

July 2016

Examiners' Report

NEBOSH National
Diploma in
Occupational Health
and Safety - Unit B



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NEBOSH NATIONAL DIPLOMA IN OCCUPATIONAL HEALTH AND SAFETY

UNIT B: HAZARDOUS AGENTS IN THE WORKPLACE

JULY 2016



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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) 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 July 2016.

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 *Employees are required to pick up small pasta pieces from a delivery conveyor and transfer them to foil trays on a separate conveyor during the production of pre-prepared pasta dishes. This work is carried out standing in front of the conveyors on an 8-hour shift basis. A number of employees have complained about pains in their arms and shoulders and an ergonomic risk assessment will therefore be carried out.*

(a) **Identify** ergonomic risk factors that should be taken into consideration when making such an assessment **AND outline** how these risk factors may be contributing to the ill-health effects experienced by the employees. (5)

(b) *Total automation of the activity is not possible.*

Outline other control measures that could be taken to help reduce the ill-health effects experienced by the employees. (5)

This question related to Element 9 of the syllabus and assessed candidates' knowledge of learning outcomes 9.1: Outline types, causes and relevant workplace examples of injuries and ill-health conditions associated with repetitive physical activities, manual handling and poor posture; and 9.2: Explain the assessment and control of risks from repetitive activities, manual handling and poor posture.

This addresses repetitive physical activities. Some candidates limited their responses to manual handling related risk factors that although covered in these same learning outcomes, were not relevant when responding to this particular question. Where candidates chose to base their response to part (a) on the risk factors described by 'TILE' (task, individual, load and environment), they would not gain good marks. Instead when answering part (a), relevant risk factors include the repetitive nature of the task or the duration of the task. Candidates are advised to look at the HSE publication INDG 438 for a fuller range of possible risk factors for repetitive tasks such as the one described in this question.

Part (a) of the question required candidates to both identify the risk factors and also to outline how these risk factors could be contributing to pains in the arms and shoulders. Few candidates were able to fully address both parts of the question by relating it to the scenario given, so their answers were often too brief and incomplete to gain all the marks available. The requirement to draw this link is emphasised by the word **AND** which is in bold type capitals in the question.

Candidates operating at Diploma level are expected to be able to draw links between theory and practical application in particular situations. For example, the risk factor of repetition is relevant because the task involves frequent movements of the upper body to pick up the pasta and place it in foil trays. Duration is a risk factor as the work is a continuous operation over an eight-hour shift. This approach of identifying a risk factor and outlining its contribution to the arm and shoulder problems was required for the full range of risk factors 'identified' as relevant.

In answering part (b) of the question, candidates were expected to suggest a range of control measures that included some obvious controls such as job rotation, but also included some more inventive control measures such as arranging the work so that it might be carried out from both sides of the conveyor to prevent over-reaching.

As is often the case, the range of possible controls that could gain marks was greater than the number of marks available, so candidates should have been able to gain good marks in this part of the question.

Question 2 *Stonemasons are exposed to silica dust when cutting and finishing stone.*

This question assessed knowledge of what would be considered when carrying out a risk assessment for a hazardous substance, such as that required under the Control of Substances Hazardous to Health Regulations 2002. It is this legislation (as well as the Management of Health and Safety at Work Regulations 1999), that uses the term '*suitable and sufficient*' risk assessment. However, some candidates wrote about control measures for the risks, instead of focusing on the assessment of the risk. This is an error that should not be occurring at Diploma level.

The question addresses knowledge in Element 2 and in particular learning outcome 2.1: Outline the factors to consider when assessing risks from hazardous substances the syllabus. It should also be noted that silica is a named hazardous substance in learning outcome 1.4 of the syllabus.

The average mark achieved was less than half marks which suggests that candidates need to cover this topic more thoroughly in their study..

