The average mark on this question was above half marks.

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- Question 4** An employer wants to use a local exhaust ventilation (LEV) system to control employees' exposure to a hazardous gas generated during a manufacturing process.
- (a) (i) **Outline** control options that the employer should consider *before* deciding an LEV system is the appropriate means of control. (4)
- (ii) **Outline** what the employer should consider when specifying an LEV system to control this hazardous gas. (4)
- (b) *Other than* the employer, **identify TWO** other persons with responsibilities in relation to an LEV system. (2)
-

This question assessed candidates' knowledge and understanding of learning outcomes 3.1: Explain the principles of prevention and control of exposure to hazardous substances (including carcinogens and mutagens); and 3.3: Explain the uses and limitations of dilution ventilation and the purpose and operation of local exhaust ventilation, including assessing and maintaining effectiveness.

Candidates who have prepared themselves thoroughly to respond to examination questions on LEV will have studied the HSE guidance document '*HSG258 - Controlling airborne contaminants at work; A guide to local exhaust ventilation (LEV)*'. This document is listed in the syllabus as a relevant reference.

Candidates who had knowledge and understanding of the hierarchy of control that is included in learning outcome 3.1 will have been able to apply this understanding in response to part (a) (i) of this question. However, some candidates appeared not to notice the italicised word '*before*' and so did not consider non-LEV control options that sit above LEV in a hierarchy of control.

Marks were awarded for control options such as eliminating the need for the hazardous gas generation in the process or reducing either the amount of gas generated, or the time for which it is generated in the process. Full or partial enclosure of the manufacturing process was also a control option to consider before LEV was selected. As well as being addressed in the hierarchy of control for hazardous substances, the approach required in response to part (a) (i) is set out in HSG258 under the heading 'What employers should do before applying LEV'.

Part (a) (ii) relates to a specification for an LEV system. Chapter 5 of HSG258 addresses this. An employer would have specific knowledge and understanding of the process that is to be controlled by LEV and must consider the following: the properties of the hazardous gas, such as how it will arise from the process and how it will move in the surrounding air. More practical considerations are the needs of the operators working in the area and the maintenance requirements of the LEV. Candidates were not aware of all these considerations, so gained less marks in part (a) (ii) compared to part (a) (i).

Part (b) presented little difficulty and most candidates were able to identify two other persons with responsibilities in relation to LEV. They recognised these responsibilities exist throughout the lifetime of the LEV system and therefore included designers, maintenance engineers and others.

The overall performance for this question was reasonable and the average mark was just half marks.

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- Question 5** Norovirus is a common cause of gastroenteritis that can spread rapidly in closed communities such as hospitals, care homes and cruise ships.
- (a) **Explain** how the virus is transmitted. (3)
 - (b) **Identify** the symptoms of norovirus. (3)
 - (c) **Outline** how the spread of the virus can be minimised. (4)
-

This question assessed candidates' knowledge and understanding of learning outcome 5.1: Explain the types and properties of biological agents found at work.

In particular this question focused on one of the named biological agents in the syllabus, about which candidates are expected to have specific knowledge and understanding.

A significant number of candidates demonstrated only superficial knowledge of biological agents in general and as such limited the marks that could be awarded in both parts (a) and (c) of the question. Candidates who only mentioned 'spread by inhalation' in response to part (a) or 'hand washing' in response to part (c) did not have marks awarded, as this detail of answer is insufficient for an explanation or outline at diploma level. Some candidates referred to the biological agent Norovirus as bacteria and then cited anti-bacterial hand gel as a control measure.

In order to gain marks in part (a) the explanation required reference to person-to-person contact. Some candidates did appreciate that Norovirus survives outside the body for several days therefore contact with contaminated surfaces is also a route of transmission. As Norovirus is a gastrointestinal infection it is the inhalation of aerosol droplets of vomit that is another possible route of transmission.

Part (b) is where many candidates were awarded the majority of marks. There was a wide range of symptoms to identify and most candidates found this straightforward. For this reason the average mark achieved on this question was half marks.

Lack of detail and accuracy on the control measures specific to Norovirus resulted in many candidates achieving low marks in part (c) of the question. To gain marks for reference to hand washing it was necessary to outline that this was with warm water and soap. Other control measures relevant in the scenarios specifically mentioned in the question (hospitals, care home and cruise ships) included: to avoid sharing towels; to clean bathroom areas frequently; and to specifically use chlorine-based disinfectant. Isolating the infected persons is also an important control measure. Avoiding eating unwashed or raw or undercooked oysters or clams is also a relevant control measure, although perhaps not so widespread in the UK.

