

Example question paper and Examiners' feedback on expected answers (IA)



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NEBOSH INTERNATIONAL DIPLOMA IN OCCUPATIONAL HEALTH AND SAFETY



UNIT IA: INTERNATIONAL MANAGEMENT OF HEALTH AND SAFETY

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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 50,000 candidates annually and are offered by over 600 course providers, with exams taken in over 110 countries around the world. Our qualifications are recognised by the relevant professional membership bodies including the Institution of Occupational Safety and Health (IOSH) and the International Institute of Risk and Safety Management (IIRSM).

NEBOSH is an awarding body that applies best practice setting, assessment and marking and applies to Scottish Qualifications Authority (SQA) regulatory requirements.

This report provides guidance for candidates which it is hoped will be useful to candidates and tutors in preparation for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content and the application of assessment criteria.

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General comments

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.

Course providers and candidates will benefit from use of the "Guide to the NEBOSH International Diploma in Occupational Health and Safety" which is available via the NEBOSH website. In particular, the Guide sets out in detail the syllabus content for Unit IA and tutor reference documents for each Element.

Some candidates may over rely on knowledge of health and safety gained through their own work experience. While practical experiences can sometimes be helpful they are not a substitute for tuition and study of the syllabus content, to the breadth and depth indicated in the Guide referred to above.

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 this Report has not been written to provide 'sample answers' but to give examples of what Examiners are expecting and more specifically to highlight areas of underperformance.

Common weaknesses and suggestions to assist providers and candidates

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.

Weakness in examination technique

- 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.
- 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.
- 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 question even when the question is on an unfamiliar topic. At the risk of stating the obvious, an unattempted question will gain no marks. Questions or parts of questions missed can also indicate a weakness in time management.
- 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. The comment below about rote learning may be relevant also.

- 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 benefit from the chance to practice answering questions in examination like conditions. This should assist them to become familiar with the need to read questions carefully, consider, plan their answer and then begin to write. By examination like conditions, practicing their answers within appropriate time limits should help candidates with time management within the examination.

Feedback to candidates on their answers to questions is a key part of these practice activities.

Lack of attention to command word

- Many candidates fail to apply the command words (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.
- The most common weakness is the provision of too little content in an answer to meet the requirement of the command word. This is an unfortunate error as it can mean that a candidate, who knows the topic, and correct points to include in their answer, misses out on marks.

There is good guidance available to candidates and providers "Guidance on command words and question papers" which can be accessed on the NEBOSH website. This guidance will assist candidates to see and understand what is required in an answer when the different command words are used in questions. Some candidates miss out on marks by spending too long writing about one or two points when the answer requires more points to be covered. The chance to practice questions with a range of command words and to receive feedback on the quality of their answers will benefit candidates.

Rote learning

- Some candidates appear to have answered a question they hoped to see in the question paper rather than the question actually asked. This error can lead to all the available marks for a question being missed, with the consequent impact on the likelihood of reaching a pass standard.
- The weakness described can be due to rote learning but may also relate to the need to read and consider the question commented upon above.

Other weaknesses observed

- 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 IA – International management of health and safety

Section A – all questions compulsory

Question 1 *The accident rate of two companies is different although they have the same size workforce and produce identical products.*

Outline possible reasons for this difference. (10)

In answering this question, candidates should initially outline possible reasons such as that recognition of reportable accidents may differ from company to company; that there may be differences in levels of reporting and recording accidents; that the definitions of the accident rate may be different or misinterpreted; that there may be differing means of calculating rates; and that there could be management issues such as a difference in the level of commitment; that policies and procedures such as monitoring may be different and that disciplinary procedures for non-compliance by workers may vary. Additional reasons would include differences in workplace layout and the age and type of the equipment used; human resource issues such as the selection, training and competence of the workforce together with a possible difference in the companies' level of communication and consultation with the staff; risk control issues such as the adequacy of risk assessments and the associated control measures, the existence of safe systems of work and procedures for the use and maintenance of personal protective equipment; issues connected with production such as piece work and shift work and the winning of bonus payments which could lead to the taking of risks; and cultural issues such as the attitude, motivation and behaviour of individuals and the effect that peer pressure might have on health and safety culture within the organisation.