- This question is based on learning outcome 6.7: Explain the measurement and assessment of vibration exposure. The two parts of the question each took a different approach with part (a) considering the actual measurement of exposure to vibration using instrumentation and part (b) an approach of estimating exposure over a whole working day, where the exposure could come from the use of a range vibration emitting tools.

Few candidates had any detailed knowledge of how an accelerometer works. Candidates might be helped in their understanding of accelerometers by considering how most of us now walk around with our own personal accelerometer inside our mobile phones.

Many candidates thought that in this scenario you attached the accelerometer to the person rather than the tool. A few candidates did appreciate that it was necessary to measure acceleration along all three axis (X, Y and Z) but few stated that the accelerometer measured vibration magnitude.

Part (b) required some reference to the use of manufacturer's vibration magnitude data as part of the estimation. This data is only an estimate of the real world situation and actual vibration exposure can be affected by factors, such as the work method, the type of material the tool is being used on and other factors too. Most candidates used the terminology 'trigger time' when outlining how the estimation of the exposure should be calculated, but few candidates appeared to have any working knowledge of the HSE vibration calculator. Course providers should ensure they have taken candidates through the practicalities of measuring and estimating exposure to vibration in the same way as they do for exposure to noise or exposure to hazardous substances.

The performance on this question was reasonable, but it did reveal some gaps in technical and practical knowledge on determining exposure to vibration.

Question 4	(a) Outline the legal requirements for lighting in a workplace as required by the Workplace (Health, Safety and Welfare) Regulations 1992. (2)
	(b) Office workers carry out general administration in a large open-plan office with windows and artificial ceiling lights. The employer intends to carry out a lighting survey using a light meter.
	(i) Describe practical steps that should be taken when carrying out the lighting survey. (4)
	(ii) The results of this lighting survey showed that the light levels measured were between 200 and 800 lux, with an average measurement of 500 lux.
	Comment on these results. (4)

In this question candidate's knowledge from Element 10 was being assessed. In particular learning outcome 10.2: Explain the need for 'suitable and sufficient' lighting in the workplace, units of measurement of light and the assessment of lighting levels in the workplace. This question covered all the aspects of this learning outcome; ie need, measurement and assessment.

Most candidates were able to outline the legal requirements for lighting that are stated in the legislation. Simply put there should be 'suitable and sufficient' lighting. In order to gain the second mark a broader outline was required, such as the need for emergency lighting.

Part (b) addressed the measurement of lighting in the workplace and answers to this part of the question were limited with few candidates demonstrating any practical knowledge of this. Course providers need to ensure they address the learning outcome 10.2 to the extent of 'explain', ie candidates should be able to explain (or in this question, 'describe'), the practical steps involved in carrying out a light survey.

Answers to part (c) were often limited. Candidates should now be familiar with the use of the command word 'comment' which means: *To give opinions (with justification) on an issue or statement by considering the issues relevant to it.*

The figures quoted in the question were deliberately selected to provide an average light level, which would be considered acceptable in these circumstances, but a range of light levels that at both the lower and upper ends would not be suitable. Candidates were intended to comment on the large variance in levels measured and how only some workers would actually experience the average level stated. Considering the average level alone is too simplistic. These results could mean that for many individuals the light levels local to their work position would be either too high or too low.

It was also relevant to comment on the possible reasons for this variance which, as described in the scenario, could be due to the varying contribution from natural light and artificial light across the whole open plan office.

Some candidates with more detailed knowledge were also able to gain further marks for commenting on what the recommended variability of light levels should be. This level of knowledge would be gained through the reading of the HSE document HSG38 – Lighting at Work, which is listed in the tutor references to the syllabus. Candidates studying at Diploma level need to prepare themselves for the examinations by reading a wide range of learning sources.

The performance on this question was limited, suggesting a lack knowledge and understanding of workplace lighting requirements. Perhaps this is something course providers need to address within their delivery of Element 10 of the syllabus.

Question 5

An employer is concerned about employee exposure to radon and related ill-health. The workplace is a building with a basement and a ground floor. Measurements show that levels of radon in the basement are in excess of 400 Bq/m³.

