

**L3D7**



**THE INSTITUTION OF FIRE ENGINEERS**  
Founded 1918 • Incorporated 1924

**IFE Level 3 Diploma in Fire Science and Fire Safety**  
**Unit 7: Fire Investigation (D/507/7414)**

**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**

- a) Using a flowchart, state the stages of an investigation following the 'Scientific Method'. (10 marks)
  - b) Identify six factors that a working hypothesis must rely on. (6 marks)
  - c) Explain what is meant by the term 'level of confidence/certainty'. (4 marks)
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**Question 2**

Modern health and safety practice requires that a risk assessment should be carried out before any fire scene investigation is commenced.

- a) Identify the matters that must be considered as potential hazards. (10 marks)
  - b) In relation to building utilities, explain what actions and precautions should be considered to mitigate a risk of injury. (10 marks)
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**Question 3**

With the aid of a diagram, state and explain the four stages/phases of fire development within a compartment.

(20 marks)

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**Question 4**

- a) Describe the safety considerations to be aware of when investigating vehicle fires. (10 marks)
  - b) What questions should the fire investigator ask the driver and passengers of a vehicle which had been driven or parked prior to a vehicle fire? (10 marks)
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### Question 5

- a) The use of electricity has been determined as the cause of many fires. State the common reasons why electrical equipment, wiring and appliances may start a fire. (8 marks)
- b) Describe static electricity and explain how it can be a source of ignition. (12 marks)
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### Question 6

There are a range of methods and sources of information used to determine the point of origin of a fire within a compartment or structure. Identify the fire indicators that should be considered when using each of the following methods:

- a) Time and Temperature Analysis (5 marks)
- b) Pattern Analysis (5 marks)
- c) Fire Development Analysis (5 marks)
- d) Human/Interactive methods (5 marks)
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### Question 7

- a) Define the two forms of electrical current, give applications where they are used and describe the effect of electrocution from each. (8 marks)
- b) With the aid of a diagram, explain how electricity is generated and distributed around the country. (12 marks)
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### Question 8

Identify the circumstances and observations that may lead you to reasonably suspect that a fire has been deliberately set. (20 marks)

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