

January 2015

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

JANUARY 2015



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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 110 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 2015.

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 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

Candidate performance

This report covers the examination sitting in January 2015.

Learning outcomes

Question 1

5.1 Explain the types and properties of biological agents found at work

Candidates were expected to understand the generic meaning of biological agent and identify different types in a workplace environment. Candidates correctly referred to Schedule 3 of the Control of Substances Hazardous to Health (COSHH) Regulations. Course providers should help ensure that candidates are directed towards studying the whole of the HSE document L5, which is the COSHH approved code of practice (ACOP), now in the 6th edition. This document is critical to the study of a significant part of the Unit B syllabus. Study of this document should include referring to the important information contained within the various schedules to the Regulations that are found at the back of the L5 document.

A list of biological agents, that candidates are expected to be familiar with, is provided in the syllabus. Candidates are expected to recognise if specified biological agents are a bacteria, virus, fungi or protozoa. This knowledge should be familiar to all those studying this element of the syllabus. Course tutors should note that the syllabus refers to 'hepatitis' without specifying any particular type. Therefore it is expected that course materials help candidates to distinguish the most common types (ie Hepatitis A, B and C).

Overall the performance against learning outcome 5.1 was average.

Question 2

11.2 Outline the principles and benefits of vocational rehabilitation including the role of outside support agencies

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

Candidates were expected to understand the meaning of vocational rehabilitation, principles of the bio-psychosocial model and occupational services including health promotion, health assessment, etc.

The bio-psychosocial model is referred in the syllabus in element 11 however many candidates were not entirely familiar with this. The bio-psychosocial model provides the basis to understanding what barriers an individual may face when returning to work after a significant period of absence.

Course tutors should confirm that candidates are familiar with and understand the bio-psychosocial model and how that relates to practical measures associated with vocational rehabilitation.

Overall the performance against these learning outcomes from element 11 was average.

Question 3

1.5 Explain the principles of epidemiology and the principles of toxicological data to the identification of work-related ill-health

This is always a challenging area of the syllabus when it appears in examination questions. Course tutors should give sufficient time to the study of this part of the syllabus, so candidates can properly appreciate the different types of study. This learning outcome requires a level of understanding that allows candidates to 'explain' the principles of epidemiology. Many only had a limited appreciation of this topic.

Often candidates are confused between prospective and retrospective studies. More candidates were able to outline the factors that affect the reliability of these studies, whereas few were able to clearly describe how the studies are carried out.

While this topic may not be a key part of a safety practitioner's day-to-day work, an appreciation of this is necessary in order to understand the possible implications of exposure to hazardous substances in the long term.

Overall the performance against learning outcome 1.5 was below average.

Question 4

10.1 Explain the need for, and factors involved in, the provision and maintenance of thermal comfort in the work environment

Candidates were expected to demonstrate an understanding of thermal comfort and heat stress including the legal requirements for managing thermal comfort and temperature in the workplace.

Knowledge of the legal requirements for temperature in the workplace was not well appreciated. Many candidates wanted to discuss at length the numerical values of temperature that are referred to in an ACOP. Very few candidates focused on the legal requirements that appear in Regulation 7 of the Workplace (Health, Safety and Welfare) Regulations 1992. Course tutors should ensure candidates appreciate the difference between requirements set out in Regulations and information that is provided in ACOPs.

Course tutors must take steps to ensure the following syllabus content is fully addressed in course materials and course delivery: *Use of the heat stress index WBGT (as per BS EN 27243), equation used to calculate units, metabolic rate class, comparison to reference values, conclusions on heat stress risk, acclimatisation.* Those candidates that were familiar with this part of the syllabus were able to quickly and easily gain half of the marks available in this question.

Overall the performance against learning outcome 10.1 was poor.

Question 5

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

Candidates were expected to show an understanding of the legal requirements for managing work-related stress including relevant statutory provisions and case law examples.

There is a limited amount of case law included in the Unit B syllabus, therefore it is not an onerous task for candidates to become familiar with the examples listed in Element 8 of the syllabus. A significant number of candidates responding to this question quoted the wrong case, referring to *Walker v Northumberland County Council*.

Understanding the guidance that was issued following this Court of Appeal judgement is central to understanding the expectations placed on employers when managing work-related stress. Candidates need to be confident that they can outline this guidance.