Candidates typically focus their answers around the differences in the levels of accident reporting and the methods used for calculating rates. Some concentrate only on the difference in the quality of management systems. Candidates should avoid lists which do not contain sufficient detail to satisfy an 'outline' question.

Question 2 (a) *In relation to behaviour in the workplace, **outline** what is meant by the term 'attitude'.* (2)

(b) **Outline** how the media can influence attitudes toward health and safety, making reference to suitable examples where appropriate. (8)

For part (a) of the question, candidates could refer to the term 'attitude' as a predisposition to act in a certain way which may be determined by ancestry, personal experience or training. Candidates should take care not to confuse the term 'attitude' with perception.

There are a number of ways in which the media can and have influenced attitudes towards health and safety. They have the facility to undertake a global coverage of events and can reach a wide audience using a variety of methods of delivery such as print, television, videos and the internet. The coverage is often sensationalist and can be influenced on occasions by pressure groups and other bodies such as Greenpeace. The influence exerted by the media may be advantageous or detrimental for the industry or organisations involved particularly those who have high media coverage which can affect the perceptions of customers, clients and other stakeholders. To support their answers, candidates are expected to refer to the media coverage of incidents such as the Perrier incident of 1990, Chernobyl, BP Texas and Piper Alpha. Answers to part (b) are generally to a reasonable standard although some candidates appear to miss the critical word 'how' in the question and outline what the media does rather than how it can influence attitudes. Some explain how they might influence business performance, profitability and job opportunities rather than attitudes to health and safety. Candidates are expected to refer to suitable examples and while names are mentioned there is often no attempt to put them in context, to explain what happened or to give any indication of why they are thought to be relevant.

Question 3

Outline a range of individuals and bodies external to an organisation that may need to be provided with health and safety information, for legal or good practice reasons. In **EACH** case, **identify** the type of information to be provided.

(10)

This question requires candidates to outline the external bodies and individuals to whom an organisation may need to provide health and safety information for legal or good practice reasons. Candidates who do best are those who structure their answers under the headings of 'body or individual' and 'type of information'.

Individuals and bodies who would be provided with information for legal reasons included the enforcing authorities with respect to information required by law or in accordance with the ILO Code of Practice or as part of inspection or investigation activities; the emergency services on the inventories of potentially hazardous/flammable materials used or stored on the site and on the means of access and egress to the site; customers who have to be given health and safety information on articles and substances they might use for work activities; members of the public concerning information on emergency action plans for major hazards and as part of community relations; visiting contractors who need to be advised on safe working arrangements and procedures; waste disposal contractors who should be given information on controlled or hazardous waste produced by the organisation; transport companies who should be given information on the precautions to be taken in transporting hazardous substances from the organisation's site; and legal representatives or courts who would have to be given information regarding civil claims. It would, additionally, be good practice to supply information: to trade associations and trade unions on performance and social responsibilities; to insurance companies on the safety management systems in place and to shareholders on the organisation's level of performance as far as health and safety is concerned.

Answers are generally to a reasonable standard although in some cases only a limited number of examples are given with candidates relying on bodies such as the courts, enforcement authorities and insurance companies. Candidates should avoid writing about information that the external bodies would give to the organisation or outline the sources of information that the organisation might wish to use.

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- Question 4** (a) **Explain** the purpose of Job Safety Analysis. (2)
- (b) **Outline** the methodology of Job Safety Analysis. (8)
-

The purpose of Job Safety Analysis is to assess the hazards and risks associated with each component of a specific task, to establish whether adequate precautions are in place in order to reduce the risk of injury, and to produce a system of work that provides a safe way of performing the task. Candidates should avoid describing how job safety analysis in part (a) as it leaves them with nothing for the second part of the question. Candidates should also avoid confusing a job safety analysis with a risk assessment.

