

IFE Level 3 Certificate in Passive Fire Protection

Examiner Report – October 2018

Introduction

The IFE Level 3 Certificate in Passive Fire Protection examination was available for the first time in October 2018. 45 candidates entered for the examination.

40% of the candidates that sat the examination achieved a pass.

Candidates who were unsuccessful in the examination were generally unsuccessful due to the fact that they failed to provide sufficient points in their responses. Candidates should be aware that marks shown on the examination paper are a guide to the amount of information required in responses.

Candidates often failed to read examination questions carefully and/or failed to follow instructions. This was particularly noticeable where questions asked candidates to do two things such as “identify” and “describe” an item/issue – in these instances, candidates would often identify the item correctly but then fail to describe it; therefore, they were able to attain only half of the marks available as they had provided only half of the information required by the question.

Question 1

Describe the fire tetrahedron and explain the implications for extinguishing fire. (4 marks)

Examiner Feedback

Most candidates successfully identified heat, oxygen and fuel as components of the fire tetrahedron. However, some candidates omitted to refer to the chemical chain reaction and others omitted to state that all four elements need to be present and combined in the right mixture for a fire to be sustained.

Some candidates did not address the second part of the question which asked for the implications for extinguishing a fire. A response explaining that a fire can be prevented/extinguishing by removing any one of the elements was required.

Question 2

Describe the five stages of the fire curve and the role that passive fire protection plays at each stage. (6 marks)

Examiner Feedback

As with responses to question 1, candidates often identified some basic information correctly (ie some or all of the five stages) but then failed to develop this sufficiently to provide the explanation required. Examples of points that could have made include:

- In the growth stage of a fire, flame-retardant coatings will slow down the rate of growth

- At the fully developed stage, the compartmentation would be expected to contain the fire for a specific period of time.

Question 3

In relation to means of escape, define the following terms:

- a) Place of reasonable safety (2 marks)*
- b) Travel distance (2 marks)*

Examiner Feedback

Candidates often provided good responses to this question and these specific terms appeared to be well understood.

Question 4

Internal compartmentation and fire resisting construction are examples of passive fire protection.

- a) Explain why these components are described as passive fire protection. (2 marks)*
- b) Explain the role of passive fire protection when considering the approach to fire safety design. (2 marks)*

Examiner Feedback

This was a straightforward question but many candidates failed to provide clear responses. Candidates should be aware that passive fire protection is provided by components such as those that sit within the fabric of a building and therefore they do not need any special command system to work.

In terms of building design, this type of protection is designed to limit the spread of fire and smoke within given area and to insulate against the effects of fire for a prescribed period of time.

Question 5

Describe the content of a fire test report and explain the possible limitations of such a report. (4 marks)

Examiner Feedback

Candidate who were familiar with the subject were often able to attain all of the marks available for this question.

Question 6

Describe steps that building managers can take to ensure that fire protection provisions in their premises are maintained. (6 marks)

Examiner Feedback

Responses to this question were mixed. Candidates who appreciated the role of building managers in maintaining safety provisions were able to secure most, if not all, of the marks available. Examples of points that candidates could have made include:

- Ensuring that maintenance work does not breach essential fire compartmentation
- Ensuring materials used are certificated/fit for purpose
- Ensuring that any work carried out is completed by qualified individuals
- Ensuring that tenants are aware of potential issues and report/comply with rules.
- Ensuring safety policies and manuals are in place

Question 7

Identify three different types of sprinkler systems and outline a typical building/situation where each one would be installed. (6 marks)

Examiner Feedback

Many candidates did not appear to have sufficient knowledge of sprinkler systems to identify three different types. Some candidates mistakenly referenced water-based systems other than sprinklers such as drenchers and water mist systems.

Where candidates did identify appropriate sprinkler systems, they often provided only the name of the system without stating the types of places where the systems would be installed; where candidate responded in this way, they were able to attain only half of the marks available as half of the information required had been omitted.

Some candidates omitted to answer this question.

Question 8

Some passive fire protection systems depend on the operation of appropriate fire and smoke alarm systems to fulfil their intended role. Identify and describe three such systems. (6 marks)

Examiner Feedback

Candidates often omitted to respond to this question. Examples of the types of systems that could have been covered in responses include:

- automatic door hold open devices
- smoke and fire damper operation
- security door locks
- active fire barrier systems

Question 9

Explain two different ways of flame retarding timber. (6 marks)

Examiner Feedback

The question asked candidates to “explain” the two different ways of flame retarding timber. Most candidates were able to identify the two ways ie surface coatings and impregnation. However, candidates often omitted to explain how these two different methods worked and this meant that they acquired only two of the six marks for naming the two methods.