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- Question 6** A Facilities Manager of a multi-occupancy office block built in the 1970s is concerned that there may be asbestos in the building.
- Outline** steps that the Facilities Manager should take in order to comply with the Control of Asbestos Regulations 2012 and to minimise the risk of exposure to any asbestos that may be present in the building. (10)
-

This question assessed candidates' knowledge and understanding of learning outcome 3.2: Outline the specific requirements for working with asbestos.

In particular the syllabus content addressed in this question was: 'The duty to manage asbestos, including the types of asbestos surveys and keeping asbestos registers'.

Many candidates demonstrated limited knowledge of the legal requirements to manage asbestos in a building such as that described in the question. The Control of Asbestos Regulations 2012 is a specified piece of legislation in the diploma syllabus. In addition, the HSE document '*Managing and working with asbestos - Control of Asbestos Regulations 2012; Approved Code of Practice and guidance; L143*' is also included in the relevant references to the syllabus.

However, many candidates did not use appropriate terminology in their answers and were unable to distinguish between asbestos assessments/surveys, an asbestos record/register and an asbestos management plan - all of which are crucial steps in the management of asbestos in a building such as this. It is recognised that the document L143 is lengthy and does contain detail about specialist aspects of managing asbestos such as licensing and removal. Therefore course providers may find it more approachable for candidates to initially use the HSE's brief guide INDG223(rev5), revised 04/12 that sets out six simple steps in the management of asbestos.

The facilities manager should initially accept that they are the duty holder who has the responsibility to manage asbestos in this multi-occupancy building and should assume that because of the age of the building that asbestos is likely to be present.

Identifying all asbestos in the building by arranging for a competent person to undertake a management survey, including the use of intrusive and destructive sampling, to determine the presence or absence of asbestos containing materials (ACMs) are the early steps in the asbestos management process.

A record or asbestos register would have to be kept showing where ACMs are located and be updated following regular reviews of their condition. This information should be made available to all occupants in the building and contractors working on the building.

The facilities manager should keep an up-to-date asbestos management plan that considers what action if any, is necessary to deal with the various ACMs, ie to remove, repair, encapsulate or leave in place, label and monitor.

When answering this question many candidates focused only on the removal of ACMs and the detail associated with that, which did not address this question about the asbestos management process.

Further marks were available for candidates who provided more detail on what demonstrates competency for someone carrying out an asbestos survey (eg holding a P402 certificate or equivalent). Recognising that a further demolition and refurbishment survey may be necessary if, in the future major building works are to take place in the building, would have gained marks.

The performance against the learning outcome 3.2 was limited with an average mark below half of the 10 marks available.

Question 7

The Health and Safety Executive's (HSE's) manual handling assessment charts (MAC) is a tool that can be used to determine manual handling risks of various types of activity, including *lifting operations*. The MAC tool assigns numerical scores to a range of risk factors.

- (a) (i) **Identify FIVE** risk factors in the MAC tool that should be considered for a *lifting operation* carried out by an individual. (5)
- (ii) For **EACH** of the risk factors identified in (a) (i), **describe** how the numerical scores vary as the *lifting operation* changes. (5)
Reference to the exact numerical scores is not required.
- (b) **Explain** why using the MAC tool alone may not result in a fully 'suitable and sufficient' risk assessment. (5)

An internet-based delivery organisation operates a large warehouse where employees pick loads weighing between 2kg and 20kg. The employees carry these loads to an area where the items are stacked on to pallets.

The organisation decides to use the HSE's variable manual handling assessment chart (V-MAC) to assess the manual handling risks to its employees, who work 8-hour shifts.

- (c) **Outline** why the V-MAC tool is suitable in this scenario. (4)

Delivery drivers use pallet trucks to load the stacked pallets on to delivery vehicles.

- (d) **Comment** on the use of the V-MAC tool in this situation. (1)
-

This question assessed candidates' knowledge and understanding of learning outcome 9.2: Explain the assessment and control of risks from repetitive activities, manual handling and poor posture.

While candidates had some knowledge of the HSE's MAC tool referred to in part (a) responses to parts (b) and (c) suggest that awareness of other assessment tools was limited. To be able to answer parts (b) and (c), candidates needed to be familiar with both the HSE's **Variable** Manual Handling Assessment chart (V-MAC) and the appendix to the HSE's manual handling guidance (L23). All these assessment tools and others are listed in the syllabus and candidates who have prepared for the diploma examination should be able to explain these tools, even if they have no direct experience of using them in their workplace.

The answers in parts (a) (i) and (a) (ii) were reasonable, perhaps because candidates were familiar with the simple MAC assessment tool, or perhaps because they were aware of a similar question.