The methodology of Job Safety Analysis involves selecting the job or work to be examined; breaking it down into its chronological component parts; examining each part to identify its hazards and associated risks; developing control measures to eliminate or mitigate the risks; installing the control measures as a safe system of work; and ensuring that the system is well understood by both management and workers. Additionally, it will be necessary to review both the job and its safe system of work at regular intervals in order to introduce amendments when conditions and or circumstances have changed. Some candidates use the mnemonic SREDIM to remind them of the methodology only to discover they are then unable to recall accurately what each of the letters represented.

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- Question 5** (a) *In relation to a binding contractual agreement, **give** the meaning of:*
- (i) *express terms;* (2)
- (ii) *implied terms.* (3)
- (b) *In relation to a new contract, **outline** the health and safety information that should be stated in the contract terms.* (5)
-

Express terms' are those specifically mentioned and agreed by all parties at the time the contract is made. They may take account of unusual circumstances but should not include unfair terms. 'Implied terms' are neither written in the contract nor specifically agreed, are open to interpretation and include terms such as matters of fact and matters of custom and practice. In cases of dispute they may ultimately have to be determined by a court of law. Answers to this part of the question are often limited and only a few candidates are able to provide the required meanings.

In relation to a new contract, one might expect to find in the contract terms, reference to the provision of a safe working environment with safe means of access and egress and the provision of safe plant and equipment. Reference should also be made to the need to draw up procedures to deal with any emergency that might occur, to provide information, training and supervision for the workforce and to ensure adequate welfare facilities are in place. Candidates should avoid outlining how a contract should be managed rather than the health and safety information that should be included in one.

Question 6

A maintenance worker is asphyxiated when working in an empty fuel tank. A subsequent investigation found that the worker had been operating without a permit-to-work.

- (a) **Outline** why a permit-to-work would be considered necessary in these circumstances. (3)
- (b) **Outline** possible reasons why the permit-to-work procedure is not followed on this occasion. (7)
-

In answer to part (a) of the question, candidates are expected to outline that a risk assessment of the work to be done would have identified the need for a permit to work since the activity involved is a non-routine, high risk task in a confined space where the precautions to be taken are complex, particularly since additional hazards might be introduced as the work progressed and it is, therefore an activity requiring a structural and systematic approach. Additionally, a permit to work in such circumstances might also be a legal or national requirement. Some candidates find difficulty in answering this part of the question and resort to describing what should be included in a permit to work or to listing the operations where a permit would be required.

For part (b), one possible reason might have been that no, or an inadequate risk assessment had been carried out and consequently the potential hazards had not been identified. There could also have been a poor health and safety culture within the organisation where violations are routine and where a permit to work system is considered to be too bureaucratic and where complying with the terms of a permit prevents a task being finished quickly particularly when there is pressure to complete. Candidates could also outline other reasons such as the difficulty in organising the required control measures before starting work, particularly if a competent person is not at hand to authorise the permit; the controls to be followed are not described either clearly or specifically; the failure on the part of management to stress the importance of using a permit in such circumstances and ultimately the possibility that the organisation had failed to introduce and operate a permit to work system.

Candidates should avoid listing rather than outlining the possible reasons.

Section B – three from five questions to be attempted

- Question 7**
- (a) *Identify influential bodies in regulating health and safety performance AND outline how they may exert their influence.* (10)
- (b) *Some organisations may decide to adopt standards such as OHSAS 18001. Describe how demonstrating compliance with such a standard can be used to:*
- (i) *promote health and safety performance in a company;* (5)
- (ii) *regulate health and safety performance in a company.* (5)

In answer to part (a) of the question, candidates could identify bodies such as employer and trade associations who set performance standards for their members and require self-regulation and accredited management systems; trade unions where representatives check workplace conditions and provide advice and guidance; enforcement agencies who check compliance with standards, provide advice and guidance and take enforcement action when this is seen to be necessary; the ILO who as well as publishing advice and guidance, enforce standards by means of conventions and recommendations in ratifying countries; insurance companies who require specific performance standards to obtain the cover they provide; certification bodies who seek compliance with particular standards; courts of law through their judgements and interpretation of health and safety law; pressure groups who may run bad publicity campaigns for non-performing organisations; and the media by their publicity and their way of sensationalising certain events. Candidates should identify a number of bodies to be awarded more marks.

