

IFE Level 4 Certificate in Fire Safety and Fire Science

Unit 2 – Fire Safety

Examiner Report – March 2016

Introduction

31% of candidates achieved a Pass. Candidates generally performed best on question 1 and least well on question 2 and question 3.

Some candidates approached this paper from the viewpoint of operational firefighters rather than from the viewpoint of fire safety/fire safety engineering. Candidates should be aware that this paper addresses the fire safety specialism and answers that take a firefighting operations angle will not achieve the high marks needed for a Pass.

At this level examiners are looking for in-depth and wide understanding; a brief list of points will not demonstrate understanding at the appropriate level. Candidates are advised to read the questions carefully and to look for the “command” words (such as “explain”) before formulating their responses.

Question 1

Unwanted Fire Signals (False Alarms) divert fire service resources from real emergencies and other important work.

- a) *Explain how repeated Unwanted Fire Signals may reflect on the management of fire safety, impact the operation of the building and affect occupant behaviour. (8 marks)*
- b) *Explain how measures, put in place by both the premises management and the fire service, achieve the objective of reducing Unwanted Fire Signals. (12 marks)*

Examiner Feedback

This question was a popular option for candidates and was generally well answered.

Many candidates identified that frequent false alarms may indicate a poor attitude to fire safety; they also explored the effect on business continuity and on the effect on the way in which occupants react to an alarm.

Appropriate solutions that could have been explored in responses include: working with the building managers, implementing technological solutions such as upgrading or changing the alarm, investigating the reasons behind the problems and confirming the system design is appropriate for the current use and layout of the premises. In some jurisdictions legislative enforcement is an option that can be used.

Very few candidates discussed the issue of deliberate/malicious false alarms in their responses.

The key word in the question was “explain”. Some responses lacked the detail and understanding required at this level; candidates who provided only a list did not achieve many marks.

Question 2

Explain, using examples, the measures that need to be implemented as part of a total fire engineering package. (20 marks)

Examiner Feedback

This was not a popular question and was often poorly answered. Candidates who understood that total fire engineering encompasses all stages of the building's life from concept, design, construction to its use, as well as the active and passive safety components, attained good marks.

The requirement set out in the question was that candidates should "explain using examples" but some candidates provided only a simple list, often without examples. This severely limited the marks that could be attained. Very few candidates demonstrated their wide knowledge of fire safety by illustrating the answers with examples.

Some candidates briefly referenced ASET/RSET calculations, computer modelling and qualitative design review; while these are parts of the total engineering package the responses usually lacked the detail required at this level.

Question 3

- a) *Explain the issues surrounding initial leakage pathways in a building provided with a pressurised system to support a means of escape strategy and explain how they influence means of escape arrangements. (12 marks)*
- b) *Define the term "final leakage path" and explain how leakage pathways are incorporated into the design of modern buildings. (8 marks)*

Examiner Feedback

This question was not popular a popular option for candidates.

Candidates that recognised that air from pressurised parts of the building needs to escape to make the system work usually achieved good marks. Initial leakage is inside the building and allows for normal movement while the final leakage path is through gaps in openable windows and external doors.

Some candidates confused a pressurised system with a smoke extraction system.

Some responses lacked the detail and understanding required at this level and candidates who merely provided a list did not attain many marks.

Question 4

You are asked by a building occupier to oversee, as his representative, the acceptance of a new, large and complex fire detection and fire warning system installation that is linked to an alarm receiving station and is being handed over by the system installer. Describe the elements that you would ensure are in place and/or have been completed before accepting the system as fit for purpose. (20 marks)

Examiner Feedback

This question provided scope for candidates to demonstrate a wide range of knowledge and understanding and some candidates were able to achieve very high marks for their response. Different standards are applied in different countries but the principles are the same although the details may vary. As well as ensuring that the system has been properly installed and actually works, key issues to be considered are whether the installer has provided what the purchaser specified, whether the system has been properly specified for the intended use of the building, whether the installer has provided training in how to use the system and how to avoid false alarms and the quality of all necessary documentation and certification.

