

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 17 March 2017

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

Consider a tall, multi-occupancy building including hotel accommodation, offices and residential flats.

Explain the issues that you would take into account when determining recommendations on each of the following:

- i) evacuation strategy
- ii) fire detection and warning system
- iii) management controls
- iv) fire protection of escape routes.

(20 marks)

Question 2

Describe the fire safety and mitigation measures that can be put in place to reduce and control the risk of industrial process explosions (not terrorism).

(20 marks)

Question 3

You are managing the fire safety at a large open air music event. The event will take place over a three day period on open farmland with crowds in excess of 50,000. There is a main stage in addition to several smaller stages. Next to the site of the event, an area has been set aside for camping where food vendors and toilet facilities are provided.

Explain the factors, including human behaviour and the difficulties of evacuating a crowd that you would take into account in planning and managing the fire safety provisions.

(20 marks)

Question 4

Hospitals create significant fire safety challenges particularly in operating theatres, high dependency (intensive care) units and isolation wards (highly contagious diseases).

Describe the fire safety issues specific to these areas within hospitals and explain how solutions can address these issues.

(20 marks)

Question 5

In relation to each of the following situations, describe the automatic, water-based, fire suppression systems that you would recommend and explain why you would recommend the system to:

- i) protect from a fire in an adjacent building
- ii) control and extinguish an oil fire
- iii) protect a marine or specialist application

(20 marks)

Question 6

You have been asked to advise on the review of fire safety in your local museum which is an international tourist attraction. The management team is planning to modernise the museum to improve accessibility for increased numbers of visitors, including visitors with disabilities, and to improve protection for the valuable collection. The museum has four storeys.

Explain the fire safety matters that you would consider as part of the review.

(20 marks)

Question 7

Explain how fire can spread through tall buildings despite the presence of structural fire protection. Describe the methods that can be adopted to mitigate the risks.

(20 marks)

Question 8

Explain the factors that need to be taken into account when planning for the use of escalators and lifts (elevators) in an emergency evacuation. Include human and technical matters in your response.

(20 marks)