Demonstrating compliance with a standard such as OHSAS 18001 can promote health and safety performance in a company by communicating minimum standards of performance; developing systems for compliance supported by senior management and involving workers in their development; using departmental auditing scores and internal performance league tables to encourage compliance; introducing reward schemes linked to compliance; using compliance as a marketing tool in attracting clients; and publishing performance achievements in the company's annual report.

Candidates could have chosen a number of ways in which compliance with the standard might help to regulate health and safety performance in a company. For instance, in the case of a failure to maintain compliance, stakeholders might take retribution against the management team, clients and business partners may cease to engage with the company, and insurance companies may withdraw their cover. Accordingly, the threat of loss of business and damage to the company image may help to improve standards and management commitment. Additionally, internal and third party audits will identify failing compliance and require solutions to be put in place to maintain accreditation with the possibility of internal sanctions being imposed on offending departments for non-compliance. Finally, the organisation will always be conscious of the various actions that might be taken by the accrediting body from informal notification of failure to comply with the standard, through formal notification if non-conformance is to continue to the ultimate act of withdrawal of its accreditation. Candidates are usually able to describe how demonstrating compliance with the standard might help to promote health and safety performance but are unable to describe the part it might play in the regulation process. Candidates should avoid relying solely on a description of what the standard requires.

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- Question 8**
- (a) *Organisations are said to have both formal and informal structures and groups. **Outline** the difference between ‘formal’ **AND** ‘informal’ in this context.* (6)
- (b) *The development of a health and safety culture requires control, co-operation, communication and competence. **Outline** what ‘co-operation’ means in this context, **AND give** examples to support your answer.* (6)
- (c) *Organisational change can, if not properly managed, promote a negative health and safety culture. **Outline** the reasons for this.* (8)
-

A formal structure or group is hierarchical, generally shown in an organisational chart and characterised by defined responsibilities and agreed reporting lines, while an informal structure is characterised by social and personal relationships, habitual and related contacts and the presence of strong characters with personality and communication skills who may exert personal influence. Candidates are generally able to give reasonable outlines of a formal structure but are less likely to provide the required difference since their knowledge of an informal structure appears limited.

In outlining the meaning of ‘co-operation’ for part (b) of the question, candidates should refer to formal consultation arrangements such as those with safety representatives, direct consultation with workers at team meetings and participation in safety committee meetings and also to informal consultation on safety issues during day to day discussions with workers. ‘Co-operation’ would also include the involvement of workers in safety processes such as carrying out risk assessments and developing systems of work; playing their part in incident investigations, inspections, audits and other monitoring processes; being encouraged to report hazards and ‘near miss’ incidents; and being invited to become members of safety circles for problem solving. Finally the provision of training and development would be an important factor in maximising the involvement of workers in health and safety matters. Candidates should avoid outlining either the responsibilities of employers and workers or describing the benefits of co-operation, which is not required by the question.

Organisational change can, if not properly managed, promote a negative health and safety culture for a number of reasons such as: the profile of safety may not be maintained during the change and new job responsibilities may not have covered safety issues comprehensively; normal consultation mechanisms and routes may be disrupted; training in safety issues for new job-holders or for new responsibilities may not have been completed; the lack of adequate means of communication during the change may compromise trust and poor consultation on change issues may have a negative effect on cooperation and on other issues including safety; there may be concern about job security which could encourage risk taking; redundancy processes or cost reduction measures may produce a perception that the organisation is not concerned with personal well-being; experience or knowledge of risk controls may be lost with changes of personnel; the safety implications of changes in personnel or numbers may not have been properly assessed; extensive movement of personnel makes it harder to establish shared perceptions and values; a greater use of outsourcing without good control may result in lower safety standards by contractors which may affect the perception of priorities; and last but not least the effects of natural resistance to change.

