

January 2016

Examiners' Report

NEBOSH International Diploma in Occupational Health and Safety (Unit B)



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NEBOSH INTERNATIONAL DIPLOMA IN OCCUPATIONAL HEALTH AND SAFETY

UNIT IB: INTERNATIONAL CONTROL OF HAZARDOUS AGENTS IN THE WORKPLACE

JANUARY 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 which it is hoped will be useful to candidates and tutors 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 2016.

Feedback is presented in these key areas; examination technique, command words and learning outcomes 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 International 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 IB 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 IB 'Example question paper and Examiners' feedback on expected answers' which provides example questions and details Examiners' expectations and typical areas of underperformance.

Unit IB

International control of hazardous agents in the workplace

Candidate performance

This report covers the examination sitting in January 2016.

Learning outcomes

Question 1

1.4 Explain the health effects of chemicals used in the workplace

2.3 Explain the specific requirements for asbestos

This area of the syllabus requires candidates to demonstrate understanding of the health effects of a range of chemicals, and the measures needed to eliminate or control exposure. In this case, the question focused on asbestos. While candidates could usually identify diseases associated with asbestos exposure, the detail required to outline them was often lacking.

There was generally a limited knowledge of the measures required to protect employees and others while removing asbestos insulation material. Most candidates were able to note things such as respiratory protection and other personal protection, but did not mention commonly used controls such as sealing the work area with plastic sheeting, providing negative pressure ventilation and the need for worker decontamination after finishing work. Adopting a very generic approach to answering questions on asbestos will gain some marks (as some techniques of chemical control are generally applicable) but, to gain high marks, candidates need to be familiar with the additional requirements that asbestos work requires.

Question 2

8.4 Explain the identification and control of work-related violence/aggression with reference to relevant standards

This area of the syllabus is concerned with situations where there is potential for violence or aggression. This question concerned enforcement officers visiting offices and factories. In such cases, there is always the potential for aggression, especially if the officer might need to intervene and serve an enforcement notice. This question was not answered well, given the approach is similar to questions that have been used in the past concerning nurses visiting patients (and which have usually been very well answered). It may be that this was an unfamiliar scenario, but candidates need to be able to apply principles to both familiar and unfamiliar situations at Diploma level. Examiners were expecting answers to include agreeing appointments in advance with the duty holder, carrying a mobile phone, researching duty holder history prior to the visit, and so on.

Question 3

10.3 Explain the need for welfare facilities and arrangements in fixed and temporary workplaces

Candidates are expected to be aware of the welfare considerations in a variety of workplaces. This question concerned temporary workplaces - specifically a building development on the edge of a town. Temporary workplaces like this cannot always be expected to have the more elaborate facilities that are common in fixed premises, simply because of the ever-changing nature of the site and the unavailability of mains utilities.

This question explored what those basic facilities might include. So, a flushing toilet with water supply and drainage might be possible, but if not, the employer might have to resort to a portable chemical toilet. Washing facilities would also need to be provided next to the toilet, supplied with clean water (running water if possible), together with soap and towels/drier. Other facilities are also necessary, but the key thing here was to make sure the suggestions were adapted to the nature of a temporary workplace. Some candidates clearly had experience of building sites and did well, whereas others did not appreciate the need to apply the principles in context. Some candidates suggested elaborate facilities such as on-site supermarkets and swimming pools could be provided.

Question 4

5.2 Explain the assessment and control of risk from exposure to biological agents at work

Candidates are expected to be familiar with a range of risks and controls in this area of the syllabus. This question concerned poisonous snake bite risk in remote rural areas. In terms of reducing the risk of snake bite, candidates' answers were often limited to wearing heavy boots and clothing. Examiners expected candidates to provide a wider range of answers to include not putting hands into crevasses and learning how to identify local snakes (and their habits).

Examiners also required candidates to describe the first aid procedures for snake bite. It appeared that many candidates were influenced more by popular myths in adventure films than sound medical advice, and so suggested measures that were generally the opposite of what was required. Measures required include that urgent professional medical attention should be sought, the person should be kept calm and seated (or lying down), try to remember the type of snake (colour, size etc) and keep the bitten part as still as possible.

This is a topic that appears not to be well known or taught.

