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# Examiners' Report

## NEBOSH CERTIFICATE IN ENVIRONMENTAL MANAGEMENT

### UNIT EC1: MANAGEMENT AND CONTROL OF ENVIRONMENTAL HAZARDS

SEPTEMBER 2018

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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) Accreditation regulatory requirements.

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

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## General comments

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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.

This report has been prepared to provide feedback on the standard date EC1 examination sat in September 2018.

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

Candidates and course providers will also benefit from use of the 'Guide to the NEBOSH Certificate in Environmental Management' which is available via the NEBOSH website. In particular, the guide sets out in detail the syllabus content for EC1 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 EC1 'Example question paper and Examiners' feedback on expected answers' which provides example questions and details Examiners' expectations and typical areas of underperformance.

## Unit EC1 Management and control of environmental hazards

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- Question 1**
- (a) **Identify** the categories of waste. (4)
- (b) (i) **Outline** the main advantages associated with the landfilling of waste. (8)
- (ii) **Outline** the main disadvantages associated with the landfilling of waste. (8)
- 

This question assessed candidates' knowledge and understanding of learning outcomes 6.4: Describe outlets available for waste; and 6.1: Outline the significance of different waste categories and the relationship between category and route of disposal.

The answer to part (a) is detailed in the syllabus and most candidates gained the available marks. Part (b) was less well answered. The most immediate reasons that landfill is still widely used include the advantages of low cost, ease of use and suitability for many wastes. The disadvantages include the risks associated with pollution, availability of land and potential nuisance. Many candidates only provided a limited response, indicating that more reading around the topic is needed.

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- Question 2** **Outline:**
- (a) the benefits; (4)
- (b) the limitations (4)

associated with the use of fossil fuels as an energy source.

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This question assessed candidates' knowledge and understanding of learning outcome 7.1: Outline the benefits and limitations of fossil fuels.

The benefits of fossil fuels account for their continuing popularity, for example – ready availability and flexibility of use. Their limitations reflect concerns about such issues as resource depletion and atmospheric emissions from combustion. Most candidates answered this question well and gained good marks.

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- Question 3** ISO 14001 requires organisations to identify both environmental aspects and environmental impacts.
- (a) **Give** the meaning of the terms:
- (i) environmental aspect; (2)
  - (ii) environmental impact. (2)
- (b) **Identify** possible environmental *aspects* of a small vehicle repair workshop. (4)
- 

This question assessed candidates' knowledge and understanding of learning outcomes 3.1: Explain the reasons for carrying out environmental impact assessments; and 3.4: Explain the principles and practice of impact assessment.

The definitions of 'environmental aspect' and 'environmental impact' are given in ISO 14001. Candidates who had learnt these generally gained good marks, however it was clear that some do not understand these terms, which are fundamental in implementing an environmental management system.

This same lack of knowledge also affected answers to part (b). Candidates sometimes confused aspects and impacts when applied to the scenario, or were not clear in their answers. In this case, an aspect could be emissions from vehicle exhausts, but some answers included air pollution (the subsequent impact). Some candidates were able to identify a number of aspects and so gained higher marks.

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- Question 4** Work is being carried out on a large construction site next to a residential area.
- (a) **Identify** typical *effects* of environmental noise during the construction work. (2)
- (b) **Identify** factors that determine whether noise from the construction site is likely to constitute a nuisance. (6)
- 

This question assessed candidates' knowledge and understanding of learning outcome 8.1: Describe the potential sources of environmental noise and their consequences.

Part (a) was generally well answered; candidates could identify many potential effects of noise as these are typical regardless of the source. Part (b) was less well answered. The question asked what determined whether the noise was likely to be a nuisance, such as the time of day, or the frequency of the sound. Some candidates incorrectly answered with the source of noise, or control measures. Acceptable answers also included factors specifically relevant to construction.

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- Question 5** (a) **Outline** what is meant by '*reactive monitoring*'. (2)
- (b) **Outline** types of issues that may be identified by reactive monitoring. (6)
- 

This question assessed candidates' knowledge and understanding of learning outcome 2.2: Describe the key features and appropriate content of an effective EMS, ie ISO 14001:2015.

This question produced mixed results. In part (a) some candidates confused reactive monitoring with active monitoring. *Reactive* monitoring is the collection of information following an incident, usually in order to investigate the causes. A good answer covered both parts of the process and marks were also available for specifying the situations where it is typically used.