The MAC tool is described in the HSE document INDG383 and a link to this is provided in the relevant references list in the diploma syllabus. A note at the start of the guidance states that:

The MAC is not appropriate for some manual handling operations, for example those that involve pushing and pulling. Its use does not comprise a full risk assessment (see Manual handling in 'Further reading').....

To be 'suitable and sufficient', a risk assessment will normally need to take account of additional information to that considered by the MAC tool. Therefore in response to part (b) candidates were expected to refer to which risk factors were missing such as: sudden movements of the load, unstable loads, the requirement for specialist training etc. In addition, the MAC tool does not consider issues such as handling when seated, pushing or pulling tasks, or individuals who may have a temporarily reduced capacity to carry out manual handling.

It is important that when practitioners select assessment tools to assist them, they appreciate both the limitations as well as the benefits of these tools. Therefore parts of this question addressed that understanding. The appropriate use of the various manual handling assessment tools are considered in the practical guidance in the appendix to the manual handling operations guidance document L23. Course providers should direct candidates to this important information.

The information given in part (c) of the question emphasised some of the criteria that make the use of the V-MAC tool suitable in this type of manual handling task. For example, the task described involves both lifting and carrying. In addition, the variability of the load weights and the length of shifts (more than 4 hours) mean that the use of the V-MAC tool is appropriate in this scenario.

A number of candidates recognised that using the V-MAC tool to assess the pushing/pulling activities described in part (d) was not appropriate and commented that instead the HSE's RAPP tool would be more appropriate. They therefore gained the mark available in this part of the question.

Less than 25% of candidates chose to answer this question. The average mark achieved was low, significantly less than half marks.

Question 8

A 24-hour convenience store selling a wide range of products has recently experienced a number of robberies involving violence and aggression towards its employees.

- (a) **Identify FOUR** reasons for the increased risk of violence and aggression towards the employees. **(4)**
- (b) (i) **Identify** a piece of case law relevant to this scenario **AND outline** the circumstances of this case. **(4)**
- (ii) **Determine** if the decision to no longer employ a security guard means the employer is failing in their duty to take reasonable care of their employees. **(2)**
- (c) *Other than* employing a security guard, **outline** control measures the employer could take to help minimise the risk of similar incidents and reassure employees. **(10)**
-

This question assessed candidates' knowledge and understanding of learning outcomes 8.3: Explain the scope, effects and causes of work-related violence/aggression; and 8.4: Explain the identification and control of work-related violence/aggression with reference to legal duties.

In response to part (a) most candidates were able to identify four reasons for the risk of violence and aggression in the scenario given. Some candidates identified more than four reasons that were not required in this case.

Performance on part (b) (i) was limited with only a small number of candidates having knowledge or understanding of the relevant case law. Unit B has very little reference to case law and candidates must take time to familiarise themselves with the details and points of law that these named cases illustrate.

In this question candidates were expected to refer to the case of Mitchell and others vs United Co-operative Limited [2012]. Employees of this retailer were suffering from post-traumatic stress disorder following a number of robberies at the same store. The original court case brought by the employees and the subsequent appeal by the employer focused on whether the provision of a full time security guard was necessary in order for the employer to demonstrate that they had taken reasonable steps to safeguard their employees.

Part (b) (ii) of the question required candidates to apply their knowledge of this case law to the scenario in this question; and therefore determine that no longer employing a security guard is not a failure to take reasonable care, especially if other control measures are in place.

Most candidates gained the majority of marks in response to part (c) by outlining a reasonable range of control measures for the scenario given. With 10 marks available it was necessary to provide a wide range of controls and some answers were limited. Many candidates referred to the use of CCTV, panic alarms and avoiding lone working. Few candidates mentioned measures such as locating the tills in clear view of the window or participating in local 'business-watch' schemes. The offer of counselling to employees affected by or concerned about risks of violence and aggression is a valid approach to reassuring employees; as is advising employees not put themselves at risk by resisting attempted robberies.

More than 80% of candidates chose to answer this question. The six marks available in part (b) were rarely gained, therefore the average mark for the question was just below half marks.

Question 9	(a)	Outline the properties of:	
	(i)	alpha particles;	(4)
	(ii)	X-rays.	(4)
	(b)	Employees working in a hospital radiology department are exposed to X-rays.	
	(i)	Outline the legal requirements for monitoring the employees' exposure to X-rays.	(6)
	(ii)	Outline how the employees' exposure to X-rays can be monitored.	(6)

This question assessed candidates' knowledge and understanding of learning outcomes 7.1: Outline the nature of the different types of ionising and non-ionising radiation; and 7.3: Outline the effects of exposure to ionising radiation, its measurement and control.