Candidates who only described the components were able to achieve some marks where they presented sufficient detail in the response.

Question 5

You are advising the owner/manager of a care home which provides twenty-four hour personal care/nursing for people with a range of different vulnerabilities including dementia and mobility impairments. Describe the control measures that you would recommend to the owner/manager of the premises. (20 marks)

Examiner Feedback

Fire safety for an ageing and vulnerable population is a problem across the world. Vulnerable people require a much higher level of protection from fire whilst maintaining a homely environment and their human dignity.

The compartmentation in a building must be to a very high standard to enable progressive horizontal evacuation. There must be sufficient numbers of staff at all times to evacuate the largest compartment in a reasonable time. If specialist evacuation equipment is provided, then staff must be specifically trained. Some residents may need medical oxygen and some may introduce additional risks such as hoarding behaviour and smoking. In many jurisdictions, the storage and charging of mobility scooters must be carefully managed to ensure fire safety while maintaining the individual's quality of life.

Candidates who provided little more than a list did not score well. At this level, general statements such as "provide fire alarm and escape lighting" will not attract any marks. Candidates should understand that vulnerable people such as those with mobility issues and dementia need fire safety provision that is *over and above* that which is usually found.

Question 6

You have been asked to lead a review following a fire in a display in the concourse of a large shopping mall during a busy trading session. Two sprinkler heads activated and the fire was quickly extinguished by the fire service. However the evacuation took much longer than it had during a recent drill. Describe the factors that you would take into account when reviewing the fire and the performance of the systems involved. (20 marks)

Examiner Feedback

It is important that any serious incident is reviewed so that improvements can be made. Reviews should include analysis of things that worked well together with the systems that did not perform as well as expected. In this case the questions to be considered include: why did the fire start in the first place? Should the display have been positioned where it was? Was the fire loading in excess of the design parameters of the sprinklers and what caused the ignition? The suppression system worked on this occasion but is it fit for purpose? Is the current use of the premises consistent with the design assumptions? Why did evacuation take so long? Where were the pinch points? Had the display obstructed escape routes? Had management paid only lip service to evacuation by carrying out a drill when the mall is virtually empty and not training for peak conditions?

An incident of this nature is a wake-up call to review the planning for a fire and consider liaison with other shop unit occupants, and consider business continuity and resilience.

Many candidates gave good descriptions of human behaviour in an evacuation situation and achieved good marks. However, candidates who provided little more than a list did not score well.

Question 7

Explain how the fire safety provisions and fire performance of a building can deteriorate during the lifetime of that building. (20 marks)

Examiner Feedback

This was one of the most popular questions on the paper and was generally answered well. Many candidates gave good explanations of deterioration of fire doors, sprinklers, alarm systems and compartmentation especially due to additional building works and holes being made in compartment walls to install cables without being properly fire stopped. Few candidates discussed fire performance during construction, alterations (such as addition of cladding and insulation), disuse and demolition.

Few candidates referred to the deterioration of fire safety provisions; this is a very common cause of fire spread so it is important to ensure a high level of awareness of this issue.

Those candidates that provided only lists and did not support their responses with explanations achieved only low marks.

Question 8

Refer to the plan provided on page 5 of this question paper. You have been asked to advise a developer on fire safety provisions in order to convert the building shown in the plan into a hotel. Referring to the plan, describe the problems in relation to means of escape and fire resistance. Suggest solutions to the problems and explain how each of your solutions would remedy the issue. (20 marks)

Examiner Feedback

This was one of the most popular questions on the paper and was generally answered very well. This question gave candidates the opportunity to demonstrate their understanding of

the principles of fire safety. There are different standards in different countries but the problems they seek to address are universal.

Many candidates merely listed minor problems and did not identify clearly dangerous conditions. The question clearly asked for solutions for means of escape and fire resistance only. No marks were awarded for suggestions relating to fire alarms, escape lighting, fire extinguishers and signage.