- (a) **Explain** how radon could be present in the basement. (3)
 - (b) **Explain** the mechanism by which radon could cause harm to the lungs. (3)
 - (c) **Comment** on the significance of the radon level measured in this workplace. (1)
 - (d) **Outline** measures that could be put in place to help reduce employee exposure to radon. (3)
-

This question related to learning outcome 7.3: Explain the effects of exposure to ionising radiation, its measurement and control. The question required knowledge of the naturally occurring ionising radiation, radon, which is listed as a specific example in 7.3 of the syllabus.

Most candidates were able to give an explanation of how radon could be present in the basement, indicating that radon is a gas that naturally occurs in some rocks as a decay product of uranium. Since it is heavier than air it can accumulate in basements.

Candidates had more difficulty with part (b) and often did not appreciate that radon particles attach themselves to dust particles and water droplets which means they are not readily exhaled. Most candidates did appreciate the significant risks of the further decay of radon once it is inside the body, as it continues to emit alpha particles. This is in contrast to the risks posed by alpha particles outside the body as they can easily be stopped by intact skin.

Only a small number of candidates appreciated the significance of the figure given in part (c) of the question (400Bq/m^3). This level of exposure falls within the scope of the Ionising Radiations Regulations 1999.

The control measures required in part (d) of the question were generally well understood and most candidates were able to gain the full three marks available.

Overall the performance on this question was good with an average mark being above half marks.

Question 6

An airborne contaminant has a workplace exposure limit (WEL) of 10 ppm, 8-hour time-weighted average (TWA). The airborne concentration of the contaminant in a workshop has been measured at 180 ppm, 8-hour TWA. Therefore as a temporary measure, respiratory protective equipment (RPE) is to be worn by all employees.

An occupational hygienist has selected an item of RPE with an assigned protection factor (APF) of 20.

- (a) **Comment** on whether the occupational hygienist has made an appropriate selection of RPE. Use the numerical data provided to support your answer. (4)
- (b) Other than APF, **outline** factors that should be taken into consideration when selecting appropriate RPE. (6)
-

This question assessed candidates' knowledge of learning outcome 3.2: Explain the various types of personal protective equipment (PPE) available for use with hazardous substances and other chemicals, their effectiveness, and the relevant specifications and standards to be met.

In part (a) most candidates were able to perform the required calculation correctly, although some candidates showed some lack of understanding by attaching units to the answer. Numerical values of APF are dimensionless. As part of the comments candidates needed to recognise that the maximum concentration in the face piece, to which an employee should be exposed, should be no more than the workplace exposure limit (WEL) (10ppm).

Responses to this question should also have commented that, while the chosen piece of equipment has an APF of 20 which is just in excess of that required, a higher factor of safety could have been obtained by selecting respiratory protective equipment with an even higher APF.

For part (b), candidates generally identified a good range of factors that should be considered including some of the less obvious ones such as the equipment being manufactured to an appropriate standard and if the nature of the work required significant amounts of communication or movement.

Question 7 *It is often necessary to monitor an employee's personal exposure to hazardous substances. Some of the measurement principles that can be used include gravimetric analysis, microscopy and chemical analysis.*

For EACH of these measurement principles:

- (a) **identify** a type of hazardous substance for which it can be used **AND give** a typical workplace situation where such a measurement may be necessary; (6)
 - (b) **outline** the type of equipment and the methodology used to determine the employee's personal exposure to the hazardous substance. (14)
-

This question assessed candidates' knowledge of learning outcome 4.2: Outline the strategies, methods, and equipment for the sampling and measurement of airborne contaminants.

This question was selected by almost half the candidates sitting this paper and the overall performance was good with an average mark well above half marks.

Many candidates gained full marks in part (a) by properly addressing both requirements indicated by the command words 'identify' and 'give'. For example, identifying microscopy as being used for the measurement of fibres in a situation such as the accidental disturbance or planned removal of asbestos, gained 2 of the 6 marks. If equivalent responses were given for the gravimetric and chemical analysis principles, it was likely to gain full marks.

