

July 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

**JULY 2015**

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# Introduction

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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

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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 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 July 2015.

### Learning outcomes

#### Question 1

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

This question assessed candidate's knowledge of the Health and Safety Executive's (HSE) Manual Handling Assessment Tool, referred to as the MAC tool. This tool uses a range of risk factors to assess the overall level of risk associated with a lifting operation, a carrying operation or team handling. Candidates required knowledge of these risk factors, as well as understanding of how these factors vary in relation to risk. For example, if the task involves twisting or bending sideways then the risk increases and this is represented by an increasing numerical score in the MAC assessment tool.

Some candidates decided to address this question by considering the wider aspects of manual handling assessment (task, load, environment and individual) and did not address the risk factors included in this specific HSE tool.

It was evident from many answers that candidates had practical experience of using this tool in their workplace. Perhaps course providers should consider using this tool as a practical exercise during course delivery. Video clips are available on the HSE website to facilitate this activity.

Overall performance for learning outcome 9.2 in this sitting was below average.

#### Question 2

##### **7.3 Explain the effects of exposure to ionising radiation, its measurement and control**

The role of a radiation protection adviser (RPA) was the subject of this question. Many candidates were aware of the role but did not have sufficient knowledge to outline the specific tasks the role could involve. The syllabus requires candidates to be able to explain the role, competency and training of an RPA (and a radiation protection supervisor (RPS)); but many were not able to provide a sufficiently wide enough range of points required for this 'outline' question.

When outlining how competency can be demonstrated reference to training, knowledge and experience are relevant. However, it was necessary to go beyond these three headings and relate these points to the subject of the question. Few candidates mentioned the need for a RPA to have knowledge of the Ionising Radiations Regulations (IRR), the legislation that defines the role of a RPA. Few candidates mentioned the specific training criteria for a RPA, which is set out by the HSE.

There was not always an appreciation that a RPA is an advisory role and often these individuals are external to the organisation they are advising. Some candidates were confusing the role of a RPA with that of a RPS. Course providers should direct students to the information in the IRR approved code of practice and in particular schedule 5 to the Regulations.

Overall performance for learning outcome 7.3 in this sitting was below average.

### Question 3

#### 6.7 Explain the measurement and assessment of vibration exposure

This is a commonly assessed area of the Diploma syllabus, so candidates should have a good appreciation of what to consider when risk assessing exposure to hand-arm vibration. Many candidates did provide a wide range of things to consider but not all used appropriate terminology, such as vibration magnitude.

Some candidates strayed from the question being asked and chose to write about control measures, which was not required. However, it was valid to mention that the existing controls measures in place would be taken into account when assessing the risks.

It was common for candidates to miss out reference to results of health surveillance as being an important factor when assessing the risk. It was also surprising to see how many candidates continue to refer to *'gloves being a means of reducing exposure to vibration'*. In the case of this question this statement should not have been included as it refers to the provision of a control measure. In addition, course providers should help candidates to work out why this statement is technically inaccurate.

The overall performance for learning outcome 6.7 in this sitting was average.

### Question 4

#### 4.2 Outline the strategies, methods, and equipment for the sampling and measurement of airborne contaminants

Many candidates often fail to understand the technical detail in this learning outcome, but by contrast, performance on this question was generally good. This required candidates to consider why occupational hygiene measurements, such as personal dust sampling, may give results with apparent discrepancies.

Most candidates provided a good range of reasons and gained good marks.

Some candidates continue to suggest that the difference in the results from personal dust sampling may be due to the wearing of respiratory protective equipment. Course providers should ensure that candidates understand why this is incorrect.

The overall performance for learning outcome 4.2 in this sitting was above average.

### Question 5

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

The performance on this question, about the functions of an occupational health service, was generally very good. Candidates are well prepared to outline a wide range of functions such a service could provide in a large organisation.

The overall performance for learning outcome 11.3 in this sitting was well above average.

### Question 6

#### 10.4 Explain the requirements and provision for first aid in the workplace

This question required candidates to think about what an employer should consider when determining first aid provision. The HSE require employers to take a risk assessment-based approach rather than rigidly specifying fixed numbers of trained individuals. Therefore, those candidates who appreciated this performed well on this question. Some candidates wrote in detail about first aid box contents and first aid rooms and so did not perform well.