This question was answered by just over half of candidates, but some candidates who chose this question appeared to lack the level of knowledge and understanding needed to provide outline answers. The average mark on this question was below half marks.

When responding to parts (a) (i) and (a) (ii) most candidates included relevant information about how far the two types of ionising radiation can travel in air and what can be used to shield the radiation. However, more technical information such as what an alpha particle is (a helium nucleus containing 2 protons and 2 neutrons) was rarely included. Similarly, few candidates indicated how X-rays are generated, both naturally and artificially.

The syllabus at 7.3 specifically includes the measurement and assessment of ionising radiation worker's exposure, and refers directly to the Ionising Radiations Regulations 1999*. Some candidates lacked sufficient detail on these areas of the syllabus and subsequently responses to part (b) (i) and (b) (ii) were often limited. The legal requirements for monitoring exposure to ionising radiation means there are differing dose limits for different parts of the body and some workers have to be considered as classified persons. The specific dose limits that require the assignment as a classified person should have been stated. More candidates did appreciate that the exposure monitoring records need to be kept for at least 50 years or up to the age of 75.

* Note: IRR 1999 was replaced by IRR 2017 on the 1 January 2018. However, changes to legislation will not be examined for at least 6 months after introduction. IRR 2017 is examinable from the July 2018 examination onwards.

Question 10 A night club hires musicians and DJs to play live and pre-recorded amplified music daily, from a stage. In the same room is a bar where workers are employed serving drinks.

Following personal noise exposure monitoring, a high risk of excessive noise exposure was identified for all workers in the bar area. Suitable hearing protection has been provided to all the bar workers.

Other than the provision of hearing protection, **outline** control measures that could help reduce the risks to the bar workers' hearing.

(20)

This question assessed candidates' knowledge and understanding of learning outcomes 6.3: Explain the measurement and assessment of noise exposure; and 6.4: Explain the principles and methods of controlling noise and noise exposure.

This question required candidates to apply their general understanding of noise control methods to a practical real-world situation in a nightclub. When a question is not broken down into parts it is helpful to first make an answer plan and perhaps use a structure on which to base the answer. With noise control the basic concepts of control at source, during transmission and at the receiver is a helpful approach to use. Few candidates took this approach and therefore often repeated points in their answer that could only be awarded marks once.

In a nightclub situation simply 'turning down' the source of the noise, the music, is not realistic. However, the source of the noise could be limited during pre-show checks and rehearsals. It is possible to set permissible volume limits and automatic noise limiters on equipment.

The position and direction of speakers was often mentioned by candidates, and these are valid control measures in this scenario. In addition, raising the speakers off the floor or using anti-vibration materials between the speakers and the floor can reduce the noise transmission via this route. Similarly, using a carpeted stage area for the live musicians is also appropriate.

Moving the bar to another room, job rotation, and rest breaks in a quiet area are all control measures for the bar workers who are the 'receivers' in this scenario.

The question indicates that hearing protection has been provided, but it was still relevant to refer to the importance of training workers about this control measure and supervising its use.

80% of candidates chose to answer this question. Many candidates did not include a sufficiently wide range of points for the 20 marks available and even though some answers were lengthy it was often the same points being expressed in a different way. Therefore the average mark for this question was low and significantly below half marks.

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- Question 11** (a) **Outline** the purpose of a heat stress index when assessing the thermal environment. **(3)**
- The most widely used heat stress index in industry is the wet bulb globe temperature (WBGT) index.
- (b) (i) **Identify** the measurements that need to be taken to determine the WBGT index. **(3)**
- (ii) **Outline** the principle of operation of the instruments that should be used to make **EACH** of the measurements identified in (b) (i). **(7)**
- (c) A manufacturing process produces high levels of heat and steam.
- Outline** control measures that could help reduce heat stress among employees in this environment. **(7)**
-

This question assessed candidates' knowledge and understanding of learning outcome 10.1: Explain the need for, and factors involved in, the provision and maintenance of temperature in both moderate and extreme thermal environments.

Candidates had difficulty in outlining the purpose of a heat stress index and answers were limited to stating that the index gives an indication of the risk presented by the thermal environment. Few candidates mentioned that this was both a single number and objective measure of the thermal environment that could be compared to recommended standards.

The measurements to be taken to determine the wet bulb globe temperature (WBGT) are: the wet bulb temperature, the air or dry bulb temperature and the radiant or globe temperature. Some of these terms are named in the title WBGT, however some candidates were not sufficiently accurate in their responses, so did not gain all of the 3 marks available.

