

September 2016

# Examiners' Report

NEBOSH National  
Certificate in  
Fire Safety and Risk  
Management (NFC1)



nebosh



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# Examiners' Report

## NEBOSH NATIONAL CERTIFICATE IN FIRE SAFETY AND RISK MANAGEMENT

### UNIT FC1: FIRE SAFETY AND RISK MANAGEMENT

**SEPTEMBER 2016**

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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 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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Any enquiries about this report publication should be addressed to:

NEBOSH  
Dominus Way  
Meridian Business Park  
Leicester  
LE19 1QW

tel: 0116 263 4700  
fax: 0116 282 4000  
email: [info@nebosh.org.uk](mailto:info@nebosh.org.uk)

## 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 standard date FC1 examination sat in September 2016.

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 National Certificate in Fire Safety and Risk Management' which is available via the NEBOSH website. In particular, the guide sets out in detail the syllabus content for FC1 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 FC1 'Example question paper and Examiners' feedback on expected answers' which provides example questions and details Examiners' expectations and typical areas of underperformance.

## Unit FC1

### Fire safety and risk management

**Question 1** *Fire and smoke damage has occurred in the premises of a large manufacturing organisation, consisting of a timber workshop and storage areas on the ground floor and office facilities on the first floor.*

*A subsequent investigation has revealed that the fire was started accidentally. It was also found that, despite the fire alarm being activated promptly, many occupants on the first floor took up to 15 minutes to evacuate the building.*

(a) **Identify** possible sources of ignition that may have been present when the fire started in the workshop. (10)

(b) **Outline** possible reasons why the occupants on the first floor were slow to evacuate the building. (10)

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This question assessed candidates' knowledge and understanding of learning outcomes 3.1: Explain the causes of fires and explosions in typical work activities; and 5.3: Outline the perception and behaviour of people in the event of a fire.

Most candidates answered part (a) well by identifying a range of ignition sources that may have been present. There were a number of candidates who moved away from the focus of the question by identifying fuel and oxygen sources, while this would not lose any marks, no marks could be awarded as they were not asked for, thus taking up valuable time.

Answers to part (b) were often not as good with a narrower range of relevant points being outlined. Most candidates successfully outlined that occupants may have ignored the alarm for a variety of reasons, but many candidates did not include other valid reasons. These could have included: due to occupants collecting belongings before leaving, choosing a lengthy escape route, assisting others to escape and being affected by heat or smoke. While the fact that the alarm may be quiet or inaudible was a valid reason that few mentioned, there were a number of candidates who stated that the fire alarm had not activated, despite the question specifically stating that it had. It is important for candidates to take care to read and re-read the question thoroughly to help avoid going off-track.

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**Question 2** **Outline** issues that should be considered by a fire and rescue service before starting an investigation into a serious fire at a workplace. (8)

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This question assessed candidates' knowledge and understanding of learning outcome 1.6: Explain the purpose of, and the procedures for, investigating fires in the workplace.

Many candidates seem not to have recognised a key part of this question and outlined what issues the investigation should be looking into to establish the cause of a fire or describing the investigation process, rather than what should be considered before starting the investigation. Relevant issues omitted by many candidates included preserving the fire scene and making it safe, liaising with relevant authorities and deciding on the personnel and equipment needed for the investigation.

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**Question 3**     ***Explain** why premises with poor security measures may be at a higher risk of an arson attack.* **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 3.1: Explain the causes of fires and explosions in typical work activities.

There were some good answers to this question. However, the majority of answers were limited and many missed the topic being asked for. Many candidates gave answers relating to precautions that could be employed to reduce the risk of arson which is a question that has been asked on previous papers but was not relevant in this case, suggesting those candidates had not read the question with sufficient care. Those candidates giving good answers focused on relevant answers such as because security is poor, access to the building is likely to be easy; the possibility that an arsonist would have time to set a fire undetected; use multiple ignition sites; and defeat fire protection measures such as fire detectors and fire doors.

Again, it is important to emphasise that candidates should take great care when reading and re-reading the question in order to address the topic being asked for rather than that from a different question from a past paper.

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**Question 4**     (a)     ***Identify** products of a fire that can be detected by an automatic fire detection system.* **(4)**

                  (b)     ***Outline** ways of reducing false alarms from automatic fire detection systems.* **(4)**

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This question assessed candidates' knowledge and understanding of learning outcome 4.3: Outline the methods and systems available to give early warning in case of fire, both for life safety and property protection; and 2.1: Explain the principles of the combustion process in relation to fire safety.

Most candidates answered part (a) well identifying fire products such as heat, smoke and flame that automatic fire detection systems can detect. Answers to part (b) were more limited and focused mainly on testing and maintenance issues, suggesting many candidates had a relatively narrow understanding of topic.

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**Question 5**     ***Describe** conditions in which a flashover may occur.* **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 2.4: Describe the principles of fire growth and fire spread/

There was a generally limited response to this question. While some candidates clearly had a good knowledge of this technical part of the syllabus, many did not and made reference to irrelevant points such as backdraught and the limits of flammability. Flashover is a particular phenomenon that occurs when a fire burning in a compartment with a good supply of oxygen reaches a point where radiated heat generated by combustion products is sufficient to ignite all combustible materials in that compartment.

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**Question 6**     ***Outline** criteria that an enforcement officer would use when determining whether a fire risk assessment is 'suitable and sufficient'.* **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 6.1: Explain the aims and objectives of fire safety risk assessments.

The majority of candidates gave reasonable answers to this question and correctly outlined issues such as that the fire risk assessment had identified all significant hazards, identified people who may be at risk, evaluated the risk from the hazards, etc. Some candidates gave many examples of practical control measures that a risk assessment may specify in a workplace, which only attracted limited marks.

