IFE Level 3 Diploma in Fire Safety and Fire Science

Unit 2 – Fire Safety (Zone 1)

Examiner Report – March 2019

Introduction

39% of candidates attained a Pass. There were no really high scores and all candidates who passed attained either a Grade C or a Grade D.

Candidates performed best on questions 3 and 4 but performance on question 1 was also good. Candidates performed least well on questions 2 and 6.

Question 1

a) Prepare a checklist of fire safety issues to be covered in the training of staff working in a large factory or warehouse premises. (14 marks)

b) Staff who are expected to undertake the role of fire marshals or fire wardens are given a higher level of fire safety training than the average member of staff in order for them to be responsible for the fire safety within a designated part of a premises. Outline what would be covered in this higher level of fire safety training. (6 marks)

Examiner Feedback

Candidates identified a wide range of safety issues in response to part a) and some candidates attained very high marks. The main issue for some candidates was that they failed to recognise that there were 14 marks available and therefore 14 distinct points were required. Some candidates provided only brief responses and others repeated the same points several times.

Part b) was often answered well. However, some candidates failed to distinguish between general fire safety training and the specific duties of a fire warden. This meant that there was repetition with responses in part a) and therefore the candidates did not answer the question asked. Examples of points which could have been provided include:

- Checking for hazards and potential fire risks within their area
- Checking that first aid firefighting equipment and other fire safety is in place and working
- Organising members of the public, visitors and/or disabled persons to leave the premises in the event of a fire alarm
- Checking designated areas to ensure everyone has left
- Communicating and reporting information to the person in charge of the assembly point
- Using firefighting equipment if safe to do so
- Liaising with the fire service on arrival

Question 2

a) State the objectives of fire safety advice provided for property and business continuity purposes. (2 marks)

b) Outline the primary means of achieving those objectives in order to improve property and business continuity protection. (6 marks)

c) State five factors that influence an evacuation strategy for a building. (5 marks)

d)
i) Identify two human behavioural factors that should be considered when planning evacuation and means of escape from a building. (2 marks)
ii) Describe five ways in which building design and evacuation strategies can assist in aiding evacuation. (5 marks)

Examiner Feedback

Parts a) and part b) of this question were specifically focused on property and business continuity. Candidates did not always focus their responses on this context and this meant that some of the responses provided were not completely relevant. In response to part a), candidates often omitted to consider the need to reduce the chance of fire starting or, in the event of fire starting to reduce the consequences of that fire. Most candidates secured at least some of the marks available for part b) by identifying actions such as controlling ignition hazards, ensuring that good housekeeping and storage is in place for combustible hazards, providing smoke management or providing firefighting facilities such as automatic suppression systems to reduce fire severity.

Responses to part c) were often good with most candidates referencing issues such as occupancy, use of the building, size, compartmentation etc.

Part d)i) was usually answered well with most candidates able to secure both of the marks available. Part d)ii) was often less well answered. Whilst candidates provided information on evacuation, few recognised that the focus was on ways to assist evacuation. Examples of points that could have secured marks were as follows:

- Ensure that movement of people in smoke is minimal with low concentrations of smoke being assured.
- Staff should be designated to assist those with disabilities or other occupants who will require assistance such as those unfamiliar with the building.
- The rate of evacuation should be maintained by frequent broadcast messages urging people to leave the building
- Arrange staff intervention at the points where the evacuation impetus slows.

Question 3

a) Explain why fires that have been set deliberately can often be more dangerous and extensive than accidental ones. (7 marks)

b) You have been asked to assist a local business to draw up a plan to protect their factory from potential arson attacks. Describe the measures you would suggest putting in place to protect the premises from a deliberate fire. (13 marks)

Examiner Feedback

This was the highest scoring question on the examination paper with candidates generally demonstrating good understanding of the subject area. Candidates usually scored well on both parts of the question.

Where candidates attained only low marks for this question, it was usually the case that the response provided was brief and contained insufficient points to score a higher mark.

Question 4

Explain how each of the following extinguishers put out a fire, state where they are best used and any hazards associated with their use:

a) Water Mist (6 marks)
b) Foam (4 marks)
c) CO^2 (4 marks)
d) *Powder (6 marks)*

Examiner Feedback

This question was the most popular option for candidates. Candidates were generally able to score most, if not all, of the marks available for parts b) and c). However, newer developments around water mist and dry chemical appeared to be less well understood.

