

September 2013

Examiners' Report NEBOSH National Certificate in Environmental Management



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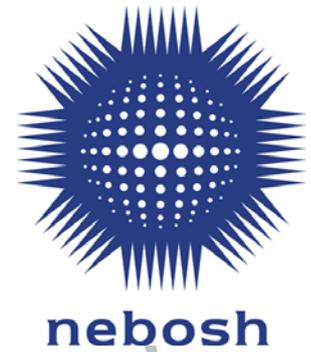


Examiners' Report

NEBOSH CERTIFICATE IN ENVIRONMENTAL MANAGEMENT

UNIT EC1: MANAGEMENT AND CONTROL OF ENVIRONMENTAL HAZARDS

SEPTEMBER 2013



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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 35,000 candidates annually and are offered by over 500 course providers, with exams taken in over 100 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 to be recognised and regulated by the Scottish Qualifications Authority (SQA).

Where appropriate, NEBOSH follows the latest version of the “GCSE, GCE, *Principal Learning and Project Code of Practice*” published by the regulatory authorities in relation to examination setting and marking. While not obliged to adhere to this code, NEBOSH regards it as best practice to do so.

Candidates’ scripts are marked by a team of Examiners appointed by NEBOSH on the basis of their qualifications and experience. The standard of the qualification is determined by NEBOSH, which is overseen by the NEBOSH Council comprising nominees from, amongst others, the Health and Safety Executive (HSE), the Confederation of British Industry (CBI), the Trades Union Congress (TUC) and the Institution of Occupational Safety and Health (IOSH). Representatives of course providers, from both the public and private sectors, are elected to the NEBOSH Council.

This report on the examination provides information on the performance of 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 always some 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.

In order to meet the pass standard for this assessment, acquisition of knowledge and understanding across the syllabus are prerequisites. However, candidates need to demonstrate their knowledge and understanding in answering the questions set. Referral of candidates in this unit is invariably because they are unable to write a full, well-informed answer to one or more of the questions asked.

Some candidates find it difficult to relate their learning to the questions and as a result offer responses reliant on recalled knowledge and conjecture and fail to demonstrate a sufficient degree of understanding. Candidates should prepare themselves for this vocational examination by ensuring their understanding, not rote-learning pre-prepared answers.

Candidates should therefore note that Examiners' Reports are **not** written to provide 'sample answers' but to give examples of what Examiners were expecting and more specifically to highlight areas of under performance.

Common pitfalls

It is recognised that many candidates are well prepared for their assessments. However, recurrent issues, as outlined below, continue to prevent some candidates reaching their full potential in the assessment.

- Many candidates fail to apply the basic principles of examination technique and for some candidates this means the difference between a pass and a referral.
- In some instances, candidates do not attempt all the required questions or are failing to provide complete answers. Candidates are advised to always attempt an answer to a compulsory question, even when the mind goes blank. Applying basic health and safety management principles can generate credit worthy points.
- Some candidates fail to answer the question set and instead provide information that may be relevant to the topic but is irrelevant to the question and cannot therefore be awarded marks.
- Many candidates fail to apply the command words (also known as action verbs, eg describe, outline, etc). Command words are the instructions that guide the candidate on the depth of answer required. If, for instance, a question asks the candidate to 'describe' something, then few marks will be awarded to an answer that is an outline. Similarly the command word 'identify' requires more information than a 'list'.
- Some candidates fail to separate their answers into the different sub-sections of the questions. These candidates could gain marks for the different sections if they clearly indicated which part of the question they were answering (by using the numbering from the question in their answer, for example). Structuring their answers to address the different parts of the question can also help in logically drawing out the points to be made in response.
- Candidates need to plan their time effectively. Some candidates fail to make good use of their time and give excessive detail in some answers leaving insufficient time to address all of the questions.
- Candidates should also be aware that Examiners cannot award marks if handwriting is illegible.
- Candidates should note that it is not necessary to start a new page in their answer booklet for each section of a question.