In part (b) (ii) most candidates gained marks by outlining how an alcohol-filled thermometer is used to measure the air temperature. Outlines of how the wet bulb temperature is measured were less accurate and did not indicate that the evaporation of the water from the wetted cloth causes the bulb on the thermometer to cool, resulting in a depression of the measured temperature. Some candidates incorrectly outlined the use of an anemometer that is used to measure air velocity or other devices that measure humidity. These are not relevant in the determination of the WBGT.

Candidates provided a reasonable range of control measures for the scenario given in part (c) but often omitted to include measures such as acclimatisation of individuals, the use of health surveillance to monitor the effects of the environment on individuals and training of the risks associated with work in a hot and humid environment.

This question was answered by 60% of the candidates and the average mark was more than half marks.

Examination technique

The following issues are consistently identified as the main areas in need of improvement for candidates undertaking Diploma level qualifications:

Candidates misread/misinterpreted the question

NEBOSH questions are systematically and carefully prepared and are subject to a number of checks and balances prior to being authorised for use in question papers. These checks include ensuring that questions set for the Diploma level qualifications relate directly to the learning outcomes contained within the associated syllabus guides. The learning outcomes require candidates to be sufficiently prepared to provide the relevant depth of answer across a broad range of topic areas. For example, a candidate could be asked about the causes of stress, or could be asked about the effects of stress, a question could require a response relating to the principles of fire initiation, or a question could require a response relating to the spread of fire. Therefore, a candidate should focus not only on the general topic area (eg stress, fire), but also the specific aspect of that topic to which the question relates.

Examiners suggest that while many candidates do begin their answer satisfactorily and perhaps gain one or two marks, they then lose sight of the question and include irrelevant information. Although further points included in an answer can relate to the general topic area, these points are not focused on the specific learning outcome and marks cannot be awarded. However, some candidates appear to misread or misinterpret several questions. This situation is more likely due to candidates preparing for the examination with a number of stock answers obtained through rote-learning, that again can provide answers that are loosely associated with the topic matter but do not provide answers specific to the question. Such an approach is clearly evident to an Examiner and demonstrates little understanding of the topic matter and marks are not awarded.

Examiners noted a tendency on the part of many candidates to write about things that were not asked for, despite the fact that guidance as to what to cover had been given in the question. An example is a question where candidates were instructed that there was no need to make reference to specific control measures and yet did so. In another example candidates wrote about selection of PPE when the question wording had clearly stated that this had already been undertaken. Another example was where candidates wrote about barriers to rehabilitation without relating them to the bio-psychosocial model, even though the question specifically asked them to do this.

Some candidates wrote large amounts of text on a single topic where only one mark could be awarded. Candidates did not recognise that the amount of marks awarded to each section gives an indication of the depth of the answer required.

It would therefore appear that a sizeable number of candidates misread some of the questions, to their disadvantage. This should be a relatively easy pitfall to overcome; candidates should ensure that they make full use of the 10 minutes reading time to understand what each question requires. Candidates are advised to allow sufficient time to read and re-read the question in order to determine the key requirements. Underlining or highlighting key words can assist in keeping focused and simple mind maps or answer plans can also be useful. An answer plan will often be helpful in ensuring that all aspects of the question are attended to; maps and plans should be kept simple so as not to use up too much examination time; if all aspects are not dealt with it will be difficult to gain a high mark. Candidates should not assume when they see a question that it is exactly the same as one that they may have seen in the past; new questions are introduced and old questions are amended. It is therefore of the utmost importance that questions are read carefully and the instructions that they give are followed.

It may help if, when preparing for the examinations, candidates write out their answers in full and ask a tutor or other knowledgeable third party to mark their work. In so doing, issues with understanding can be noted and remedial action taken.

Course providers and candidates should note that various means are used to draw attention to keywords in examination questions. These means include emboldened and italicised text and the use of words in capitals. These means are intended to draw the candidate's attention to these words and this emphasis should then be acted upon when making a response. These devices can often assist in giving guidance on how to set out an answer to maximise the marks gained. For example: **Identify THREE** things to be considered **AND** for **EACH**.....

Candidates often have a reasonable body of knowledge and understanding on the topic covered by a question, but they have not been able to apply this to the examination question being asked. This could be because sufficient time has not been taken to read the question, noting the words being emphasised.

When preparing candidates for examination, or offering advice on examination technique, accredited course providers should stress that understanding the question requirements and the sub-structure of the response to the question is the fundamental step to providing a correct answer. Rather than learning the 'ideal answer' to certain questions effort would be better spent in guided analysis on what a question requires. The rote learning of answers appears to close the candidates' minds to the wider (and usually correct) possibilities.