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**Question 7**     ***Describe** the powers of authorised officers to obtain information for the purposes of investigating the causes of a fire and the reason for its progression under the Fire and Rescue Services Act 2004, the Fire (Scotland) Act 2005 or the Fire and Rescue Services (Northern Ireland) Order 2006.* **(8)**

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This question assessed candidates' knowledge and understanding of learning outcome 1.3: Describe the roles and powers of enforcement agencies and other external agencies in relation to fire safety.

There were some good answers to this question with candidates correctly describing the range of powers available to authorised officers when investigating the causes of a fire. However, there were a number of candidates who had misread the question and described enforcement powers under the Regulatory Reform (Fire Safety) Order 2005, such as initiating prosecutions and issuing enforcement notices which were not relevant.

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**Question 8**     *Carbon dioxide (CO<sub>2</sub>) extinguishers have been installed in new office premises.*

(a)     ***Outline** the types of fire that these extinguishers can safely extinguish.* **(2)**

(b)     ***Outline** advantages of this type of extinguisher.* **(2)**

(c)     ***Outline** disadvantages of this type of extinguisher.* **(4)**

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This question assessed candidates' knowledge and understanding of learning outcome 4.4: Outline the selection procedures for basic fire extinguishing methods for both life risk and process risk.

This question was well-answered by most candidates. It was pleasing to see that the types of fire that CO<sub>2</sub> extinguishers can tackle and the advantages of the extinguishers were well known. Most candidates were also aware of the disadvantages of these extinguishers, although a number did not mention issues such as there being little cooling effect on a fire with the possibility of re-ignition in some circumstances.

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**Question 9** *Outline appropriate design features of a separate outdoor building that is to be used to store flammable liquids in large drums.* (8)

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This question assessed candidates' knowledge and understanding of learning outcome 3.2: Outline appropriate control measures to minimise fire and explosion risks.

This was best answered question on the paper with most candidates having little difficulty being awarded well over half marks. Most candidates answers included a suitable outline of relevant features such as spillage containment, use of fire walls, measures to ensure adequate ventilation, security measures, etc.

A common feature in the few answers that were not as good lay in only identifying or listing design features and not giving an appropriate outline.

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**Question 10** *Outline reasons for reviewing fire risk assessments.* (8)

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This question assessed candidates' knowledge and understanding of learning outcome 6.2: Outline the principles and practice of fire safety risk assessments including principles of prevention (measures to remove and reduce risk).

This question was also answered well, with most candidates outlining a good range of reasons to review a fire risk assessment such as after a suitable passage of time, following a fire incident, after the introduction of new plant or processes in a building, or after the introduction of vulnerable persons in the workplace, etc. Some answers were not specifically related to fire risk assessments and gave reasons for reviewing a more generic health and safety risk assessment which limited the marks that could be awarded.

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**Question 11** *A science department building is to be built on a college campus. The building is to be two storeys and will contain teaching laboratories, classrooms and offices. It is expected that there will be a number of disabled staff and students using the building.*

*Outline functions of the component parts of a fire alarm system that are needed to provide protection for the building's occupants.* (8)

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This question assessed candidates' knowledge and understanding of learning outcome 4.3: Outline the methods and systems available to give early warning in case of fire, both for life safety and property protection.

There were some good answers to this question where candidates made appropriate reference to the scenario given and outlined the functions of the various components of the fire alarm system such as manual call points, automatic smoke and heat detectors, sounders, etc.

Many candidates did not give such good answers where they stated the component parts of the system but then did not go on to outline the function of each component. It is important to read and re-read questions in the examination to try and address all aspects asked for.

## Examination technique

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

### 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 stress, or could be asked about the effects of stress. A question could require a response relating to the principles of fire initiation, or a question could require a response relating to the spread of fire. Therefore, a candidate should focus not only on the general topic area (eg stress, fire) 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** the hazards associated with demolition work', or a question from the same element could ask candidates to '**outline** the control measures required during demolition work'. Candidates appear to focus solely on the object of the question (demolition) and do not pay sufficient attention to the subject (hazards or control measures in the examples given) or the command word ('identify' or 'outline' in the examples given). There is often some confusion between hazard and risk. If a question requires an outline of hazards for a given situation, candidates must be careful not to provide risks, or even in some circumstances precautions, 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 'people', 'equipment', 'materials' and the 'working environment'. 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 HSE, RIDDOR, COSHH, PPE and DSE 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: [http://www.ielts.org/institutions/test\\_format\\_and\\_results.aspx](http://www.ielts.org/institutions/test_format_and_results.aspx)

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

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** the risks to an operator when manually closing a valve' an answer such as 'cuts, bruises, burns and strains' would be insufficient as this represents a listed answer. However, 'cuts from contact with sharp edges of the hand wheel, bruises from impact with adjacent plant items, burns from contact with adjacent uninsulated pipe work and strains from using excessive force' 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 an interlocked guard operates' or '**explain** why a forklift truck may overturn'.

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** the effects of electricity on the human body', or '**identify** the features of a vehicle route'. 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: [www.nebosh.org.uk/students/default.asp?cref=1345&ct=2](http://www.nebosh.org.uk/students/default.asp?cref=1345&ct=2).



**nebosh**

The National Examination  
Board in Occupational  
Safety and Health

Dominus Way  
Meridian Business Park  
Leicester LE19 1QW

telephone 0116 263 4700  
fax 0116 282 4000  
email [info@nebosh.org.uk](mailto:info@nebosh.org.uk)  
[www.nebosh.org.uk](http://www.nebosh.org.uk)