Part (b) asked for the types of issues identified, not examples of incidents. An oil spillage is an incident, but the issues that may be identified by monitoring are inadequate control measures, or a compliance breach. This is an example of why careful reading of questions is advised.

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- Question 6** **Identify FOUR** common air pollutants **AND give** a typical source for **EACH**. (8)
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This question assessed candidates' knowledge and understanding of learning outcome 4.2: Outline the main types of emissions to atmosphere and the associated hazards.

This question was generally well answered, most candidates could give examples and linked sources of pollutants. Some candidates could not be awarded marks as their answers were limited to 'sulphur compounds', rather than correctly identifying sulphur oxides (SO<sub>x</sub>). An 'identify' command word requires a clear and specific response.

- 
- Question 7** **Outline** measures that should be in place in order to be prepared for environmental emergencies. (8)
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This question assessed candidates' knowledge and understanding of learning outcome 9.2: Describe the measures that need to be in place when planning for emergencies.

This question was well answered. Most candidates gained at least half the marks by including the need for an emergency response plan or an inventory of materials on site. This was an 'outline' question and answers needed to be more than a list of single words. Bullet points are an excellent means of presentation but still need to provide a full response. For example 'responsible disposal of waste materials' is an acceptable answer, rather than just 'waste disposal'.

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**Question 8**      **Outline** the main possible sources of water pollution from an industrial site. **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 5.2: Outline the main sources of water pollution.

This question was well answered by most candidates who outlined, for example, leakage of oil or chemicals from disused storage tanks, or badly managed waste storage facilities. Pollution can involve nuisance materials such as blown paper or plastic even though these are not inherently hazardous.

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**Question 9**      **Identify** internal sources of information that an organisation might consult when assessing its impacts on the environment. **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 3.3: Identify the nature and key sources of environmental information.

Most candidates identified the things that were regularly measured such as energy consumption, but few included the intermittent events such as records of enforcement actions or informal discussions with workers. These are just as valid and usually offer insights that are not available through regular monitoring programmes.

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**Question 10**      **Outline** the essential requirements of the environmental policy for an organisation seeking to gain certification under ISO 14001. **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 2.2: Describe the key features and appropriate content of an effective EMS, ie ISO 14001:2015.

The environmental policy is a high level document that should set the strategic direction of the Environmental Management System. It is not required to detail the full implementation of the system that some candidates suggested in their answers. The policy needs to provide a framework for setting objectives, but would not state specific targets. More comprehensive answers considered the requirements of the document as well as the contents – how senior management commits to and communicates the policy is as much a part of the ISO requirements as the more technical content.

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- Question 11** (a) **Give** the meaning of the term '*sustainability*'. (2)
- (b) **Outline** how a construction project can help ensure it is supporting sustainable development. (6)
- 

This question assessed candidates' knowledge and understanding of learning outcome 1.3: Outline the importance of sustainability and its relationship with Corporate Social Responsibility.

Some candidates answered part (a) well, mentioning the balance between present and future generations, however others had difficulty getting the complete concept across in their answer. There are several definitions of sustainability, including the one contained in the EC1 syllabus. Marks are awarded for noting the important points within the definition; answers do not have to be memorised word-for-word.

Part (b) required knowledge of all aspects of sustainability. Many candidates only focused on environmental concerns such as avoiding pollution, without addressing social or economic benefits that a construction project can bring. Sustainable development is about achieving an optimum balance among these conflicting needs.



## Examination technique

The following issues are consistently identified as the main areas in need of improvement for candidates taking the Environmental Certificate qualification:

### Candidates misread/misinterpreted the question

Candidates misreading or misinterpreting the question is by far the most common cause of candidates not gaining the maximum marks available.

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 Certificate 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 subject areas. For example, a candidate could be asked about the causes of deforestation, or could be asked about the effects of deforestation. A question could require a response relating to the concept of water quality, or a question could require a response relating to the monitoring of water quality. Therefore, a candidate should focus not only on the general topic area (eg deforestation, water quality) but also the specific aspect of that subject to which the question relates.

Candidates must also pay attention to the command word. For example, a question could ask candidates to '**identify** types of waste found in an office', or a question on the same topic could ask candidates to '**outline** ways to manage waste from an office'. Candidates appear to focus solely on the object of the question (waste) and do not pay sufficient attention to the subject (waste types or waste management in the examples given) or the command word ('identify' or 'outline' in the examples given). There is often some confusion between aspects and impacts. If a question requires aspects of a given scenario, candidates must be careful not to provide impacts, or even in some circumstances controls, as they will not be able to attract marks.