Question 5

6.6 Explain the effects of vibration on the individual

6.8 Explain the principles for controlling vibration and vibration exposure

This area of the syllabus looks at hand-arm and whole-body vibration. This question concerned hand-arm vibration syndrome (HAVS) and was very well answered by the majority of candidates. Most candidates were able to identify the symptoms of HAVS and the control measures to reduce the risk of developing HAVS when using power tools. This is an area of the syllabus that appears to be well understood by candidates.

Question 6

7.2 Explain the effects of exposure to non-ionising radiation, its assessment and control, including for the special case of optical lasers

This part of the syllabus is concerned with non-ionising radiation, such as ultraviolet (UV), visible, infra-red (IR) and radio-waves. This covers a very wide range of electromagnetic radiation. This question considered naturally occurring UV exposure of outdoor workers. Most candidates were able to identify the acute and chronic effects of exposure and some of the typical control measures that could be introduced (such as covering up skin and use of sunscreen lotions). As often happens with questions on radiation, a core of candidates confused non-ionising and ionising radiation. Course providers should ensure that candidates are very clear on the differences between the two types.

Question 7

1.4 Explain the health effects of chemicals used in the workplace

2.1 Outline the factors to consider when assessing risks from chemicals which are hazardous to health

2.2 Explain elimination of risk or control measures for chemicals which are hazardous to health

Candidates are expected to be familiar with a number of chemicals listed in the syllabus and be able to apply a range of controls to reduce the risk of exposure. This question concerned the use of isocyanates in paint spraying. These chemicals are well known for their sensitisation effects and the need to reduce exposure to as low as possible.

This question was quite well answered with candidates being able to outline the factors that should be considered when assessing risks from their use (eg specific isocyanate used, quantity, exposure limits). Most candidates were also able to outline possible control measures, such as minimisation of quantities in use, the use of exhaust ventilation and respiratory protective equipment. However, some candidates adopted a very generic approach, lacking sufficient detail to gain high marks.

Course providers should help their students to apply the general control approach to specific chemicals, so that they can see more clearly that the particular controls you actually choose depends on context.

Question 8

4.1 Explain occupational exposure limits for airborne harmful substances, the basis upon which they are established, and their application to the workplace

4.2 Outline the strategies, methods and equipment for the sampling and measurement of airborne harmful substances

11.3 Outline the management of occupational health (including the practical and legal aspects)

This part of the syllabus is concerned with measuring exposure to airborne contaminants, calculating the equivalent time, weighted average and comparing it with applicable exposure limits as a springboard for deciding on any action that may be required. This question required candidates to calculate the time-weighted average exposure from data given in a table, and some reasonable assumptions. Most candidates who attempted this question had very little difficulty and performed well. The question also looked at specific actions that an occupational health department might take, including deciding on whether health surveillance might be necessary.

If there was one issue, it was that many candidates did not appear to know the purpose of health surveillance.

Question 9

9.2 Explain the assessment and control of risks from repetitive activities, manual handling and poor posture

This part of the syllabus is concerned with ergonomic issues, their assessment and control. This question was on manual handling. Candidates were required to explain possible findings from a manual handling risk assessment for a given scenario - in this case, nurses assisting patients with limited mobility. This was not answered well with many candidates instead concentrating on the factors in a manual handling risk assessment, rather than what might be recorded as an issue during the assessment of the task in the given scenario. Some of those candidates who did recognise that the question focused on findings did not adapt their answers to the context and so adopted a generic approach.

Some candidates misunderstood the question and gave control measures, rather than findings. Candidates need help from course providers in practising application of principles to different scenarios (familiar and unfamiliar).

Question 10

6.4 Explain the principles of controlling noise and noise exposure

This part of the syllabus is concerned with the range of controls used for noise. This question, that focused on noise enclosures and hearing protection, was not answered well, with quite a number of candidates unable to distinguish between noise enclosures and noise havens. Those candidates who could distinguish between them were generally able to describe the design features of enclosures. Examiners also required candidates to outline factors to consider when selecting hearing protection. Some candidates gave a list of different types of hearing protection, rather than the things to take into account that affected choice (such as suitability for the work, the noise attenuation offered, compatibility with other PPE). Candidates should carefully read and re-read the question, otherwise they may provide technically correct answers, but not the answer to the question being asked.

