

IFE Level 3 Diploma in Fire Safety and Fire Science

Unit 6 – Fire Service Operations and Incident Command

Examiner Report – October 2018

Introduction

Performance was good with 67% of candidates achieving a Pass.

Candidates performed best on questions 1, 3, 7 and 8. They performed least well on question 4.

Although most candidates performed well enough to attain a Pass, few candidates demonstrated sufficient technical or in-depth understanding to secure high marks. Only one candidate out of the 138 candidates that passed the examination secured an A grade (ie attained 70% or above of the marks available) and only 14 secured a B grade (ie attained 60% of the marks available). Many candidates appeared to rely on generic processes rather than context-specific understanding.

Question 1

In relation to Incident Command at an emergency incident:

- a) *Define the offensive tactical mode and give two examples of situations of offensive mode. (5 Marks)*
- b) *Define the defensive tactical mode and give two examples of defensive mode situations. (5 Marks)*
- c) *Explain how tactical modes are managed when sectors are in use. (6 Marks)*
- d) *State two reasons why tactical mode may change and describe the actions to be taken by the Incident/Sector Commander when tactical mode changes from offensive to defensive. (4 marks)*

Examiner Feedback

Candidates often provided good responses to parts a) and b). In responding to part c), candidates sometimes seemed unclear in relation to the different accountabilities of the sector commander and the incident commander.

In response to part d), candidates often stated two reasons for a change in tactical mode but then omitted to identify the actions to be taken when tactical mode changed.

Question 2

- a) *A decision trap is a thought process that can lead to wrong decisions being made. Describe four different examples of decision traps and explain how each can arise. (8 marks)*

b) Describe the purpose and content of a decision log. (12 marks)

Examiner Feedback

This was the least popular option on the examination paper and was generally a low-scoring question.

Few candidates appeared to be aware of decision traps. Decision traps that could have been explored in responses were as follows:

- decision does not fit with the objectives, tactical priorities or incident plan
- decision made on the basis of only part of the situation and not considering overall situation
- decision based on wrong interpretation
- decision aversion
- failure to actively monitor and review

Information on decision traps can be found in the Foundation for Incident Command.

Part b) of the question was usually answered well and candidates generally secured most, if not all, of their marks for question 2 for their response to part b).

Question 3

- a) Describe the control measures used to protect crew members when there is a risk of biological infections at water-related incidents. (6 marks)*
- b) Describe the hazards, other than biohazards, that may be present at incidents involving flooding. (8 marks)*
- c) Describe the post-incident actions that the Incident Commander should take following attendance at a water-related incident. (6 marks)*

Examiner Feedback

There were many excellent responses to this question with most candidates able to secure marks on all parts of the question. Responses to part a) and part b) were particularly good.

Although candidates usually scored some marks on part b), few attained a high proportion of the marks as candidates often failed to consider the situation in sufficient depth. Points which could have been covered, but which were often omitted, when responding to part b) included:

- risk of personnel becoming isolated by changes in conditions.
- impassable transport routes as flood waters rise and bridges and transport infrastructure is damaged.
- undercutting of river banks or erosion of softer surfaces caused by flood water making surfaces prone to collapse.
- water pressure can cause structural damage to properties and potentially result in the collapse of temporary or unstable structures.
- damage to electrical installations causing electrical hazards
- animals in the water – including non-native

A good source of information is the National Operational Guidance on Water Rescue and Flooding.

Question 4

- a) *Fire and Rescue Service personnel are at risk of electrocution when coming into contact with electrical equipment and components at operational incidents. One type of contact which can lead to electrocution is the direct contact that results from static discharges. Describe three other ways in which electricity can present a hazard. (6 marks)*
- b) *Describe the control measures to be implemented when attending an incident where electrical hazards are present. (14 marks)*

Examiner Feedback

This was the least well answered question. The question required candidates to demonstrate in-depth technical understanding of the context. Unfortunately, few candidates demonstrated sufficient understanding to attain high marks. Candidates generally performed better on part b) than on part a).

In response to part a), possible types of danger from electricity that could have been identified and described were:

- arcing
- flash down
- re-energising circuits and equipment
- residual charge
- electrical feedback

Although some candidates referred to arcing in their response, few identified one or more of the other hazards.