Some candidates incorrectly referenced relevant duties including the Health and Safety at Work etc Act 1974 or the Management of Health and Safety at Work Regulations 1999. Some candidates that correctly identified the relevant statutory duties were not then able to justify why they were relevant to work-related stress.

Overall the performance against learning outcome 8.4 was poor.

Question 6

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

Candidates were expected to expand on a specified list of assessment tools that candidates should have studied. The syllabus states: *Use of assessment tools: HSE Manual Handling Assessment Tool (MAC), HSE Art Tool (assessment tool for repetitive tasks of the upper limbs), NIOSH Manual Material Handling (MMH) Checklist, Rapid Upper Limb Assessment (RULA), Quick Exposure Check (QEC).*

This question revealed gaps in candidates' knowledge and the teaching that some had received. Some candidates even wrote in their answer script 'I have not been taught this!' Course providers must ensure they are properly equipping their students across the breadth of the syllabus content.

Question 7

1.1 Outline the legal framework as it applies to chemicals

Candidates were expected to convey understanding of legislation controlling the use of chemicals in the workplace.

This was an unpopular choice of question in Section B. Candidates still wish to avoid addressing questions concerning this relatively new piece of legislation. However, the requirements of the registration, evaluation, authorisation and restriction of chemicals (REACH) have been enforced in the UK since 2008, so course providers need to ensure that candidates are now fully conversant with the requirements of REACH.

Among the small number of candidates that answered this question, most gained marks by identifying a range of information that is typically contained in a safety data sheet (SDS). Most were less sure of the circumstances in which REACH requires an SDS to be provided. More detailed requirements of REACH were poorly understood.

Overall the performance against this learning outcome was poor.

Question 8

7.2 Explain the effects of exposure to non-ionising radiation, its measurement and control

Candidates were expected to express an understanding of sources of non-ionising radiation generated in the workplace.

80% of candidates chose to answer the question on this learning outcome and clearly related to design and operational control measures associated with this topic. Course tutors should ensure that course materials make reference to statutes associated with non-ionising radiation in the workplace. Overall performance against this learning outcome was average.

Question 9

6.3 Explain the measurement and assessment of noise exposure

Candidates were expected to relay knowledge of planning and carrying out noise surveys.

Candidates appeared to rush ahead and produce jumbled and confused answers to this question. When a significant number of marks are available in a whole or part question it is sensible to spend some time planning what to include in the answer before starting to write the answer. Time spent making an answer plan can be time well spent.

There was so much that could be said when explaining how to plan and conduct a noise survey, that it is necessary to organise the response into logical steps. The fact that this question was not broken down into parts may have deterred some candidates from attempting it, as overall it was an unpopular question.

Those that did answer the question demonstrated only a cursory knowledge of planning and conducting noise surveys. Use of noise-related terminology was often inaccurate or confused. Course providers need to help candidates to better understand the differences between terms such as $L_{EP,d}$, L_{eq} , dB(A), dB(C), octave band analysis etc. Some candidates were not able to explain the different types of sound level meter that may be used throughout the survey. Others did not fully appreciate that noise exposure is dose dependent, so consideration of both the level of exposure and the time of exposure are necessary in any survey. Planning the survey was often overlooked.

Overall the performance against learning outcome 6.3 was poor.

Question 10

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

Candidates were expected to respond with an understanding of the distinct stages associated with the management of PPE and respiratory protective equipment (RPE) ie selection, use and maintenance of PPE. Questions relating to PPE/RPE may require candidates to consider some or all of these stages. A common pitfall is that candidates do not read a question properly and then answer at length about one stage that is not required.

Sometimes candidates did not respond fully to justify why specified items of PPE/RPE, associated with a specified task, were required. 'Justify' is a command word that requires a candidate to prove or show why something is valid.

The management of PPE and RPE involves a number of distinct stages: selection, use and maintenance. Unfortunately some candidates overlooked what the question specifically asked and wrote at length about the criteria for selection and were not able to gain marks for this.

Overall the performance against this learning outcome was above average.

Question 11

2.2 Explain the control measures for hazardous substances

4.1 Explain workplace exposure limits (WELs), the means by 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 contaminants

Candidates were expected to relay an understanding of control measures for identified hazardous substances; workplace exposure limits and application of workplace exposure limits and corresponding strategies for measurement of airborne contaminants.

Candidates responded well to a calculation of workplace exposure and practical control measures reducing exposure. Occasionally, candidates did not attain the marks available because the relevant measurement units were not included in the answer.

