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# Examiners' Report

## NEBOSH NATIONAL CERTIFICATE IN FIRE SAFETY AND RISK MANAGEMENT

### UNIT FC1: FIRE SAFETY AND RISK MANAGEMENT

SEPTEMBER 2019

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## CONTENTS

Introduction	2
General comments	3
Comments on individual questions	4
Examination technique	8
Command words	11

# 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 learners annually and are offered by over 600 Learning Partners, 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 learners and Learning Partners 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 learners 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 learners, 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 FC1 examination sat in September 2019.

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

Learners and Learning Partners 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.

## Unit FC1

### Fire safety and risk management

- Question 1** A fire has broken out in an open-plan office within multi-storey office premises. The fire started as a result of an electrical fault in a computer and ignited piles of paper on a desk. The fire alarm was activated by an automatic smoke detector soon after ignition occurred.
- (a) **Identify** methods by which heat could be transferred during the fire **AND describe** how **EACH** can cause the fire to spread. (8)
- (b) **Outline** how people, **BOTH** in the room of origin of the fire and in the rest of the building, may react to the fire and to the resulting fire alarm. (12)

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This question assessed learners' knowledge and understanding of learning outcomes 5.3: Outline the perception and behaviour of people in the event of a fire; and 2.4: Describe the principles of fire growth and fire spread.

The majority of learners answered part (a) well. Many were able to identify all four methods of heat transfer and go on to describe the way each of them cause fire to spread, with sufficient detail to gain high marks.

Part (b) was assessing learners' knowledge and understanding of how people may react to the fire in the room and elsewhere in the building. This part was not as well answered. While some gave a good range of possible behaviours, such as ignoring the alarm, waiting for instructions from others before taking any action, beginning an evacuation from the building etc, there were a number of learners who appeared to misinterpret the question. The most common misinterpretation was to give the contents of an emergency plan for the building. Learners are reminded to read and re-read questions to try and reduce the probability of misinterpretation.

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- Question 2** (a) **Identify** types of sprinkler system that may be used in buildings. (2)
- (b) **Outline** reasons why a sprinkler system may be ineffective. (6)

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

Part (a) was answered well by the majority of learners by identifying at least two types of sprinkler systems. However, a significant number of learners gave more information than was necessary, as the command word was 'identify'. While this did not affect marks awarded, it would have meant more time would have been taken to answer the question than necessary.

Part (b) was not as well answered, with many learners giving detail of the various component parts of a sprinkler system, rather than outlining reasons why it may be ineffective, such as there being no water supply or poor water pressure, sprinkler heads being damaged, etc.

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**Question 3** Refurbishment work is to be carried out on an existing building.

**Outline** what should be considered in a revised fire risk assessment while the work is being carried out. (8)

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This question assessed learners' 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).

There was a mixed response to this question with some learners giving a general description of the fire risk assessment process. The question was assessing learners' ability to apply their knowledge and understanding of what should be considered in a fire risk assessment for the refurbishment work. Some relevant issues are the potential for increased flammable waste during the work and the possibility of fire exits becoming obstructed.

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**Question 4** **Outline** key features of a fire safety policy. (8)

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This question assessed learners' knowledge and understanding of learning outcome 1.4: Outline the key features of a fire safety policy.

The majority of learners had difficulty with this question. The majority of answers included prescriptive examples of control measures that may appear in the arrangements section of a fire safety policy, thus limiting the marks awarded. Better answers covered all parts of a fire safety policy, such as the organisational aspects, giving an answer that more fully answered the question.

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**Question 5** A fire safety audit of an industrial site that handles solid and liquid flammable materials has identified failings in the management of waste. The failings will significantly affect the level of fire risk.

**Outline** issues that should be considered in order to manage these waste materials effectively and minimise fire risk. (8)

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

Many learners answered this question well, giving a good range of relevant points to consider to manage flammable waste materials. There were some learners who gave limited detail in their answers to satisfy the 'outline' command word, giving a list of issues with no depth and thus limited the marks that could be awarded. Learners are reminded to take note of the command word in the question, to ensure they understand the level of detail required in their answers. The NEBOSH guidance on command words gives learners help on the depth needed for the range of command words used in Certificate examinations.

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**Question 6**      **Outline** what should be considered when determining the adequacy of an escape route. **(8)**

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This question assessed learners' knowledge and understanding of learning outcome 4.2: Explain the requirements of a means of escape.

This question was answered well by most learners. Most answers gave a good range of relevant points that can determine the adequacy of escape routes, such as the width of the escape route, wall lining materials used, the maximum travel distance, etc.

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**Question 7**      Substantial quantities of paper are commonly found in workplaces.