Question 5

a) Explain the following terms:

i) inner room
ii) access room (2 marks)

b)

i) State the specific risk that an inner room presents in the event of fire. (1 mark)
ii) Identify three arrangements that can be put in place to reduce the risk and explain how each arrangement helps to reduce the risk. (6 marks)

c)

i) Explain the term 'dead end'. (1 mark)
ii) Identify and explain the measures that can be taken to reduce the hazards and risks of dead ends. (10 marks)

Examiner Feedback

Many candidates presented answers that appeared to be guesses.

In responding to part a), few candidates were able to explain that an inner room is where the only escape is through another room or that an access room is the room through which the only escape route passes.

Whilst most candidates were able to identify that the specific risk presented by an inner room is that a fire in the access room will cut off and trap anyone within the inner room few provided a full response to part b)ii). Candidates often listed arrangements without explaining how the arrangement helped to reduce risk eg an automatic smoke detector in the outer room will reduce the risk by sounding a warning in the inner room.

Part c) was often answered well. Although candidates often failed to offer a precise definition of a dead end (ie an area from which escape is possible in one direction only), most were able to identify and explain at least a few of the measures that can be taken to reduce hazards.

Question 6

a) Describe the design and purpose of a wet rising main. (16 marks)

b) Describe how these systems are typically tested on an annual basis. (4 marks)

Examiner Feedback

Many candidates appeared to confuse wet risers with sprinkler systems and this meant that no marks could be attained. Some candidates even went to considerable effort to draw and label a sprinkler system layout.

Candidates who were familiar with wet rising mains were able to explain that these systems are:

- intended for use by the fire brigade or other trained personnel to deliver firefighting water to the upper floors of a high rise building (above 50 metres).
- They are vertical mains (100mm diameter)
- fitted into staircase enclosures or other suitable positions,
- with outlet valves on each floor
- and connected to an automatic water supply

Many candidates were able provide additional detail in relation to the features and operation of these systems.

Few candidates secured all of the marks available for part b). Whilst candidates often recognised the need to check for leaks (and secured a mark for this), few explained the need to charge with water to a pressure equal to its design operating pressure measured at the inlet for a period of at least 15 min in order to carry out the tests and few recognised the need to ensure that all valves are fully serviceable or the need to check operational serviceability for the water storage tanks and booster pumps.

Question 7

a) State the benefits that can be obtained from installing a wireless fire alarm system. (10 marks)

b) Explain the problems that can be associated with these systems. (3 marks)

c) State where manual call points would normally be located in a building. (4 marks)

d) Many fire alarm systems will include control and indicating equipment (a fire alarm panel). State the three main functions of these systems. (3 marks)

Examiner Feedback

Part a) was often answered well.

In responding to part b), many candidates appeared to be unaware of technology advance with the majority of answers outlining the potential for interference to the wireless signal.

Parts c) and d) were usually well answered.

Question 8

a) State the main purposes of a smoke ventilation system in a building. (4 marks)

b) Describe the component parts of a typical smoke ventilation system. (7 marks)

c) Describe how the system would operate in the event of a fire. (7 marks)

d) Identify two types of building where a smoke ventilation system may be installed. (2 marks)

Examiner Feedback

Part a) was usually answered well.

In responding to part b), few candidates were able to identify the component parts. Points which could have been covered include:

- Mechanical extract shaft
- Dampers fitted to shaft at lobby, corridor or staircase
- Damper/Vent at head of stairs.
- Fan at top of extract shaft
- Addressable control system
- Smoke detectors
- Manual override switch for firefighter use

As with responses to part b), candidates often failed to demonstrate technical understanding of the systems. Points which could have been made include:

- Smoke detector detects smoke which initiates the smoke shaft

- Lobby vent to the smoke extract shaft opens
- Remaining vents remain closed
- Stairwell vent opens to allow fresh air to enter
- On the roof, the fans in the smoke extract unit begin to remove smoke via the smoke extract shaft
- Fresh air is drawn into the stairwell

Smoke in the lobby is removed via the smoke extract shaft

Part d) was generally answered well with nearly all candidates securing full marks for this element of the question.

Date issued: July 2019