

L3D2



THE INSTITUTION OF FIRE ENGINEERS
Founded 1918 • Incorporated 1924

IFE Level 3 Diploma in Fire Science and Fire Safety (VRQ)

Unit 2: Fire Safety (F/505/6006)

Thursday 12 March 2015

10:15 – 13:15

Instructions to Candidates

1. The time allowed for this examination is **THREE** hours.
2. Candidates are to answer **SIX** questions from the total of **TEN** 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 answers.
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.

1

a) Describe with the use of a diagram a:

- i. Mansard roof (4 marks)
- ii. Trussed roof (4 marks)
- iii. Portal roof (4 marks)

b) Explain the behaviour of the following roof components in a fire:

- i. Connectors (2 marks)
 - ii. Slates and tiles (2 marks)
 - iii. Trussing (2 marks)
 - iv. Steelwork (2 marks)
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2

a) Draw a diagram showing the layout of a typical firefighting shaft. Annotate the diagram and indicate the levels of fire resistance provided by each of the walls and doors.

(8 marks)

b) Describe the factors to be taken into account when providing firefighting shafts within buildings.

(12 marks)

3

a) Identify the seven different types of sprinkler system.

(7 marks)

b) Outline where any three of the types of sprinkler system would typically be found and explain why this is the case.

(6 marks)

c) Identify four of the main types of water supplies used to feed sprinkler systems.

(4 marks)

d) Explain the purpose of three of the main valves fitted to sprinkler systems.

(3 marks)

4

- a) In terms of fire testing define:
- i. Stability (2 marks)
 - ii. Integrity (2 marks)
 - iii. Insulation (2 marks)
- b) Outline a typical method for determining the fire resistance of a timber fire door. (10 marks)
- c) Explain the two standards by which the fire test is measured. (4 marks)
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5

- a) In terms of means of escape, define the terms “travel distance” and “dead end”. (2 marks)
- b) What hazards are normally associated with dead ends? (2 marks)
- c) Explain the measures that can be taken to reduce the hazards and risks of dead ends. (10 marks)
- d) Explain with the aid of a diagram the 45 degree rule. (6 marks)
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6

- a) Explain the two main purposes of compartment walls and compartment floors. (4 marks)
- b) Identify and briefly outline five places where you would expect to find compartment walls and/or compartment floors in a building. (10 marks)
- c) Where ventilation ducts pass through a compartment wall there are three methods that can be used to maintain the integrity of the wall. Describe the three methods. (6 marks)
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[Please turn over]

7

- a) Explain the difference between an unwanted fire signal and a false alarm. (4 marks)
- b) Explain eight different measures that can be taken when designing, installing and managing fire alarm systems to reduce the incidence of false alarms. (16 marks)
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8

- a) Identify and explain five criteria that should be followed when locating and installing fire escape signs. (10 marks)
- b) Fire safety signs serve different purposes, often by being displayed in different colours. Explain any two of these purposes. (4 marks)
- c) Detail six items that would normally be found on a Fire Action Notice. (6 marks)
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9

- a) Explain the reasons why fire drills are carried out. (8 marks)
- b) Describe how you would carry out a fire drill at a medium-sized hotel which uses a single stage alarm. (6 marks)
- c) What issues would you include in any debrief following a fire drill? (6 marks)
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10

Every Fire Risk Assessment should include an emergency plan.

- a) What is the purpose of an emergency plan? (4 marks)
- b) Detail 10 items you would include in an emergency plan for an outdoor event attended by up to 5000 people. (10 marks)
- c) Describe six items that need to be considered when liaising with the local Fire and Rescue Service when planning the event. (6 marks)
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