Candidates often provided only brief responses to part b). It was common for candidates to present generic points such as minimising personnel in the risk area, briefing personnel about the risks, ensuring that equipment was switched off where possible, implementing safe distances and utilising correct PPE. Although marks were awarded for these points, the lack of technical understanding limited the marks that could be attained by this approach eg some candidates mentioned safe distances without specifying what these distances were or how they should be determined and some mentioned PPE but failed to consider the use of electrical gloves. Examples of specific points that could have been covered included:

- identify any sources of renewable energy generation such as photovoltaic panels or wind power
- assess physical condition of the site, distances from live equipment, whether the incident is at ground level, above or below ground level, weather conditions on site
- isolate any photovoltaic system as close to the panels as possible
- establish 10m exclusion zone around high voltage electricity sources
- obtain permission from supplier before accessing electrical equipment enclosures, poles, towers or structures

- apply caution when using equipment such as ladders near high voltage electrical equipment
- implement high-voltage safe system of work if there is a yellow danger of death sign present
- columns or jets of water should not be applied to transmission towers and their components
- when firefighting in the close proximity of transmission towers, branches with spray, fog or mist can be used at ground level, as electricity is less able to conduct through droplets of water.
- as high-voltage electricity can find a path to earth through thick smoke (sometimes referred to as carbon tracking), a hazard area needs to be established. This should be a minimum of 10m either side of the overhead lines at the widest point of the transmission tower.
- any activity in close proximity of transmission towers should be subject to a risk assessment, taking into account: the conditions, such as dense smoke, wind direction, the equipment being used, such as ground monitors or aerial ladder platforms,

A good source of information on this subject is the National Operational Guidance on Utilities and Fuel.

Question 5

- Explain how firefighting foams can affect the environment. (3 marks)*
- Explain how fire water run-off can affect the environment. (3 marks)*
- Describe the control measures that can be implemented to prevent or reduce environmental damage due to fire water run-off. (14 marks)*

Examiner Feedback

Parts a) and b) were often answered well. However, candidates often provided only brief responses to part c) and therefore failed to take advantage of the 14 marks available.

Candidates are advised to refer to the National Operational Guidance on Environmental Protection for examples on the types of points that could have been provided in responses.

Question 6

- Firefighting foams have been developed primarily to deal with the hazards posed by liquid fuel fires. Explain the way in which firefighting foams work to extinguish fires. (4 marks)*
 - Describe the process to be followed when using foam to extinguish a flammable liquid fire. (4 marks)*
 - Describe how the following equipment is used in the production of foam and state how the foam produced is applied.*
 - LX (low-expansion foam) handheld foam-making branches*
 - HX (high-expansion) foam generators*
- (12 marks)*

Examiner Feedback

Parts a) and b) were usually answered well with candidates clearly familiar with the topic.

Part c) was often less well answered with candidates sometimes providing brief responses and sometimes providing irrelevant information.

Candidates are advised to refer to the Firefighting Equipment, NOG Knowledge sheets.

Question 7

- a) *You are the Incident Commander at a building fire. Describe the information that you would gather when carrying out your initial survey of the scene to secure situational awareness. (8 marks)*
- b) *Describe the specific hazards associated with fires in roofs. (6 marks)*
- c) *Describe the control measures that you would put in place when dealing with a building where the structure appears to be unstable. (6 marks)*

Examiner Feedback

This question was the most popular option for candidates and was also the highest scoring question on the paper. Candidates were generally familiar with the topic and responses to parts a) and b) were particularly good.

In responding to part c), the control measures suggested were sometimes generic eg establishing cordons minimising personnel and appointing safety officers. Few candidates provided context-specific control measures such as:

- consider structural integrity of internal structural elements (e.g. stairs, floors)
- consider the effects of fire and firefighting on structural elements, frames and construction materials
- consider applying water sprays to structural elements, frames and construction materials at risk of collapse
- liaise with on-site specialist and rescue teams regarding structural stability and shoring capabilities
- consider requesting specialist monitoring equipment for unstable structures

Question 8

- a) *Explain the operational considerations that an Incident Commander will need to take into account when attending a fire in a long road tunnel. (10 marks)*
- b) *Describe the control measures that would need to be put into place to protect crew members when managing a fire in a long road tunnel. (10 marks)*

Examiner Feedback

This question was generally answered well with most candidates securing marks on both parts a) and b). Responses to part b) generally secured higher marks than responses to part a).

The main issue for candidates was that they provided only brief responses to both parts of the question and included few relevant points.

In response to part a), candidates often referred to evacuation of members of the public, the fuel load issues associated with trapped vehicles and potential travel distances for crew. Few candidates provided in-depth assessments and few included considerations such as:

- human behaviour – panic/refusal to move.
- structural factors relevant to the tunnel (spalling, collapse, underfoot conditions).
- restricted space/access and egress affecting use equipment.
- communication – potential blind spots.
- physiological factors (temperature, humidity, fatigue, restricted space) that could affect crew members.
- environmental factors - heat, smoke and smoke travel, darkness, irrespirable atmosphere, weather/wind conditions.
- darkness masking the presence of hazards.
- unexpected fire spread - direction and intensity.
- tunnel engineered solutions ie ventilation systems

The points made were often generic points eg responses to part b) were often focussed on issues such as appointing a safety officer and ensuring that crew members were wearing appropriate PPE. Although the points were correct and secured marks, it appeared that few candidates possessed detailed technical understanding and this lack of depth meant that few high marks were attained.