Question 9 **Outline** the benefits of:

- (a) *an integrated health and safety, environmental and quality management system;* **(10)**
- (b) *separate health and safety, environmental and quality management systems.* **(10)**
-

The question requires candidates to outline their understanding of the key benefits of both an integrated and separate systems for health and safety, environmental and quality management.

The benefits of an integrated management system can include: consistency of format and a lower overall cost through the avoidance of duplication in procedural, record-keeping, compliance auditing and software areas; avoiding narrow decision making that solves a problem in one area but creates a problem in another; encouraging priorities and resource utilisation that reflect the overall needs of the organisation rather than an individual discipline; applying the benefits from good initiatives in one area to other areas; encouraging team working and equal influence amongst specialists; encouraging the spread of a positive culture across all three disciplines; and providing scope for the integration of other risk areas such as security or product safety.

Benefits from retaining separate systems could have included: providing a more flexible approach tailored to business needs in terms of system complexity and operating philosophy - for example, safety standards must meet minimum legal requirements whereas quality standards can be set internally and, therefore, the need for a more complex system in one element may not be mirrored by a similar need in other elements; existing systems may work well and the process of integration may expend unnecessary resources and affect their effectiveness; business needs may demand systems of different complexity so bureaucracy can be more easily tailored to the needs of the subject; separate systems might be clearer for external stakeholders or regulators to understand and work with; and finally they may encourage a more detailed and focused approach to auditing and standards.

Candidates are generally able to agree that it is beneficial to have management systems in place, but are then unable to go further and outline the benefits of either system.

Question 10 A manufacturing company with major on and off site hazards is analysing the risks and controls associated with a particular process and containment failure.

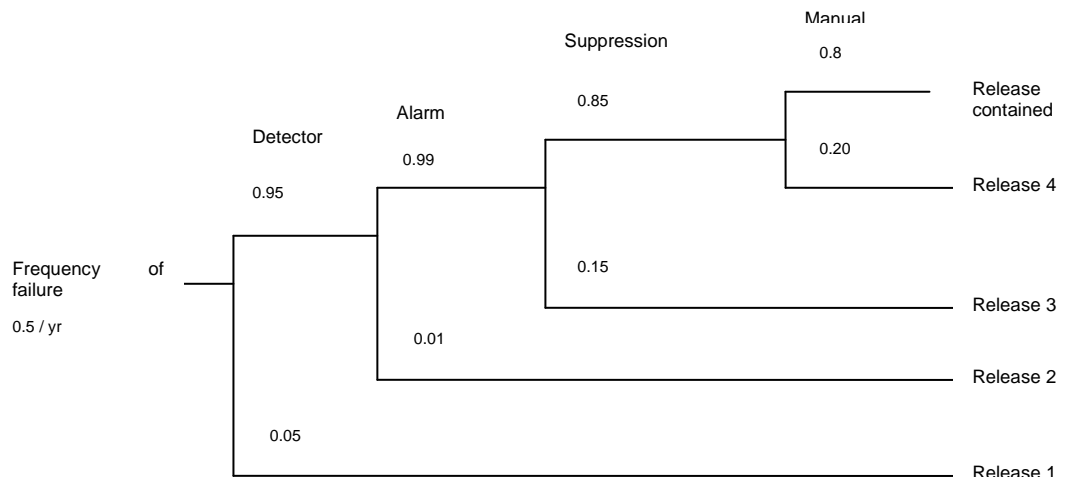
Following a process containment failure ($f=0.5/\text{yr}$), a failure detection mechanism should detect the release. Once detected, an alarm sounds then a suppressant is activated. Finally, in order to control the initial release, an operator is required to initiate manual control measures following the release of the suppressant.