UNIT EC1

Management and control of environmental hazards

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- Question 1**
- (a) **Outline** the three stages in the control hierarchy for reducing air pollution **AND give** a relevant example of how **EACH** can be achieved. (6)
 - (b) **Identify TWO** industrial sources of dust particles in the atmosphere. (2)
 - (c) (i) **Identify FOUR** control methods available for removing dust particles from an industrial emission to atmosphere. (4)
(ii) **Outline** the method of operation for **EACH**. (8)
-

This question related to Element 4 of the syllabus and assessed candidates' knowledge of learning outcomes 4.2: Outline the main types of emissions to atmosphere and the associated hazards and 4.3 Outline control measures that are available to reduce emissions.

Part (a) of this question assessed knowledge of control hierarchy and the ability to link appropriate examples to each stage. Most candidates were able to give a suitable example for each of the three stages, but then did not provide an outline of what was involved at each stage which restricted their marks.

In part (b) most candidates gave two satisfactory sources, but some missed marks by giving examples of pollution types – some of which were not even dust for example, NOx.

Part (c) (i) was looking for methods of removal of dust particles from emissions and most candidates gave at least two satisfactory control methods. Many quoted LEV systems or water walls (mainly in the context of construction) but marks could not be given for these examples.

In section (ii) candidates were expected to give an outline of the method of operation of their chosen methods. Answers to this part were varied; there were some excellent answers but many candidates did not adequately outline how the devices operated and in some cases confused one method with another.

This question had the most marks to gain in this paper and needed more attention than other questions. Candidates would benefit from reading the question carefully and planning their response appropriate to the command word.

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- Question 2** **Outline** reasons for an organisation to implement an environmental management system. (8)
-

This question related to Element 2 of the syllabus and assessed candidates' knowledge of learning outcome 2.1: Identify the reasons for implementing an environmental management system (EMS).

Better responses to this question were broken down under broad headings of moral, legal, financial and corporate image. Candidates were expected to outline reasons within each group and most candidates were able to answer well.

Question 3 *Outline potential sources of noise in a residential area near a city centre.* **(8)**

This question related to Element 8 of the syllabus and assessed candidates' knowledge of learning outcome 8.1: Describe the potential sources of environmental noise and their consequences.

This question aimed to assess understanding of this outcome in a particular situation which should be familiar to most candidates. On the whole answers were limited. Candidates need to be aware that questions assess the application of knowledge in different circumstances and therefore would benefit from practising applying general principles to different situations.

Question 4 *Global warming and ozone depletion are two atmospheric impacts associated with emissions of carbon dioxide and chlorofluorocarbons (CFCs) respectively.*

(a) **Outline** *how carbon dioxide contributes to global warming.* **(4)**

(b) **Outline** *how CFCs cause ozone depletion.* **(4)**

This question related to Element 1 of the syllabus and assessed candidates' knowledge of learning outcome 1.1: Outline the scope and nature of environmental management. Each part was aimed at testing the understanding of the mechanisms by which the impacts are caused.

In part (a), few candidates were able to give a sufficient outline to gain full marks. Many candidates got one or two marks for stating that infra-red radiation is absorbed by carbon dioxide and this causes a heating effect in the atmosphere, but few made the link between increasing concentrations of carbon dioxide and increasing global temperatures.

Answers to part (b) were also limited. Candidates outlined the sources of CFCs and the role of the ozone layer in protecting against UV rays but did not outline the mechanism by which ozone forms are broken down by CFCs.

In both cases a better demonstration of the mechanisms is required.

Question 5 *An environmental management system is being implemented in a large office.*

(a) **Outline FOUR** *active monitoring measures that may be considered as part of the implementation.* **(4)**

(b) **Outline FOUR** *actions that could be implemented at low cost to reduce the environmental impact of the active monitoring measures outlined in part (a).* **(4)**

This question related to Element 2 of the syllabus and assessed candidates' knowledge of learning outcome 2.2: Describe the key features and appropriate content of an effective EMS, i.e. ISO 14001:2004.

This question sought to assess the understanding of some of the features of implementation of an environmental management system (EMS). Part (a) was looking for answers that recognised the relevance of the usage of, for example, utilities and part (b) looked for measures that could be put in place to reduce their usage. Most candidates were able to provide good answers to both parts of this question and consequently got more than half marks. A few candidates misinterpreted the question and discussed the EMS system itself, either how to install it or elements of it, which did not gain marks.

