

L4C2



THE INSTITUTION OF FIRE ENGINEERS
Founded 1918 • Incorporated 1924

IFE Level 4 Certificate in Fire Science and Fire Safety (HL)
Unit 2: Fire Safety (D/505/5932)

Friday 13 March 2015

14:15 – 17:15

Instructions to Candidates

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

1

Many shopping malls have smoke and ventilation systems.

Explain the general design principles of smoke and ventilation systems relevant to their application in shopping malls.

(20 marks)

2

Explain the factors influencing rapid and extensive fire spread in tall buildings (high rise).

(20 marks)

3

You have been asked to advise your National Archive which houses many irreplaceable and valuable historical documents. Documents from the archive are available for examination by the public. Recently a small fire in a light fitting has led to an urgent review of fire safety.

Develop an action plan to reduce the likelihood of another similar fire (or from another source) and to protect the archive for future generations. Your plan must include recommendations for the:

- short-term
- medium term
- longer-term

(20 marks)

4

a) Briefly explain how modern building design and use may impact on the fire safety provisions.

(6 marks)

b) Outline seven potential building design benefits from the provision of sprinklers in a building.

(7 marks)

c) A sprinkler system is to be provided within an office building which contains an atrium. What factors need to be considered that will affect the time at which the first sprinkler will operate?

(7 marks)

5

Many of the world's worst fire disasters leading to major loss of life have occurred in places of entertainment where people were expecting to enjoy themselves.

Explain the factors, including human behaviour and the difficulties of evacuating a crowd, that you would take into account in managing the fire safety provisions in an indoor public entertainment venue that can hold up to 400 people.

(20 marks)

6

You have been asked to advise the Chairman of the Board of a large independent department store. The store employs over 300 staff and 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 management and department heads who make strategic and policy decisions. (15 marks)

b) supervisors, full-time, part-time and temporary staff. (5 marks)

7

You have been asked to give a lecture to some students of architecture on active and passive fire safety measures.

Summarise the points that you would make, providing definitions of the terms "active" and "passive fire safety measures" and explanations of how these measures can contribute to fire safety and assist firefighting operations in the case of a fire.

(20 marks)

8

You have been asked to provide advice on the construction, installation and maintenance of an extraction system for the kitchen of a restaurant in a large hotel.

Make recommendations and justify how each point you make provides fire safety. (20 marks)
