

# IFE Level 4 Certificate in Fire Safety and Fire Science

## Unit 2 – Fire Safety

### Examiner Report – March 2017

#### Introduction

36% of candidates achieved a pass. This is the fourth year in a row in which performance has improved on previous years. Although the percentage of candidates passing the examination increased, there were few scripts where candidates attained very high marks. The majority of candidates who passed the examination achieved a D grade.

Candidates performed best on question 3 and least well on question 8.

At level 4, candidates need to be able to explain and/or analyse situations. The main reason that many candidates failed the examination is that their responses did not provide evidence of depth of understanding. Candidates often omitted to provide explanations even where the requirement for explanation was made explicit in the question.

#### Question 1

*Consider a tall, multi-occupancy building including hotel accommodation, offices and residential flats.*

*Explain the issues that you would take into account when determining recommendations on each of the following:*

- i) evacuation strategy*
- ii) fire detection and warning system*
- iii) management controls*
- iv) fire protection of escape routes.*

*(20 marks)*

#### **Examiner Feedback**

This question was a popular choice for candidates and nearly all candidates attempted the question. Candidates who recognised the need to reflect on the different types of occupancy and assess the implications specific to that type of occupancy were able to achieve high marks. Candidates who made only generic points were unable to secure more than a few points.

The least well answered section of the question was part iii). Many candidates failed to appreciate the need for sufficient trained staff, the importance of 24/7 monitoring and/or control room cover and the need to have a support strategy for each type of occupancy.

## **Question 2**

*Describe the fire safety and mitigation measures that can be put in place to reduce and control the risk of industrial process explosions (not terrorism). (20 marks)*

### **Examiner Feedback**

There were many measures that could have been presented in response to this question but the candidates that attempted the question generally provided only a few brief points. There were two issues for consideration i.e. measures to reduce the risk of explosion and measures to control the effects of explosions. Candidates often failed to consider both angles.

Candidates who demonstrated understanding of the risks inherent in this type of situation were able to identify and describe some appropriate mitigation measures. However, many candidates did not appear to have sufficient technical understanding and provided responses that lacked the level of detail required at level 4.

Most candidates were able to identify the importance of controlling the formation of flammable atmospheres and dust clouds and of controlling ignition sources. However, few went into detail as to the measures that could be taken. Few candidates considered explosion relief venting or flameless venting in their responses and few described measures for explosions suppression or explosion isolation.

## **Question 3**

*You are managing the fire safety at a large open air music event. The event will take place over a three day period on open farmland with crowds in excess of 50,000. There is a main stage in addition to several smaller stages. Next to the site of the event, an area has been set aside for camping where food vendors and toilet facilities are provided.*

*Explain the factors, including human behaviour and the difficulties of evacuating a crowd that you would take into account in planning and managing the fire safety provisions. (20 marks)*

### **Examiner Feedback**

This question was generally answered well with most candidates able to identify and explain relevant factors. Most candidates scored their highest mark for their response to this question.

Whilst some candidates failed to follow the instruction to include “human behaviour and the difficulties of evacuating a crowd” in their responses, other candidates omitted to consider any other factors.

#### **Question 4**

*Hospitals create significant fire safety challenges particularly in operating theatres, high dependency (intensive care) units and isolation wards (highly contagious diseases). Describe the fire safety issues specific to these areas within hospitals and explain how solutions can address these issues. (20 marks)*

#### **Examiner Feedback**

Candidates often wrote at length about generic fire safety issues rather than focusing on the specific contexts given. Likewise, candidates sometimes answered only part of the question, focusing only on issues rather than solutions or limiting their response to only one or two of the specific contexts.

Candidates who attained high marks recognised specific issues such as the presence of medical gases and explained the human factors related to vulnerable people and visitors with emotional ties who were under stress. Patients undergoing surgery are particularly vulnerable and there is a need to manage the fire threat in combination with the medical risks.

#### **Question 5**

*In relation to each of the following situations, describe the automatic, water-based, fire suppression systems that you would recommend and explain why you would recommend the system to:*

- i) protect from a fire in an adjacent building*
- ii) control and extinguish an oil fire*
- iii) protect a marine or specialist application*

*(20 marks)*

#### **Examiner Feedback**

This question required candidates to demonstrate understanding of the types of system to be used in different situations.

Candidates often provided good descriptions in respect of the systems to be used in relation to parts i) and ii). However, few candidates demonstrated a good understanding of the types of system that would be appropriate for marine or specialist contexts.

Many candidates omitted to explain why they would recommend the systems they had identified and described. This meant that they limited the marks that they could attain. Explanations should have focused on issues such as the advantages that different elements of the system brought to the context. For example, the use of a water mist system to protect a marine or specialist application brought the advantages of effective cooling, causing less damage and the fact that a vapour that can be drawn to otherwise inaccessible areas.

Some candidates wrote about gaseous systems but scored no marks because the question was specifically about water-based suppression.

### **Question 6**

*You have been asked to advise on the review of fire safety in your local museum which is an international tourist attraction. The management team is planning to modernise the museum to improve accessibility for increased numbers of visitors, including visitors with disabilities, and to improve protection for the valuable collection. The museum has four storeys.*

*Explain the fire safety matters that you would consider as part of the review. (20 marks)*

### **Examiner Feedback**

This was a popular option for candidates and some candidates were able to attain high marks for their response.

Those candidates that attained high marks gave careful consideration to prevention measures, protection measures and evacuation processes.

### **Question 7**

*Explain how fire can spread through tall buildings despite the presence of structural fire protection. Describe the methods that can be adopted to mitigate the risks. (20 marks)*

### **Examiner Feedback**

This question was a popular choice for candidates.

Many candidates correctly described some of the factors affecting the spread of fire. However, it was common for candidates to limit their responses to brief descriptions of the a few factors and then to completely omit to consider methods to mitigate the risks as required by the question.

Candidates often identified compartmentation but omitted to describe issues such as workmanship or the effects of ongoing deterioration over time or alternations as part of maintenance and improvement works. Few candidates considered the importance of ongoing building management and checks.

### **Question 8**

*Explain the factors that need to be taken into account when planning for the use of escalators and lifts (elevators) in an emergency evacuation. Include human and technical matters in your response. (20 marks)*

### **Examiner Feedback**

This question was not a popular option for candidates and those candidates that did attempt the question often attained only low marks. Tall buildings are becoming increasingly common around the world and in some cases use of properly designed lifts may be an essential option for evacuation. One difficulty is that the statement 'do not use lifts in event of fire' is well known in society.

In order to attain a high mark, candidates needed to consider factors affecting human behavior (such as the expectation that the lift/escalator should not be used, willingness to wait for a lift, management of the numbers of individuals using the lift/escalator, access for those with disabilities) and technical issues (such as load capacity, speed, reaction of system at stop off points such as different floors).

Most candidates recognised the importance of providing ongoing training and notification for occupants and visitors of the systems in place but few candidates explored wider factors related to management such as communications, protected shafts and reliability of power sources.