Question 6 *Outline the management issues that should be included in an environmental awareness programme for new employees.* **(8)**

This question related to Element 2 of the syllabus and assessed candidates' knowledge of learning outcome 2.2: Describe the key features and appropriate content of an effective EMS, i.e. ISO 14001:2004.

This question assessed candidates further about the features of an environmental management system (EMS) to reduce the environmental impact of a business. Candidates were expected to apply their knowledge to the situation of ensuring new employees are aware of the corporate programme. Most candidates were able to get some marks for this question, although there were few really high marks. Some candidates missed marks by becoming too focussed on one issue such as waste or energy savings and did not give a sufficiently broad answer.

Question 7 *Outline the main ways in which water pollution can harm wildlife.* **(8)**

This question related to Element 5 of the syllabus and assessed candidates' knowledge of learning outcome 5.1: Outline the importance of the quality of water for life.

The aim of this question was to assess knowledge of the main sources of water pollution and their impacts on wildlife. This question was generally answered well.

Question 8 *An organisation is committed to achieving a target of recycling 50% of solid waste from its manufacturing operations.*

(a) *Outline the performance monitoring information that the organisation should maintain to demonstrate that it has reached its target.* **(3)**

(b) *Outline the steps to be taken to improve on the target.* **(3)**

(c) *Outline why a target based on a percentage figure may be more appropriate than a target based on weight of waste recycled.* **(2)**

This question related to Element 6 of the syllabus and assessed candidates' knowledge of learning outcome 6.2: Explain the importance of minimising waste.

All parts to this question were aimed at assessing understanding of how an organisation would set about improving its performance in waste recycling. Generally this question was not well answered.

In part (a), candidates recognised the importance of measuring waste streams but neglected to mention the need to use the data to obtain useful information by monitoring changes over time.

Candidates did better in part (b) which was about the practical steps that could be taken to improve recycling rates.

In contrast, very few candidates got the available marks in part (c). Many candidates gave answers relating to weight, density and volume of waste, which were incorrect. The answer needed to reflect that waste amounts vary according to production volumes as well as any changes that may have been implemented in managing the waste.

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- Question 9** (a) **Outline** benefits associated with the use of nuclear power. (4)
- (b) **Outline** limitations associated with the use of nuclear power. (4)
-

This question related to Element 7 of the syllabus and assessed candidates' knowledge of learning outcome 7.2: Outline alternative sources of energy and their benefits and limitations.

Answers to part (a) was generally limited with very few presenting any benefit of nuclear power, especially as an alternative to fossil fuels.

Part (b) was answered a lot better than part (a). Candidates would benefit from learning more about the wider range of issues surrounding nuclear power, rather than learning solely about its drawbacks.

-
- Question 10** *A serious fire has broken out on an industrial premises.*
- Outline** the key actions that need to be taken in order to protect the environment. (8)
-

This question related to Element 9 of the syllabus and assessed candidates' knowledge of learning outcome 9.2: Describe the measures that need to be in place when planning for emergencies.

Most candidates in this sitting demonstrated good knowledge of this topic and gained high marks.

Candidates should ensure they read the question carefully as in this instance; actions to take were required rather than the detailed contents of an emergency plan.

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- Question 11** (a) **Give** the meaning of the term 'environmental impact' as defined in BS EN ISO 14001:2004. (2)
- (b) **Outline** reasons for conducting an impact assessment as part of introducing an environmental management system. (6)
-

This question related to Element 3 of the syllabus and assessed candidates' knowledge of learning outcome 3.1: Explain the reasons for carrying out environmental impact assessments.

In part (a), relatively few candidates gave a complete answer as defined in ISO 14001.

Answers to part (b) were also limited. A few candidates described legal reasons such as from the EIA Regulations or in support of an IPPC permit, suggesting they had not read the question carefully. Other candidates generally recognised the reasons associated with protecting the environment but only a few candidates mentioned the setting of objectives and targets. Candidates would benefit from focussing on this area of the syllabus as a means to improve their overall mark.

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