Part (b) required more technical detail on equipment and methodology. Some of this detail was common to all three measurements principles, for example: the necessity to calibrate the sample pumps used; to ensure the sampling head was placed in the breathing zone, and to follow the appropriate methods (MDHS) for determining the hazardous substances. Marks for these common points could only be awarded once.

Other detail on equipment and method was specific to each of the three measurement principles. For example, in gravimetric measurements the filter is weighed before and after sampling and the concentration, expressed in mg/m³. In microscopy, a phase contrast microscope is used to count the fibres, with the result being expressed as fibres per millilitre of air (f/ml). In chemical analysis, a tube or sampling head with a filter impregnated with an adsorbing material such as charcoal, tenax or silica is attached to a pump.

-
- Question 8**
- (a) *In 2002 the Court of Appeal (COA) made landmark judgments relating to work-related stress.*
Identify ONE of the cases heard at the appeal hearing **AND outline** the practical guidance that the COA established at this hearing in connection with harm that is reasonably foreseeable. (5)
 - (b) **Describe** a range of organisational and personal factors that can contribute to the incidence of work-related stress. (15)
-

Candidates had difficulty with responses to part (a). The average mark for this question was below half marks, with the majority of those marks being gained in part (b).

The question is based on learning outcomes 8.1: Explain the scope, effects and causes of work-related stress and 8.2: Explain the identification and control of workplace stress with reference to legal duties and other standards. The syllabus in Element 8 specifically lists the relevant case law that candidates are expected to be familiar with.

Candidates could have selected one of the following cases heard at the Court of Appeal namely *Sutherland v Hatton*, *Barber v Somerset County Council*, *Bishop v Baker Refractories* and *Jones v Sandwell Metropolitan District Council*. However, many candidates referred instead to the precursor case of *Walker v Northumberland County Council* for which no marks could be awarded.

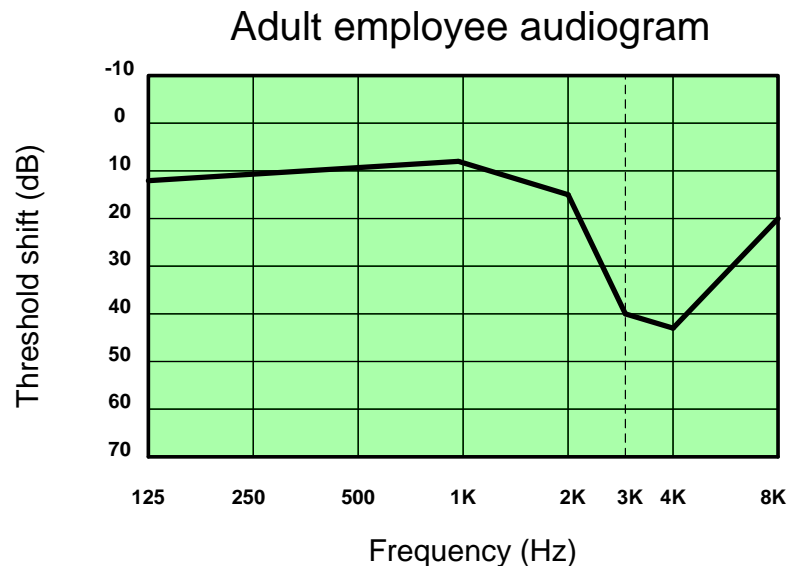
The practical guidance on the determination of harm being reasonably foreseeable, which emerged from the Court of Appeal hearings, referred to a wide range of points but candidates were generally unaware of any of these. Many candidates left this part of their answer blank. Course providers should ensure when delivering this part of the course that sufficient attention is given to the legal decisions that result from the cases, as these are the key learning points. Often, candidates seem able to write at length on the detailed facts that lie behind the various cases, instead of understanding the legal decisions and in this case the practical guidance they established.