Candidates repeated the same point but in different ways

There are instances where candidates repeat very similar points in their answers, sometimes a number of times. This is easily done in the stressful environment of the examination. However, once a point has been successfully made and a mark awarded for it, that mark cannot be awarded again for similar points made later in the answer. In some cases, particularly where questions had more than one part, candidates gave an answer to, say, part (b) of a question in part (a), meaning that they needed to repeat themselves in part (b) thus wasting time.

One possible reason for this might be that candidates have relatively superficial knowledge of the topic - a view supported by the low marks evident in some answers. It appears that, faced with a certain number of marks to achieve and knowing that more needs to be written, but without detailed knowledge, candidates appear to opt to rephrase that which they have already written in the hope that it may gain further marks. Another possible reason is a failure to properly plan answers, especially to the Section B questions - it would appear that candidates sometimes become 'lost' in their answers, forgetting what has already been written. It may be due either to a lack of knowledge (so having no more to say) or to limited answer planning, or to a combination of the two. When a valid point has been made it will be credited, but repetition of that point will receive no further marks. Candidates may have left the examination room feeling that they had written plenty when in fact they had repeated themselves on multiple occasions, therefore gaining fewer marks than they assumed.

Candidates sometimes think they have written a lengthy answer to a question and are therefore deserving of a good proportion of the marks. Unfortunately, quantity is not necessarily an indicator of quality and sometimes candidates make the same point several times in different ways. Examiners are not able to award this same mark in the mark scheme a second time. The chance of repetition increases when all marks for a question (eg 10 or 20) are available in one block. It can also happen when a significant proportion of the marks are allocated to one part of a question.

This issue is most frequently demonstrated by candidates who did not impose a structure on their answers. Starting each new point on a new line would assist in preventing candidates from repeating a basic concept previously covered, as well as helping them assess whether they have covered enough information for the available marks.

As with the previous area for improvement ('misreading the question') writing an answer plan where points can be ticked off when made, or structuring an answer so that each point made is clearly shown, for example by underlining key points, can be of great use. This technique aids candidates and makes it much clearer in the stress of the examination for candidates to see which points have been made and reduce the chances of the same point being made several times. Course providers are encouraged to set written work and to provide feedback on written answers, looking to see that candidates are able to come up with a broad range of relevant and accurate points; they should point out to candidates where the same point is being made more than once.

Candidates are advised to read widely. This means reading beyond course notes in order to gain a fuller understanding of the topic being studied. In that way, candidates will know more and be able to produce a broader and more detailed answer in the examination. Candidates may also find it helpful to read through their answers as they write them in order to avoid repetition of points.

Course providers should provide examination technique pointers and practice as an integral part of the course exercises. Technique as much as knowledge uptake should be developed, particularly as many candidates may not have taken formal examinations for some years.

Candidates produced an incoherent answer

Candidates produced answers that lacked structure, digressed from the question asked and were often incoherent as a result. In many cases, there seemed to be a scatter gun approach to assembling an answer, which made that answer difficult to follow. Answers that lack structure and logic are inevitably more difficult to follow than those that are well structured and follow a logical approach. Those candidates who prepare well for the unit examination and who therefore have a good and detailed knowledge commensurate with that expected at Diploma level, invariably supply structured, coherent answers that gain good marks; those candidates who are less well prepared tend not to do so.

Having good written communication skills and the ability to articulate ideas and concepts clearly and concisely are important aspects of the health and safety practitioner's wider competence. Candidates should be given as much opportunity as possible to practice their writing skills and are advised to practice writing out answers in full during the revision phase. This will enable them to develop their knowledge and to demonstrate it to better effect during the examination. It may help if candidates ask a person with no health and safety knowledge to review their answers and to see whether the reviewer can understand the points being made.

Candidates did not respond effectively to the command word

A key indicator in an examination question will be the command word, which is always given in **bold** typeface. The command word will indicate the depth of answer that is expected by the candidate.

Generally, there has been an improvement in response to command words, but a number of candidates continue to produce answers that are little more than a list even when the command word requires a more detailed level of response, such as 'outline' or 'explain'. This is specifically addressed in the following section dealing with command words, most commonly failure to provide sufficient content to constitute an 'outline' was noted. Failure to respond to the relevant command word in context was also a frequent problem hence information inappropriate to the question was often given.

Course exercises should guide candidates to assessing the relevant points in any given scenario such that they are able to apply the relevant syllabus elements within the command word remit.

