

# L4C2



THE INSTITUTION OF FIRE ENGINEERS  
Founded 1918 • Incorporated 1924

**IFE Level 4 Certificate in Fire Science and Fire Safety**

## **Unit 2: Fire Safety (D/505/5932)**

**Friday 15 March 2019**

**14:30 – 17:30**

### **Instructions to Candidates**

1. The time allowed for this examination is **THREE** hours.
2. Candidates must answer **SIX** questions from the total of **EIGHT** questions set for this examination.
3. All questions carry equal marks and may be answered in any order. Candidates should follow the instructions provided in the question when composing their responses.
4. Candidates should record all of their answers in the answer book provided.
5. The question paper must be handed in with the answer book.

### Question 1

The evacuation of health care facilities in a fire situation presents unique challenges to staff and fire services.

Explain the issues for consideration when preparing a fire safety strategy for very high dependency patients who cannot be moved in a fire.

(20 marks)

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### Question 2

Use the “t<sup>2</sup>” model to explain how different fuels and fire loads lead to different fire growth rates and time to achieve a 1 MW fire.

(20 marks)

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### Question 3

a) Explain the difference between a General Emergency Escape Plan (GEEP) and a Personal Emergency Escape Plan (PEEP) and give examples of situations where each type might be appropriate.

(6 marks)

b) Describe the considerations that should be included in a GEEP.

(14 marks)

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### Question 4

a) Discuss 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) Explain what is meant by the term “final leakage path” and explain how these leakage pathways are created in modern buildings.

(4 marks)

c) Explain how changes in a leakage path affect the performance of a pressurised staircase.

(4 marks)

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### Question 5

a) Describe the operating principles and components of a water mist fire suppression system.

(16 marks)

b) Identify two examples of situations where water mist systems may be appropriate and two examples where they are not appropriate and briefly explain why this is the case.

(4 marks)

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### Question 6

You are reviewing the fire strategy for a large zoo. The zoo receives visitors from all over the world as it is well known for its role as a conservation and research centre.

Explain the factors that may affect the fire strategy for individual buildings, enclosures and the site as a whole.

(20 marks)

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### Question 7

Lifts/Elevators, escalators and travellators are often used to aid the movement of people around a building on a daily basis. Explain the advantages and problems of using them in an emergency evacuation.

(20 marks)

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### Question 8

You have been asked to advise a large independent department store. The store employs over 300 staff and there are some franchises in the building. At peak periods there may be 2000 customers inside the shop.

Make recommendations on the content of fire safety training to ensure relevant knowledge and understanding for:

a) senior managers and department heads who make strategic and policy decisions.

(15 marks)

b) supervisors who lead teams of fire wardens.

(5 marks)

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