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 subject 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 memorised answers obtained through rote-learning, that again can provide answers that are loosely associated with the subject 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 subject matter and marks are not awarded.

Candidates are advised to allow sufficient time to read and re-read the question in order to determine the key requirements prior to committing their answer to paper. Preparing a time plan before the examination will indicate how many minutes are available for each question and then part of this time allocation can be given to reading the question. Underlining or highlighting key words can assist in keeping focused on the salient points and simple mind maps or answer plans can also be useful. Maps and plans should be kept simple so as not to use up too much examination time.

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

A key indicator a 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 and relates to the amount of detail that should be included in each point of the answer.

The learning outcomes in each element of all syllabus guides include the relevant command word that dictates the level of detail that should be covered in a course of study and the depth of answer that a candidate would be expected to provide in an answer to an examination question.

Examiners report that candidates continue to incorrectly observe the command words and therefore compromise their ability to gain the marks available. The majority of cases where command words are not observed relate to insufficient detail being given by a candidate in their examination answer. A significant number of candidates, irrespective of the command word given in the question, provide all answers in the form of a brief list of one or two words. This would normally not be sufficient to gain marks where the command word given was 'outline', 'explain' or 'describe', all of which require answers of more than one or two words.

Some candidates do provide too much information, which would not be required where a command word limits the expected answer to 'give' or 'identify'. Candidates would not be penalised for providing excessive detail but this would not be an efficient use of the time allocated.

Course providers should ensure that learning materials complement the command words in the syllabus guide and the NEBOSH guidance on command words and that sufficient time is given to advising candidates on suitable examination technique during a course of study.

### **Candidates unnecessarily wrote the question down**

Developing a time plan is a key element in preparing for an examination. Advice included on Certificate question papers suggests that 30 minutes should be allocated for the answer to the long 20-mark question, and 90 minutes should be allocated to the answers for the remaining ten, 8-mark short questions. Therefore there are around 9 minutes available to answer an 8-mark question. This time will be required for reading the question properly at least twice, developing an answer plan, and then committing the answer to paper while regularly referring back to the question in order to maintain focus. Therefore any inefficient use of this time should be avoided.

The efficient use of this time is essential in order to ensure that all questions can be answered within the 2 hours available. Many candidates feel it necessary to write out the question, in full, prior to providing their answer and although this practice will not lose marks it will lose valuable time. A significant number of candidates do not answer all of the questions in the time permitted and do not complete the question paper, some of whom obviously run out of time.

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

It is clear that there are a significant number of candidates who seem to recite answers in the examination that have been rote-learned in advance and do not answer the question.

While knowledge of material forms a part of the study for a Certificate-level qualification, a key aspect being assessed is a candidate's **understanding** of the subject 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 subject and will inevitably result in low marks being awarded for that answer.

### **Candidates repeated the same points but in different ways / Candidates provided the same answer to different questions**

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.

Candidates are advised to practise examination technique in their preparations to avoid this kind of pitfall. 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.

### **Candidates did not answer all of the questions**

It has been noted that a number of candidates do not attempt all of the questions and of course where a candidate does not provide an answer to a question, no marks can be awarded. This seriously affects the potential marks available and the possibility of achieving a pass. Course providers must emphasise the importance of attempting all questions in order to maximise the opportunity to attract marks.

There can be several reasons for this issue: running out of the allocated time for the examination, not knowing the answer to the question, or forgetting to answer a question.

Questions can be answered in any order and answers can be written in any order in the answer book provided. Candidates are advised to clearly keep track of questions they have attempted, such as marking them on the question paper that would minimise the risk of inadvertently missing a question to answer.

If the subject of the question is unfamiliar or the answer is not known, then it will be challenging to provide an answer. This can result from rote-learning and preparing for an examination with a number of memorised answers, or simply not being adequately prepared for the examination across the breadth of the syllabus. There is always the risk of a candidate 'going blank' in an examination situation, in which case candidates should be prepared with some techniques to help. Rather than trying to remember what was taught or what has been read, ask yourself 'what would I do, in this situation?'. Reference to personal application or experience is sometimes enough to stimulate an answer that otherwise may have been missed. Alternatively, candidates can go back to first principles and break a question down into elements such as 'resources', 'inputs', 'outputs', and 'processes'. Approaching a question in small sections can minimise the risk of being overwhelmed by it as a whole.