Some candidates when answering part (a) wrote at length about the HSE Stress Management standards, which did not gain any marks.

Part (b) was generally well answered with candidates being able to cover a wide range of organisational and personal factors.

Question 9 Audiometric testing can form part of a hearing conservation programme.

- (a) **Outline** circumstances in which audiometric testing should be carried out. (2)
- (b) **Outline** benefits of audiometry as part of a hearing conservation programme. (4)
- (c) **Describe** the physical changes in the inner ear **AND explain** the resultant effect on hearing for an adult employee with the following audiogram result: (4)



- (d) **Outline** reasons why audiometric testing may not produce an accurate representation of the effects of workplace noise exposure on a person's hearing. (4)
- (e) (i) The use of hearing protection can also form part of a hearing conservation programme, provided that the correct hearing protection is selected. The employer has selected hearing protection based on the information below:

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

- Explain** how to determine a realistic estimate of the A-weighted sound pressure level entering the ear of an employee wearing this hearing protection. (4)
- (ii) **Comment** on the appropriateness of this hearing protection. (2)

This question covered a wide range of content included in learning outcomes 6.2 and 6.3 of the Diploma syllabus. The question may have looked a little daunting on the page with both an audiogram and a table of data, but it was broken down into 5 relatively short parts. It seems that many candidates used their ten minutes reading time at the start of the examination to determine that this question was perhaps more accessible than it initially looked. It was a very popular section B choice with nearly three quarters of all candidates selecting this question.

Part (a) required some specific knowledge from the Control of Noise at Work Regulations 2005. Regulation 9 sets out the specific circumstances when health surveillance for noise is required. Part 6 of the HSE document L108 is more helpful and practical for candidates wishing to understand the requirements for audiometry.

Many candidates were not sufficiently accurate when answering part (a). This is a continual theme with all responses to all noise questions. There is often a lack of accuracy when referring to the legal terms such as upper exposure action value and the units that define noise exposure, $L_{EP,d}$. Course providers are urged to remind candidates about the importance of accuracy when quoting legal terms and the associated numerical values. What a health and safety practitioner writes in the course of their work, could one day be evidence in a legal situation, so accuracy is important.

Part (b) was well answered. Part (c) did use an audiogram but in a different style of question to that previously used on a Diploma question paper, and some candidates recalled the answer to the previous question and reproduced it here. This meant they described the audiogram and what it was showing which was not needed. Instead, part (c) of this question asked for a description of what would physically be happening in the inner ear of someone with this audiogram result. Only a few candidates were able to describe the cilia hairs in the cochlea being flattened or broken off, though more candidates did appreciate that the resultant effect on the person's hearing would be the loss of consonants when listening to speech. Few candidates gained the full 4 marks on this part of the question.

Part (d) was reasonably well answered and candidates recognised that result of audiometry could be affected by taking the test after a full shift in a noisy work environment, or the result may not represent just the effects of workplace noise, as the person being tested may have significant non-occupational exposure to noise.

Answers to part (e) contained inaccuracy with units and a lack of appreciation of correcting the result for real world factors were common errors. Sound pressure levels entering the ear are defined in terms of d(B)A. However, those candidates giving the correct number with either no units or incorrect units did not gain all the marks available.

Question 10	(a) Identify possible ill-health conditions that could be caused by exposure to legionella bacteria. (2)
	(b) Suggest which groups of people are more susceptible to infection when exposed to legionella bacteria. (3)
	(c) A large hotel has an extensive hot and cold water system delivering a water supply to showers, baths and sinks in each guest room. The cold water is supplied from storage tanks in the roof. Outline control measures and regular checks that should be carried out on the cold water system, to help reduce risks from legionella bacteria. (12)
	(d) Other than hot and cold water systems, identify workplace sources where legionella bacteria could present a risk. (3)

This question assessed candidates' knowledge of learning outcome 5.2: Explain the assessment and control of risk from exposure to biological agents at work.