Question 11

3.2 Explain the various types of personal protective equipment (PPE) available for use with hazardous chemicals, their effectiveness, and the factors to consider in their selection

This question was extremely unpopular. Those who attempted it scored, on average, less than a third of the marks available. This question focused on respiratory protective equipment (RPE) and required candidates to know terminology such as APF and how to calculate minimum APF values from supplied data. Candidates did not usually have much difficulty with those two points, providing at least a basic meaning of APF.

Candidates were also required to outline why RPE sometimes did not perform to the levels you would expect purely from looking at the APF. Again, most candidates could provide some of the more common reasons, but answers sometimes lacked breadth to achieve full marks. The final part of the question concerned face-fit testing, and many candidates did not appear to know what this was (course providers take note), let alone why and when it might be needed. Face-fit testing is only appropriate for RPE that relies on a tight seal to the face and, because of the wide range of face shapes/sizes the same RPE equipment may not fit all employees who require it. Face-fit testing is therefore necessary at least during initial RPE selection. Because face shape may also change (eg weight loss, scars) it is also advisable to repeat face-fit testing at intervals.

Examination technique

The following examination techniques are consistently identified as the main areas in need of improvement for candidates:

Candidates misread/misinterpreted the question

Careful and thorough preparation for the examination is vital for candidates. Accredited course providers should assist candidates in setting out and applying sound revision and examination practice and preparation techniques to ensure that they are well prepared for the examination. This includes ensuring that candidates carefully read the question to determine exactly what is being asked and answer accordingly.

Examiners noted that there was evidence of candidates not understanding the question that was asked and therefore providing an answer that was not relevant to the question.

The range of English language skills demonstrated in the examination by candidates varies enormously. Examiners often find themselves faced with scripts where candidates do not appear to have understood the question and struggle to write a coherent answer in English. Candidates for this examination should satisfy the required IELTS Level 7 language requirements. Course providers are reminded that it is incumbent on them to provide appropriate advice and guidance to candidates to help ensure that they stand a reasonable chance of success in the study of the NEBOSH Diploma.

There were numerous examples of quite long, detailed answers that suggest practical experience but do not focus on the question being asked. This may be a result of candidates either not reading the question properly, or because of possible language issues where candidates do not understand what the question is asking.

The examination is assessing candidates on their understanding of 'managing' health and safety and a number of candidates did not seem to grasp this resulting in long, detailed answers on such issues as 'what to look for in an audit' rather than how to prepare for and manage an audit.

Examiners ask questions based on the syllabus. Points, no matter how valid, but unrelated to the question being asked, will not attract any marks. Candidates should note that where there is emphasis in a question (eg by the use of italics) it is to guide candidates towards a particular point. Reading and re-reading the question encompasses taking due note of this emphasis.

Candidates' handwriting was illegible

The examination situation is a stressful time for candidates and while the examination is not a test of the English language or handwriting scripts must be legible for Examiners to mark them fairly. As the examination progresses, candidates can become both mentally and physically tired. In an increasingly electronic age, professional people do not have the same need to write text in longhand. However, to pass this examination it is an essential and necessary part of the preparation to rehearse writing questions in full and in the time allocated.

When practicing examination technique, candidates should hand-write their answers and get feedback from their course providers on legibility (as well as how they performed).

Course providers need to identify those candidates whose handwriting is illegible and provide them with appropriate advice. Examiners cannot award marks for answers that they are unable to read.

Candidates unnecessarily wrote the question down

There are 15 minutes to answer a 10-mark question in Section A and 30 minutes available to answer a 20-mark question in Section B of the question paper. This time will be required for reading, re-reading and understanding the question, developing an answer plan on the answer booklet and finally committing the answer to the answer booklet. The efficient use of time is essential in order to answer the 9 questions within the 3 hours available. The majority of Examiners reported that candidates felt it necessary to write the question out in full, before providing the associated answer, and this limits the time available. Course providers should remind candidates that it is not necessary to include a question with their answer.

Good examination technique is followed where the candidate frames the answer in the context of the question, rather than rewriting the whole of the question. As with the other examination technique points above, good examination technique is developed through practice and good preparation.