As part of the analysis, the company has decided to quantify the risks associated with a substance release from the process and develop a quantified event tree from the data.

Activity	Frequency/reliability
Process containment failure	0.5 per year
Failure detection	0.95
Alarm sounders	0.99
Release suppression	0.85
Manual control measures activated	0.8

- (a) Using the data provided, **draw** an event tree that shows the sequence of events following a process containment failure. (6)
- (b) **Calculate** the frequency of an uncontrolled release resulting from process containment failure. (6)
- (c) **Outline** the factors that should be considered when determining whether the frequency of the uncontrolled risk is tolerable or not. (5)
- (d) If the risk is found to be intolerable, **outline** the methodology for a cost benefit analysis with respect to the process described. (3)

In answer to part (a) of the question, candidates are expected to produce the following event tree.



For part (b), candidates should show the following calculation in arriving at the frequency of an uncontrolled release resulting from process containment failure.

$$\text{Release 1} = 0.5 \times 0.05 = 0.025/\text{yr}$$

$$\text{Release 2} = 0.5 \times 0.95 \times 0.01 = 0.00475/\text{yr}$$

$$\text{Release 3} = 0.5 \times 0.95 \times 0.99 \times 0.15 = 0.071/\text{yr}$$

$$\text{Release 4} = 0.5 \times 0.95 \times 0.99 \times 0.85 \times 0.2 = 0.08/\text{yr}$$

The frequency of an uncontrolled release would therefore be:

$$0.025 + 0.00475 + 0.071 + 0.08 = 0.181/\text{yr. or once every 5.5 years.}$$

For part (c), factors to be considered in determining whether the frequency of the uncontrolled risk is tolerable or not include the plant location taking into account the health and environmental implications of a release; the cause of the release such as for example, as a result of a catastrophe together with the inevitable public outrage that it would arouse; historical data; relevant legal requirements; the impact that a failure would have on production and the cost of control measures; and published risk data such as those contained in Reducing Risks Protecting People.

The first step of the methodology for a cost benefit analysis would comprise the quantification of process losses and improvement costs in terms of monetary value. Should a comparison indicate that process losses together with other possible losses such as damage to the organisation's reputation exceed improvement costs, the improvement work should be carried out. A payback period would need to be established with due consideration being given to the value of the money involved spread over the period of time.

Answers to the first two parts of the question are generally to a good standard but are not matched by those provided for parts (c) and (d) where many candidates describe how the system could be improved by the use of more reliable components or by the provision of parallel systems.

Question 11

As the Health and Safety Adviser to a large organisation, you have decided to develop and introduce an in-house auditing programme to assess the effectiveness of the organisation's health and safety management system.

Describe the organisational and planning issues to be addressed in the development of the audit programme. You do not need to consider the specific factors to be audited.

(20)

This question is designed to assess candidates' understanding of the organisational and planning issues to be addressed in the development and implementation of an audit programme. Some of the issues that needed to be addressed included a consideration of the scope and terms of reference of the audit, the logistics and resources required and obtaining the support and commitment of senior managers and other key stakeholders since if this is not obtained, much required information might not be forthcoming and the value of the audit would be diminished. Other matters for consideration are the nature, scale and frequency of the auditing relative to the level of risk involved, the standards against which the management arrangements are to be audited such as, legal or good practice and the identification of the key elements of the audit process such as the planning, interviews and verification, feedback routes and the preparation and presentation of the final report.

There would also have to be recognition of the need to develop audit protocols and consider issues such as scoring or the use of proprietary software. The types of auditing such as comprehensive, horizontal or vertical slicing; its scope such as management system elements or selected performance standards; the use of a single auditor or audit teams; and the training of auditors and briefing of those members of the organisation who are likely to be affected could also have been mentioned to gain marks.

Candidates should avoid describing the specific factors that should be audited. Candidates should also note and a number ignored the command word and avoid providing a list.



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