Candidates were less equipped to give the meaning of specific terms included in EH40.

Overall the performance on this question was good.

Examination Technique

The following examination techniques were identified as the main areas of improvement for candidates:

Candidates misread/misinterpreted the question

Candidates often have a reasonable body of knowledge on the topic covered by a question, but they have not been able to apply this knowledge 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.

Course providers and candidates should note that various devices are used to draw attention to keywords in examination questions. These devices include emboldened and italicised text and the use of words in capitals. These devices are intended to draw candidates' attention to these words and this emphasis should then be acted upon when making a response.

At this sitting a number of Examiners identified the misreading/misinterpretation of questions as a problem area for candidates. For example, candidates wrote about selection of PPE when the question wording had clearly stated that this had already been undertaken. Another example was in question 2 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.

Candidates repeated the same point but in different ways

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. On this paper this was the case for questions 5 and 9.

When a significant number of marks are available in a whole or part question it is sensible to spend some time planning what to include in the answer before starting to write the answer. Time spent making an answer plan can be time well spent and can help to avoid repetition of the same point.

Candidates did not answer all the questions

A number of candidates omitted a whole question from their answer script. In particular, many candidates did not attempt question 6 on the ART tool.

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. Sometimes this may happen due to time issues, however on this paper this did not seem to be the case. Instead, there appeared to be a lack of sufficient knowledge necessary to address parts of some questions, for example in questions 4 and 5. In other cases, some candidates had a total lack of awareness that the topic covered in question 6 was even on the syllabus.

Unfortunately 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.

Command words

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

Outline

This command word requires a candidate to indicate *'the principal features or different parts of'* the topic of the question. Often, candidates answering 'outline' questions did not provide sufficient levels of detail to be considered an 'outline'. Bullet point responses of two or three words do not constitute an 'outline', so candidates must avoid taking this approach as they will not then be awarded marks for points that are valid, but have insufficient information.

'Outline' questions usually require a range of features or points to be included and often 'outline' responses lacked sufficient breadth when compared to the number of marks available in the question.

Explain

'Explain' is usually used in conjunction with 'why' or 'how' and so requires that the candidates provide evidence of their understanding. If the 'explain' command word is used in the context of a scenario then the explanation given should make reference to that scenario. It is not appropriate to respond to this command word with a series of two or three-word bullet points.

When responding to an 'explain' command word it is helpful to present the response as a logical sequence of steps.

Describe

The NEBOSH guidance on command words gives the meaning of 'describe' as *'a detailed written account of the distinctive features of a subject. The account should be factual, without any attempt to explain'*. Providing that candidates had sufficient technical knowledge on the topic of the question they were able to respond well to this command word.

Give

This command word requires technical accuracy and completeness and while the command word is usually understood by candidates it is often not well executed. In this question paper candidates struggled to give the meaning of common terms found in EH40 and other terms related to workplace exposure to hazardous substances. Parts of questions involving the command word 'give' only tend to have a small number of marks associated with them, for example 2 or 3 marks. However, candidates do need to make effort to retain the meaning of a number of key terms both for the examination and for use in their day-to-day work in health and safety.

Identify

The command word 'identify' will be used when a brief response is required. If a question asks to **'identify** acute effects exposure to UV radiation' then a response of 'UV radiation can cause skin dryness' is sufficient to gain 1 mark. Candidates responding to 'identify' questions usually provided a sufficient answer.

What is required is usually a word or phrase that *'gives reference to an item, which could be its name or title'*. Sometimes candidates can give too much detail for this command word.

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.

Conclusion

The feedback from Examiners highlighted that candidates taking the Unit B examinations in January 2015 needed most improvement in the following areas of the syllabus, assessing risks from repetitive tasks (ART) (learning outcome 9.2); thermal comfort (learning outcome 10.1) and REACH (learning outcome 1.5).

With regard to examination technique, candidates should take care to read and re-read the question carefully and undertake planning of examination answers to avoid repetition of the same point.

Course providers and candidates need to be confident that all relevant syllabus content is covered to the depth indicated by the command words in the individual learning outcomes.

In addition, there is a need for candidates to be able to use their knowledge and apply it to new situations that they may not have encountered before. Relying on previous questions that have been practiced as part of the course study is not, alone, a reliable approach to examination success. Neither does this approach prepare individuals for their role as health and safety practitioners.



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