Important practical considerations include the closeness to medical facilities, hospitals with accident and emergency departments and the local expected ambulance response time. Some candidates recognised the importance of specialist training for first aid personnel, for example when employees are exposed to specific hazards such as certain hazardous substances.

Course providers should direct candidates to the first aid needs assessment in the HSE document L74.

The overall performance for learning outcome 10.4 in this sitting was average.

## **Question 7**

### **3.1 Explain local exhaust ventilation and procedures to ensure effective ventilation**

This was a popular choice of question in Section B, but many candidates lacked a sufficient depth of technical knowledge to gain good marks. Many candidates did not really understand the reasons for carrying out thorough examination and testing on a local exhaust ventilation (LEV) system. Many candidates did not mention that it is necessary to comply with the legal requirements in the Control of Substances Hazardous to Health Regulations.

Few candidates were able to outline what makes someone competent to carry out such examinations and tests. In a similar outcome to question 2, they limited their response to *'training, knowledge and experience'*, without relating these points to the subject of the question.

Candidates generally had limited knowledge on the technical detail of thorough examination and testing techniques and equipment, even though the syllabus in 3.1 requires this to the depth of 'explain'.

Responses were better when considering the 'front end' components of the LEV system, such as the hood and duct. However, the requirements for examination and testing of the 'back end' components were limited. Few candidates appreciated that filters or air cleaning devices may have alarms or pressure gauges that could be checked, and fewer distinguished between the different checks that are needed on the different types of air cleaning device, such as wet scrubbers.

Course providers should encourage candidates to study the HSE document HSG258 as this is fundamental to understanding this part of the syllabus.

The overall performance for learning outcome 3.1 in this sitting was below average.

## **Question 8**

### **6.2 Explain the effects of noise on the individual and the use of audiometry**

### **6.3 Explain the measurement and assessment of noise exposure**

This question presented a very practical challenge and candidates needed to be comfortable with the use of the HSE noise exposure ready reckoner, which was provided in the question paper. This new style of question was unpopular. However, those with the relevant knowledge could gain marks quickly and easily and so the average mark for this question was good, the highest on the question paper.

As well as the practical aspects of noise exposure assessment in learning outcome 6.3, this question also covered learning outcome 6.2. In these parts of the question candidates were able to demonstrate their knowledge and understanding of the effects of noise on hearing and the limitations of audiology.

As is often the case with noise questions candidates use technically incorrect terminology and continue to mix up the meaning of terms such as  $L_{Aeq}$  and  $L_{EPd}$ . It was also apparent that some candidates still think that the upper exposure action value for noise is 90 dB(A) instead of 85 dB(A).

Course providers are encouraged to use practical exercises with both the noise and vibration calculators as part of the course delivery, as both are referred to in the syllabus.

The overall performance for learning outcomes 6.2 and 6.3 in this sitting was above average.

## **Question 9**

### **8.3 Explain the scope, effects and causes of work-related violence/aggression**

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

This was the most popular choice of question in section B of the paper. All candidates provided a good range of possible control measures for minimising the risk of violence to employees and related these well to the scenario given in the question (a convenience store). Some candidates drew on their day-to-day practical experience of using such stores and so referred to very specific controls that had used or seen, such as night-pay systems, high value items being stored behind the till or participation in local 'business watch' schemes. Candidates should always remember that they have a wealth of experience from everyday life and not just the knowledge they acquire from the formal study of the Diploma course.

A few candidates did approach this question from a 'management system' viewpoint and therefore spent time discussing the writing on policies, consultation with employees and the implementation of safe systems of work. The scenario in this question clearly directed candidates towards the more practical measures such as those referred to above.

The overall performance for learning outcomes 8.3 and 8.4 in this sitting was above average.