(a)      **Explain** the conditions required for paper to ignite. **(2)**

(b)      **Explain** the process involved in the combustion of paper. **(6)**

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This question assessed learners' knowledge and understanding of learning outcomes 2.1: Explain the principles of the combustion process in relation to fire safety; and 2.2: Explain the principles and conditions for the ignition of solids, liquids and gases.

Most learners had difficulty with this question and did not give an appropriately detailed explanation of the combustion process when paper burns.

In part (a) many learners quoted the elements of the fire triangle without explaining what conditions are necessary for igniting paper.

In part (b) many learners misinterpreted the question and described the stages of a fire, such as growth, development and decay. Better answers would have included explanations of, for example, how paper decomposes when heated to generate flammable vapours that chemically react with oxygen present to produce a combustion reaction.

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**Question 8**      **Explain** why a fire risk assessment should be carried out in a workplace. **(8)**

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

Most learners were unable to give a wide range of reasons why a fire risk assessment should be carried out. Many correctly gave moral and legal reasons but without sufficient detail of other reasons, such as to establish how a fire could cause harm to people, property and the environment and the probability of harm arising. There were some learners who gave a description of the fire risk assessment process itself, which was not asked for.

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**Question 9**     **Identify** possible ignition sources in the workplace that could cause accidental fires. **(8)**

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

This question was answered well by most learners, with many identifying a good range of possible ignition sources. Some answers were limited by giving many different practical examples of, for example, different types of electrical fault, rather than identifying a fuller range of other ignition sources.

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**Question 10**     Following refurbishment work in a multi-storey factory, it has been discovered that holes drilled into fire-resisting walls to allow cables through have not been fire-stopped.

(a)     **Outline** adverse effects that this situation may have on fire protection within the building. **(3)**

(b)     **Outline** other ways that the protection offered by compartmentation in the building may have been compromised. **(5)**

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This question assessed learners' knowledge and understanding of learning outcome 4.1: Outline the means of fire protection and prevention of fire and smoke spread within buildings in relation to building construction and design.

Part (a) was answered well by most learners, outlining relevant effects on fire protection, from holes being drilled into fire-resisting walls, such as allowing smoke and other combustion products to pass through the hole.

Part (b) was generally not as well answered. Many learners seemed to misinterpret the question and give further explanation of the effects, on fire protection, of holes being drilled into fire-resisting walls, rather than outlining other ways of compromising it, such as wedging open fire doors.

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**Question 11**     **Outline** why the 'responsible person' should investigate a major fire that has occurred in a workplace. **(8)**

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

This question was answered well by some learners. It was noted that some answers outlined a limited number of relevant reasons for the responsible person to investigate a major fire, which limited the number of marks that could be achieved. Some learners misinterpreted the question and gave it in the context of an enforcement agency investigating, rather than the responsible person, thus limiting marks awarded.

## Examination technique

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

### Learners misread/misinterpreted the question

Learners misreading or misinterpreting the question is by far the most common cause of learners 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 learners to be sufficiently prepared to provide the relevant depth of answer across a broad range of subject areas. For example, a learner 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 learner 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.

Learners must also pay attention to the command word. For example, a question could ask learners to '**identify** the hazards associated with demolition work', or a question from the same element could ask learners to '**outline** the control measures required during demolition work'. Learners 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, learners 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 learners 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 learners appear to misread or misinterpret several questions. This situation is more likely due to learners 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.

Learners 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.

### Learners 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 learner 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 learner would be expected to provide in an answer to an examination question.

Examiners report that learners 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 learner in their examination answer. A significant number of learners, 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 learners do provide too much information, which would not be required where a command word limits the expected answer to 'give' or 'identify'. Learners would not be penalised for providing excessive detail but this would not be an efficient use of the time allocated.

Learning Partners 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 learners on suitable examination technique during a course of study.

### **Learners 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 learners 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 learners 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.

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

It is clear that there are a significant number of learners 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 learner's **understanding** of the subject and reciting a pre-prepared and memorised answer will not show a learner's understanding. In fact, if a learner 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.

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

There are instances where learners 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.

Learners 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 learners and makes it much clearer in the stress of the examination for learners to see which points have been made and reduce the chances of the same point being made several times.

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

It has been noted that a number of learners do not attempt all of the questions and of course where a learner 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. Learning Partners 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. Learners 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 learner 'going blank' in an examination situation, in which case learners 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, learners 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.

### **Learners 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 learners 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 Learning Partners and learners 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.

Learners 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.

### **Learners' handwriting was illegible**

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

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

NEBOSH recommends to Learning Partners that learners 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>

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

Learning Partners 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 learners. 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 learners 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 learner 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 learner 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 learners 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 learners do answer such questions sufficiently and satisfactorily, other learners 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 learners 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 Learning Partners should use the NEBOSH guidance on command words within their examination preparation sessions in order to prepare learners 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. Learners 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-learner/> - from this page the document can be found by clicking on the relevant Qualification link, then on the 'Resources' tab.