Question 10

Describe the factors that affect the loadbearing capacity of the following building support systems in fire:

- a) structural steel (2 marks)*
- b) reinforced concrete (2 marks)*
- c) timber (2 marks)*

Examiner Feedback

This question was often answered well with candidates able to attain many of the marks available.

Question 11

Explain how intumescent coatings work and how they can contribute to the loadbearing capacity of steel frames. (6 marks)

Examiner Feedback

Candidates often demonstrated basic understanding in terms of the way that intumescent coatings work and identified that these coatings swell up when heated and produce an insulating char. However, many responses stopped at this point and were therefore too brief to secure more than a few marks. Additional issues that could have been covered and which would have secured more marks include:

- intumescent coatings can swell to between 5 and 50 times their original applied thickness so that a 1mm film can produce up to 50mm of char.
- the intumescent extends the load-bearing capacity of the steel structure as it extends the time it protects the building from collapse
- protection depends on the thickness of the coating and the depth and insulation properties of the char produced from it.

Question 12

- a) Explain the difference between box, profile and solid application of fire protection to steel. (2 marks)*
- b) Describe the role of fire resistant boardings when protecting structural steel sections. (2 marks)*
- c) Describe any two different types of materials used in the manufacture of fire resistant boardings. (2 marks)*

Examiner Feedback

This question was usually answered well and many candidates were able to attain all of the marks available. Part a) of the question was answered particularly well with most candidates able to attain both of the marks available.

Question 13

State and explain the three main criteria that materials are assessed against when undergoing fire resistance testing as part of BS476. (6 marks)

Examiner Feedback

This question required specific understanding and therefore candidates who had the required knowledge were able to attain high marks. Correct responses covered stability, integrity and insulation. As with other questions, candidates often provided only half of the information required in that they named each criterion but then omitted to provide the explanation required by the question.

Question 14

What are the two main purposes of compartment walls and floors? (2 marks)

Examiner Feedback

Most candidates recognised that the compartmentation should prevent rapid fire spread which could trap occupants. Few recognised that an additional purpose is to reduce the chance of fires becoming large.

Question 15

Generally, fire resistant glazing falls within three tested classifications. Explain how each of the classifications are identified and how they differ from each other. (6 marks)

Examiner Feedback

This question was often omitted and few candidates appeared to have the specialist understanding required by the question. The three classifications that should have been covered were: E, EW and EI.

Question 16

Explain the difference in design and operation of curtain fire dampers and intumescent fire dampers. (6 marks)

Examiner Feedback

Candidates often provided brief responses. This meant that not enough points were provided for them to secure more than a few of the marks available.

Question 17

Ventilation ductwork systems may offer little or no protection against fire spread. Explain three ways of maintaining the fire resistance of walls and floors penetrated by ductwork. (8 marks)

Examiner Feedback

There were 8 marks available for this question but few candidates attained more than a few of the marks available. The topic did not appear to be well known or understood.

Question 18

Identify five different situations where fire stopping would be needed and describe an appropriate solution. (10 marks)

Examiner Feedback

This was a straightforward question but few candidates were able to identify situations where fire stopping would be needed. Those candidates that did identify one or more situations often omitted to describe an appropriate solution. Examples of a situations which could have been explored include: where services pass through fire separating elements and/or compartment walls or floors, at the junction between a wall and a ceiling, at the junctions of walls/floors with cladding.

Question 19

Explain the purpose, construction and design of a fire barrier system and explain how they differ from cavity barriers. (6 marks)

Examiner Feedback

Few candidates provided sufficient information to attain all of the marks available. However, most candidates were able to provide some basic information and therefore were able to secure one/two of the marks available.

Question 20

State six components of a fire doorset or assembly and explain their role in maintaining fire performance. (6 marks)

Examiner Feedback

The question specified that six components should be provided but most candidates failed to provide six different components in their answer. The marks awarded were directly aligned to the number of correct components (with explanation) provided.

Question 21

Explain the design, purpose and operation of a fire shutter. (6 marks)

Examiner Feedback

As with other questions, candidates often provided only one or two points. Without the provision of detail/depth in the response, they were unable to attain all of the marks available.