Running out of time can be avoided by having an examination time plan and working to it. The question paper advises that you should spend 30 minutes on the long answer (question 1) and 90 minutes on the remaining ten short answer questions. This will provide around 9 minutes per short answer, follow the clock and when the time per question has expired, move on. Answering a question partly is better than not answering at all.

### **Candidates did not allocate enough time to the question / Time management**

In a number of cases question 1 is left until last or later in the question paper and does not appear to be answered completely. Other candidates appear to rush the last one or two questions by providing very brief or bullet point answers, even when these questions require an outline. This indicates a lack of time management. It is advised that course providers and candidates spend time developing the skill of writing answers to questions bearing in mind the number of marks and time available. A 20-mark question requires significantly more detail than an 8-mark question.

Candidates might benefit from writing abbreviations to save time and to recognise that there is no need to write out the question at the beginning of their answer. Standard abbreviations such as ISO, EMS, NGO, and BPEO are acceptable.

### **Candidates' handwriting was illegible**

Sometimes Examiners have difficulty in reading the handwriting of some candidates. Although allowances are made for candidates under the pressure of an examination, course providers must remind candidates that their writing needs to be legible or valuable marks may not be picked up during marking.

There is a minimum literacy requirement for candidates on NEBOSH qualifications. As stated in the syllabus guides the standard of English required by candidates studying for Certificate level must be such that they can both understand and articulate the concepts contained in the syllabus.

NEBOSH recommends to accredited course providers that candidates taking this qualification should reach a minimum standard of English equivalent to an International English Language Testing System score of 6.0 or higher in IELTS tests in order to be accepted onto a Certificate level programme.

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

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

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

## Command words

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

### Outline

The command word 'outline' is by far the most challenging for candidates. Referring to the NEBOSH guidance on command words available on the NEBOSH website, 'outline' means *"To indicate the principal features or different parts of"*.

Many candidates do not give sufficient detail in order to warrant an 'outline' answer. The NEBOSH guidance on command word states that *"an exhaustive description is not required. What is sought is a brief summary of the major aspects of whatever is stated in the question"*.

If the use of the command word in everyday language or conversation is considered it may help the candidate understand what is required. If asked to '**outline** things that should be in place when planning for emergencies' an answer such as 'materials, plans, inventory' would be insufficient as this represents a listed answer. However, 'materials to deal with spillages, access to site plans showing drainage points, and inventory of materials stored on-site' would be sufficient.

### Explain

The command word 'explain' requires the candidate to provide an understanding of the subject of the question and will usually be used in conjunction with 'why' or 'how'. Such as '**explain** how a gravity separator operates' or '**explain** why biodiversity is important'.

Some candidates approach an 'explain' question the same as an 'outline' and provide a number of individual points rather than providing an explanation as to how something operates or why something occurs. While some candidates do answer such questions sufficiently and satisfactorily, other candidates have difficulty in explaining in a logical sequence and many repeat the same point.

### Identify

'Identify' questions require the name or title of an item, such as, '**identify** renewable sources of energy' or '**identify** external sources of environmental information'. In most cases one or two words will be sufficient and further detail will not be required to gain the marks.

For example, if asked to '**identify** types of equipment found in an office' appropriate answers could be personal computer, printer, telephone, photocopier, etc. There would be no need to embellish those points with a description of the equipment or its function.

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.

### Describe

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.

If asked to describe the clock in the examination room, a person would have little difficulty in doing so and would most probably refer to its shape, its size, the colour of the clock and the style of numerals. Answers to such a question would almost certainly not result in general unconnected information about clocks, the history of clocks, or an explanation of why the clock is present in the room. Candidates should consider the general use of the command word when providing examination answers.

## **Give**

'Give' questions require a statement that is relevant to the subject asked for in the question but additional explanation is not required. Often, 'give' questions ask for the meaning of a particular term. While detailed explanation of the application of the term would not be required, a correct knowledge of the term itself is needed in order for the Examiner to award marks.

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: <https://www.nebosh.org.uk/i-am/a-student/> - from this page the document can be found by clicking on the relevant Qualification link, then on the 'Resources' tab.