Candidate's handwriting was illegible

It is unusual to have to comment on this aspect of candidate answers, as experienced Examiners rarely have difficulties when reading examination scripts. However, Examiners have independently identified and commented on this as an area of concern. While it is understood that candidates feel under pressure in an examination and are unlikely to produce examination scripts in a handwriting style that is representative of their usual written standards; it is still necessary for candidates to produce a script that gives them the best chance of gaining marks. This means that the Examiners must be able to read all the written content.

Some simple things may help to overcome handwriting issues. Using answer planning and thinking time, writing double-line spaced, writing in larger text size than usual, using a suitable type of pen, perhaps trying out some different types of pens, prior to the examination. In addition, it is important to practise hand writing answers in the allocated time, as part of the examination preparation and revision. Today, few of us hand-write for extended periods of time on a regular basis, as electronic communication and keyboard skills are so widely used. Accredited course providers should encourage and give opportunities for candidates to practise this hand-writing skill throughout their course of study. They should identify at an early stage if inherent problems exist. These can sometimes be accommodated through reasonable adjustments, eg by the provision of a scribe or the use of a keyboard. Candidates with poorly legible handwriting need to understand this constraint early in their course of studies in order for them to minimise the effect this may have.

NEBOSH recommends to accredited course providers that candidates undertaking this qualification should reach a minimum standard of English equivalent to an International English Language Testing System score of 7.0 or higher in IELTS tests in order to be accepted onto a Diploma level programme.

For further information please see the latest version of the IELTS Handbook or consult the IELTS website: <https://www.ielts.org/about-the-test/test-format>

Candidates wishing to assess their own language expertise may consult the IELTS website for information on taking the test: <http://www.ielts.org>

Course providers are reminded that they must ensure that these standards are satisfied or additional tuition provided to ensure accessible and inclusive lifelong learning.

Candidates did not answer all the questions

It has been noted that a number of candidates do not attempt all of the questions on the examination and of course where a candidate does not provide an answer to a question, no marks can be awarded. Missing out whole questions immediately reduces the number of possible marks that can be gained and so immediately reduces the candidate's opportunity for success. There can be several reasons for this issue: running out of the allocated time for the examination, a lack of sufficient knowledge necessary to address parts of some questions, or in other cases, some candidates have a total lack of awareness that the topic covered in certain questions is even in the syllabus.

If candidates have not fully studied the breadth of the syllabus they may find they are not then equipped to address some of the questions that are on a question paper. At that late stage there is little a candidate can do to address this point. Responsibility for delivering and studying the full breadth of the syllabus rests with both the course provider and the individual candidates and both must play their part to ensure candidates arrive at the examination with a range of knowledge across all areas of the syllabus.

Lack of technical knowledge required at Diploma level

In Section A, candidates must attempt all questions and it was clear that some struggled with those requiring more detailed and technical knowledge. For example, it is not acceptable that at Diploma level, candidates have no knowledge of the principles of good practice that underpin COSHH. Unfortunately this was often found to be the case in responses to questions.

In Section B, where candidates have a choice of questions, many sought to avoid those questions with a higher technical knowledge content. For example questions on radiation, lighting and vibration. Practitioners operating at Diploma level need to be confident with the technical content of the whole syllabus and this does require a significant amount of private study, particularly in these areas of the syllabus that are perhaps less familiar to them in their own workplace situations.

Candidates provided rote-learned responses that did not fit the question

It was apparent in those questions that were similar to those previously set, that the candidates' thought processes were constrained by attachment to memorised answer schemes that addressed different question demands.

While knowledge of material forms a part of the study for a Diploma-level qualification, a key aspect being assessed is a candidate's **understanding** of the topic and reciting a pre-prepared and memorised answer will not show a candidate's understanding. In fact, if a candidate gives a memorised answer to a question that may look similar, but actually is asking for a different aspect of a topic in the syllabus, it shows a lack of understanding of the topic and will inevitably result in low marks being awarded for that answer.

Command words

Please note that the examples used here are for the purpose of explanation only.

The following command words are listed in the order identified as being the most challenging for candidates:

Explain

Explain: To provide an understanding. To make an idea or relationship clear.

This command word requires a demonstration of an understanding of the subject matter covered by the question. Superficial answers are frequently given, whereas this command word demands greater detail. For example, candidates are occasionally able to outline a legal breach but do not always explain why it had been breached. A number of instances of candidates simply providing a list of information suggests that while candidates probably have the correct understanding, they cannot properly express it. Whether this is a reflection of the candidate's language abilities, in clearly constructing a written explanation, or if it is an outcome of a limited understanding or recollection of their teaching, is unclear. It may be linked to a general societal decline in the ability to express clearly explained concepts in the written word, but this remains a skill that health and safety professionals are frequently required to demonstrate.