Legionella is a risk in a wide range of workplaces and so this question was popular with over 80% of all candidates choosing to answer it. Responses were mixed with some candidates lacking the level of technical knowledge required to address the most significant part of the question, part (c).

Parts (a) and (b) were assessing basic knowledge about legionella, how and who it affects. A common confusion when answering part (a) was to describe symptoms and not identify the actual ill-health conditions caused. At the very start of the HSE short guidance document (INDG 458) the range of ill-health conditions the bacteria can cause are listed. Part (b) was answered more successfully.

Part (c) asked for both control measures and regular checks for the cold water system, which gave candidates plenty of scope for their answer. Virtually all candidates did acknowledge that it was the *cold water system* that was the subject of the question and answered accordingly. However, many candidates appeared to overlook the information given in the stem to part (c). This indicated that there is a cold water tank and that there is also a hot water supply in the hotel. It also indicated there were shower heads.

Had this information been taken into account then candidates should have included in their outline some control measures and checks specific to tank: for example a properly fitting lid, a vermin or insect screen is fitted and the tank temperature being checked regularly. The presence of hot water pipes within the overall water system can lead to increased risks from legionella if hot water pipes run close to cold water pipes and create a local heating effect. Most candidates demonstrated understanding on the effects of temperature on legionella growth, but did not deduce that control measures to prevent local heat gain (eg insulating pipes, etc) may be necessary.

Often, responses to part (c) were vague and lacked the level of technical detail expected for 12 marks at Diploma level. Statements such as “check water system regularly” or “carry out maintenance” were common and did not gain marks.

Part (d) was well answered with most candidates gaining at least 2 of the 3 marks available. Marks were often missed because there was a vague reference to air conditioning.

Question 11	(a) Outline circumstances in which health surveillance would be appropriate according to Regulation 11 of the Control of Substances Hazardous to Health Regulations 2002 (COSHH). (4)
	(b) Identify FOUR types of hazardous substance for which health surveillance could be required under the COSHH Regulations AND , in EACH case, outline the nature of the health surveillance to be carried out. (4)
	(c) Outline arrangements that an organisation should put in place if they are to carry out health surveillance in accordance with the COSHH Regulations. (12)

This was the least popular Section B question. Examiners wondered if perhaps candidates were put-off by the challenging and detailed knowledge required to answer part (a). The question covered learning outcomes in Elements 4 and 11.

Health surveillance is one of the requirements of the COSHH regulations. Candidates who have studied the COSHH ACOP (HSE document L5) for Regulation 11 will have seen this explained in detail more than sufficient to answer this question. The circumstances for health surveillance required in part (a) are well explained the ACOP.

A large proportion of the Unit B syllabus is based on the COSHH Regulations, so any candidate studying for Unit B must take the time to study the whole of this L5 document as part of their 50 hours of directed private study time. This L5 document is as significant for those studying Unit B, as HSG 65 is to those studying Unit A.

Many candidates answering part (b) did not read the question carefully. The question clearly asks for four types of hazardous substance in relation to the COSHH Regulations. Many candidates included lead and asbestos in their four identified substances and these gained no marks. Lead and asbestos are not covered by the COSHH Regulations and are the subject of their own separate sets of Regulations, (covered elsewhere in the Unit B syllabus). This is an important legal distinction that candidates need to understand. Health surveillance requirements for these two substances are different and are contained in the lead and asbestos legislation respectively.

Part (c) was better answered and is where most candidates gained marks. A wide range of arrangements could have been included. Physical arrangements, for example a suitable room, hand washing facilities, etc; personnel arrangements, for example a suitably qualified person such as an occupational health nurse; and administrative arrangements for example, facility to keep confidential records for up to 40 years, giving plenty of scope to gain marks in response to part (c).

The average mark for this question was well below 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: http://www.ielts.org/institutions/test_format_and_results.aspx

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

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 topic. 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 topic 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.



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