## **Question 10**

### **2.2 Explain the control measures for hazardous substances**

### **4.2 Outline the strategies, methods, and equipment for the sampling and measurement of airborne contaminants**

This calculation-style question was a departure from the usual style of workplace exposure limit (WEL) calculation question. It used the raw data collected from the dust sampling equipment and filter weights and asked candidates to perform calculations using these. It was the least popular question on the question paper. However, this is a clear requirement in part 4.2 of the diploma syllabus.

Those candidates who did choose this question performed reasonably well on the calculation elements, but then performed less well on the interpretation of the results. When asked to comment on the results, few were able to use the correct language. Few candidates understood that any dust in a substantial quantity is a substance hazardous to health. Also, fewer realised that hardwood dust is a carcinogen and therefore exposure needs to be controlled to a level that is as low as is reasonably practicable.

Some candidates did not apply the command word 'comment' and this is referred to later in the command words section of this report.

Knowledge of the equipment required to make personal dust exposure measurements was generally well understood.

Those candidates who chose this question (around 20% of the candidates), made a wise choice as the overall performance was above average.



## **Question 11**

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

This question required candidates to demonstrate their knowledge in both the classification of, and control measures for, biological agents, and in particular Hepatitis B.

While most candidates had knowledge of the hazard classification system (groups 1, 2, 3, and 4), few understood what is meant by other information provided in the approved list of biological agents. There were a few candidates who mixed up the approved list of biological agents with the document EH40.

This question was not particularly popular and the marks achieved were limited. The knowledge of the technical controls necessary for class 3 biological agents were often limited and many candidates strayed into discussing non-technical controls such as training and the use of personal protective equipment.

The overall performance for learning outcome 5.2 in this sitting was below average.

## Examination technique

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

### Candidates misread/misinterpreted the question

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 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**.....

At this sitting a number of Examiners identified the misreading/misinterpretation of questions as a problem area for candidates. For example, not addressing the risk factors that are specific to the manual handling assessment tool (MAC tool) and instead writing about general approach to risk assessment of manual handling tasks (see Question 1 above).

### Candidates repeated the same point but in different ways

The quantity provided in an examination answer is not necessarily an indicator of quality and it appears that candidates sometimes think that because they have written a lengthy answer they will gain a good proportion of the marks. Candidates are often making the same point several times in different ways, so Examiners are not able to award this same mark a second time.

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 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. The chance of repetition increases when all or most marks for a question are available in one part of a question. For this sitting this was the case for Question 9.

### Candidates did not respond effectively to the command word

Some Examiners identified this as a problem in this sitting. 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'.

## Command words

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

### Explain

'Explain' is usually used in conjunction with 'why' or 'how' and so requires the candidates to 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.

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.

### Comment

The NEBOSH guidance on command words gives the meaning of 'comment' as '*to give opinions (with justification) on an issue or statement by considering the issues relevant to it*'. So in Question 10, when candidates had already calculated two levels of the exposure to wood dust they were then asked to comment on this. In this case the issues included the levels of exposure they had found, and candidates then needed to give their opinion on these, while considering what was relevant. The question guided on what may be relevant.

What was relevant included: 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 commented with justification on each of these areas they would have gained good marks in that part of question. However, most candidates gave little more than whether the level was above or below the workplace exposure limit, and therefore did not provide a full enough 'comment' for the 6 marks available.

### Outline

This command word was responded to well by most candidates. 'Outline' requires a candidate to indicate '*the principal features or different parts of*' the subject of the question. Some candidates continue to answer 'outline' questions with little more than a list. 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 can lack sufficient breadth, so candidates should also be guided by the number of marks available.

### Identify

This command word did not generally present any difficulties.

Examiners will use the command word 'identify' when they require a brief response. If a question asks to '**identify** risk factor in the MAC tool', then a response of the '*grip on load*' 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.

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](http://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 July 2015 needed most improvement in the following areas of the syllabus: the role of radiation protection advisors (learning outcome 7.3), the MAC tool (learning outcome 9.2), examination and testing of LEV systems (learning outcome 3.1) and controls for biological agents (learning outcome 5.2).

With regard to examination technique, candidates sitting this examination should take care to 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. Those candidates who did choose to answer new questions in section B generally gained better than average marks in those parts of the examination paper.



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