Candidates repeated the same point but in different ways

In some cases candidates tended to make the same point more than once, eg training. Once a valid point has been made and the mark awarded Examiners will not be able to award the mark again. Unless otherwise stated, most questions require candidates to respond with a wide range of issues to gain high marks. Consequently candidates should take care when using terms that contain numerous points that should be made separately.

Accredited course providers should brief candidates on examination technique by way of understanding what points are mark worthy in an answer and those that are not.

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.

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

Examiners report a high incidence of candidates writing down answers they have memorised from previous Examiners' Reports. These answers often relate to a similar, but different question, to which the memorised answer is not wholly applicable. For example, it may require a different aspect of the topic or relate to a different scenario.

Candidates are expected to apply their knowledge and understanding to the actual question given, not the question they think they see. This is why it is extremely important that candidates understand and are able to apply their knowledge, and not just memorise. Course providers should help candidates apply their knowledge to a range of different scenarios to aid understanding of the topic.

Candidates did not allocate enough time to the question

Some candidates were unable to give answers of sufficient depth to warrant good marks and sometimes spent more time on questions carrying fewer marks than was warranted by the command word.

Candidates need to take note of the fact that answers in Section A are worth 10 marks and those in Section B are worth 20 marks. The Examiners' expectation is that more detailed answers are required in Section B. Some candidates spend a disproportionate amount of time in writing long answers to Section A questions at the expense of time spent on the more in-depth answers demanded in Section B. Proper preparation and 'mock' examinations can help to correct this.

Accredited course providers should ensure that candidates are given adequate opportunity to develop examination skills to ensure that answers are provided to the depth and breadth required.

Structured Answers

It is important for candidates to structure their answers as this helps cover all the requirements of the question without losing focus. It is good examination technique to look for the principles or the concepts that underpin the topic and to use those as a basis for delivering a structured answer.

Candidates answered by posing a question

Candidates need to resist the temptation to present their answers as merely a series of questions. 'Outline' requires candidates *'To indicate the principal features or different parts of'* and this is not done through posing questions to the Examiners.

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:

Outline

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

Most candidates are familiar with the requirements of 'outline'. However, a number of candidates expect that by listing or giving bullet points that will be sufficient. At this level of qualification candidates are expected to be able to construct sentences around their answers.

An 'outline' question requires candidates to give the main issue and then provide the key features in the context of the question. Where a question that requires candidates to '**outline** the issues to be addressed in the development of an audit system' the response should provide adequate context to the issues in order to gain the marks. An answer that merely includes issues such as 'scope, training, commitment, etc' will not gain good marks since while the issues are relevant there is no context to the issues in relation to the question asked.

Candidates should provide context to the point being made to demonstrate understanding of the subject.

As required by a Diploma level qualification candidates should be able to demonstrate a detailed understanding of the subject matter and therefore be able to summarise and contextualise technical points in the field of health and safety. Those candidates who did provide good outlines to questions demonstrated understanding of the topic without going into too much detail.

If asked to '**outline** the purpose of local exhaust ventilation' in a given scenario, an answer such as 'contaminant removal, exposure limits' would be insufficient as this represents a listed answer. However, removal of contaminant at source (as far as possible) and ensuring exposure limits are not exceeded would higher gain marks.

If asked to '**outline** how health risks from exposure to lead should be managed...' in a given scenario, an answer such as medical tests, PPE, RPE would be insufficient as this represents a listed answer. However, surveillance tests for lead in blood/urine, the use of PPE such as overalls, the use of RPE such as respirator with appropriate particulate/fume filters would gain marks.

Explain

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

Many candidates are still not properly prepared for this examination. A list of points (no matter how relevant) will not satisfy Examiners when the command word is 'explain'. So for example, where candidates were asked to explain the circumstances where heat and smoke detectors would be inappropriate, Examiners were looking for candidates to explain that heat detectors would be inappropriate in environments where temperatures fluctuate suddenly during normal work activities. Just saying 'workshops', for example, is not enough to provide an answer to an 'explain' question.

Commonly, candidates do not provide adequate detail in relation to this command word, eg '**explain** limitations of relying on accident numbers only as a measure of health and safety performance'. An appropriate response would provide the reader with reasons why relying solely on accident numbers would not provide a comprehensive view of the organisational performance in health and safety, eg accident numbers do not indicate incidence of ill-health and accident data may go up following initiatives following underreporting, etc.