When responding to an 'explain' command word it is helpful to present the response as a logical sequence of steps. Candidates must also be guided by the number of marks available. When asked to 'explain the purposes of a thorough examination and test of a local exhaust ventilation system' for 5 marks, this should indicate a degree of detail is required and there may be several parts to the explanation.

Candidates are often unable to explain their answers in sufficient detail or appear to become confused about what they want to say as they write their answer. For example, in one question many candidates explained the difference between the types of sign, explaining colours and shapes of signs without explaining how they could be used in the depot, as required by the question.

Describe

Describe: To give a detailed written account of the distinctive features of a subject. The account should be factual without any attempt to explain.

The command word 'describe' clearly requires a description of something. The NEBOSH guidance on command words says that 'describe' requires a detailed written account of the distinctive features of a subject such that another person would be able to visualise what was being described. Candidates have a tendency to confuse 'describe' with 'outline'. This means that less detailed answers are given that inevitably lead to lower marks. This may indicate a significant lack of detailed knowledge and/or a lack of ability to articulate the course concepts clearly. Candidates should aim to achieve a level of understanding that enables them to describe key concepts.

Some candidates see the command word 'describe' as an opportunity to fill out an answer with irrelevant detail. If a person was asked to describe the chair they were sitting on, they would have little difficulty in doing so and would not give general unconnected information about chairs in general, fill a page with everything they know about chairs or explain why they were sitting on the chair. Candidates should consider the general use of the command word when providing examination answers.

Outline

Outline: To indicate the principal features or different parts of.

This is probably the most common command word but most candidates treat it like 'identify' and provide little more than a bullet pointed list. As the NEBOSH guidance on command words makes clear, 'outline' is not the same as 'identify' so candidates will be expected to give more detail in their answers. 'Outline' requires a candidate to indicate *'the principal features or different parts of'* the subject of the question.

An outline is more than a simple list, but does not require an exhaustive description. Instead, the outline requires a brief summary of the major aspects of whatever is stated in the question. 'Outline' questions usually require a range of features or points to be included and often 'outline' responses can lack sufficient breadth, so candidates should also be guided by the number of marks available. Those candidates who gain better marks in questions featuring this command word give brief summaries to indicate the principal features or different parts of whatever was being questioned. If a question asks for an outline of the precautions when maintaining an item of work equipment, reference to isolation, safe access and personal protective equipment would not be sufficient on their own to gain the marks available. A suitable outline would include the meaning of isolation, how to achieve safe access and the types of protective clothing required.

Identify

Identify: To give a reference to an item, which could be its name or title.

Candidates responding to identify questions usually provide a sufficient answer. Examiners will use the command word 'identify' when they require a brief response and in most cases, one or two words will be sufficient and further detail will not be required to gain the marks. If a question asks '**identify** typical symptoms of visual fatigue', then a response of 'eye irritation' is sufficient to gain 1 mark. If having been asked to identify something and further detail is needed, then a second command word may be used in the question.

However, in contrast to 'outline' answers being too brief, many candidates feel obliged to expand 'identify' answers into too much detail, with the possible perception that more words equals more marks. This is not the case and course providers should use the NEBOSH guidance on command words within their examination preparation sessions in order to prepare candidates for the command words that may arise.

Give

Give: To provide short, factual answers.

'Give' is usually in a question together with a further requirement, such as '**give** the meaning of' or '**give** an example in **EACH** case'. Candidates tend to answer such questions satisfactorily, especially where a question might ask to 'identify' something and then 'give' an example. The candidate who can answer the first part, invariably has little difficulty in giving the example.

Comment

Comment: To give opinions (with justification) on an issue or statement by considering the issues relevant to it.

For example, if candidates have already calculated two levels of the exposure to wood dust and are then asked to comment on this the issues would include the levels of exposure they had found, and candidates would need to give their opinion on these, while considering what is relevant. The question guides on what may be relevant for example, did it meet the legal requirements, did it suggest controls were adequate, so based on that guidance, did exposure need to be reduced further or did anything else need to be measured or considered? If candidates comment with justification on each of these areas they would gain good marks in that part of question.

Few candidates are able to respond appropriately to this command word. At Diploma level, candidates should be able to give a clear, reasoned opinion based on fact.

For additional guidance, please see NEBOSH's '*Guidance on command words used in learning outcomes and question papers*' document, which is available on our website: www.nebosh.org.uk/students/default.asp?cref=1345&ct=2.