Candidates are generally unable to provide clear answers where this command word is used but that may be due to lack of knowledge rather than not understanding what is required, since an explanation requires the candidate to provide reasoning for their answer. For example, when a question specifies 'explain' the candidate is required to provide an understanding or make clear an idea or relationship. For example '**explain** how malaria is transmitted to humans'. If a candidate responded with *mosquito bites humans* this would be insufficient to merit full marks as this does not provide a deep enough understanding or relationship from the specified command word or the context in which the question is asked. However, a candidate would get full marks if they elaborated on this stating that the disease originates with the plasmodium parasite that is then transmitted to humans via a bite from a feeding female mosquito that carries it; the parasite then transferring to the human blood stream, travelling to the liver.

For example, when a question specifies 'explain' the candidate is required to provide an understanding or make clear an idea or relationship. For example '**explain** how the wet bulb globe temperature (WBGT) equation is used to assess heat stress'. If a candidate responded with calculate WBGT and compare with standards this would be insufficient to merit full marks as this does not provide a deep enough understanding or relationship from the specified command word or the context in which the question is asked. However, if a candidate responded with stating the WBGT equation (outside vs inside), the need to compare the calculated result with the international standard values, the need to take account of factors such as metabolic rate (as tabulated in the standard), the assumptions of the typical fit, healthy worker and normal level of clothing etc, this would merit the awarding of marks.

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.'

Candidates are required to provide a word picture in response to this command word and therefore the candidate needs to have a good understanding of the topic of the question in the examination in order to gain good marks. Typically, a limited response to this command word will be an inadequate amount of detail in the answer.

For example, when asked to describe the contents of a safety policy candidates should provide the Examiner with relevant information about the contents of the policy, eg 'the policy should contain details of the organisational commitment to health and safety'. This would be supported with specific targets and commitment resource to ensuring compliance as a minimum but developing the health and wellbeing of the employees, etc'. An answer that goes no further than listing the topics of to be covered in the policy would not attract good marks in the examination.

In the examination, lists and single word answers will rarely satisfy the requirement of the Examiners in terms of answering the question at this level. It is noticeable that the well prepared candidate has less trouble deciphering command words and tends to gain good marks whereas those candidates who use single word answers will tend not to have the knowledge to write anything further in the context that is required.

Give

Give: Only a short answer is required, not an explanation or a description.

'Give' is normally used in conjunction with a further requirement, such as '**give** the meaning of' or '**give** an example in **EACH** case'.

In some circumstances candidates may spend too much time giving unrequired detail in response to this command word. It is often used in conjunction with the meaning of a phrase or statement and candidates can overelaborate the required answer. Time management is important in the examination and candidates should ensure that they respond with appropriate brevity where the command word and available marks suggest that is all that is required.

When asked to '**give** the meaning of motivation', it would appropriate to say that 'motivation is the driving force that leads an individual to behave in a certain way'. It would not be appropriate to discuss in detail different motivational theories.

On the whole most candidates respond well to this command word, often by offering a definition. There is evidence where candidates go into too much detail that left those candidates writing large amounts of text for very few marks.

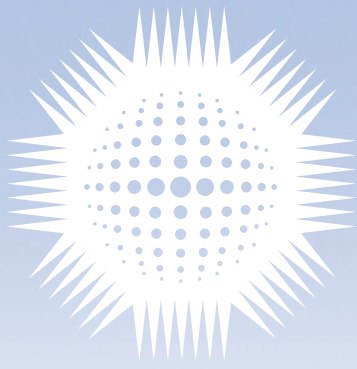
Identify

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

As with 'give' above it is not uncommon for candidates to overelaborate their answers in response to this command word. It is adequate for a candidate to provide the key point to the Examiner without further developing the point with supporting theory or examples unless they are specifically asked for.

When providing a response to 'identify' the mental selection and naming of an answer that relates to the question should be sufficient. In most cases, one or two words would be sufficient to be awarded corresponding marks. Any further detail would not be required and impacts negatively on the time limit for completing the examination. For example, if the question was '**identify** possible effects on the body when someone is exposed to lead' suitable responses would include developmental effects in unborn babies, anaemia, nausea/vomiting in order to be awarded a mark.

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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