

# L4C3



THE INSTITUTION OF FIRE ENGINEERS  
Founded 1918 • Incorporated 1924

**IFE Level 4 Certificate in Fire Science and Fire Safety (HL)**

## **Unit 3: Fire Service Operations and Incident Command (H/505/5933)**

**Thursday 10 March 2016**

**14.30 – 17.30**

### **Instructions to Candidates**

1. The time allowed for this examination is **THREE hours**.
2. Candidates should 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

Identify the specific hazards and explain the risks that may be encountered when dealing with fires that occur significant distances within transportation tunnels used by road and rail. (20 marks)

---

### Question 2

You have been given the task of performing an assessment of the pre-planning arrangements for a large area of forestry land within your Fire and Rescue Service's boundary. In relation to this task:

- a) Detail the arrangements and information that you consider should be included in these plans. (14 marks)
  - b) Explain the planning process regarding the gathering, recording and storing of information. (6 marks)
- 

### Question 3

In an effort to cut the emission of greenhouse gases by fossil fuels, Ethanol is being increasingly used for blending in gasoline/petrol and diesel fuel. Consequently greater volumes of Ethanol are being transported, handled and stored in bulk storage tanks.

- a) Outline the main differences between Ethanol and gasoline/petrol in relation to the difficulties of extinguishing a fire within a bulk storage tank. (5 marks)
  - b) Detail the pre-planning arrangements that need to be considered within the Emergency/Disaster Plan for a largescale fire at a petrochemical storage facility. (15 marks)
- 

### Question 4

A controlled burn is a defensive operational strategy to prohibit or restrict the use of extinguishing media on fires so that damage to the environment is minimised.

Discuss the circumstances when a control burn strategy would be considered appropriate and the factors that would be taken into account when making this decision. (20 marks)

---

### Question 5

You are the Senior Officer mobilised to a building fire where a failure of a Breathing Apparatus (BA) set has resulted in the serious injury of a firefighter. Identify the activities that will need to be undertaken at the scene beyond the emergency phase of the incident by:

- a) The officer appointed to carry out the subsequent accident investigation into the BA failure. (10 marks)
  - b) The officer in charge of closing down all fire service operations at the incident and withdrawing all fire and rescue service resources. (10 marks)
- 

### Question 6

- a) With regards building construction, explain the difference between framed and unframed buildings, making reference to inherent characteristics during collapse. (4 marks)
  - b) Structural failure of buildings can follow a number of generic patterns of collapse. Identify the different types of generic patterns and describe the characteristics of each type of collapse, including the likely areas where survivors may be found. (16 marks)
- 

### Question 7

You are the Duty Officer called to attend an incident involving a person trapped in mud. Crews are in attendance, a risk assessment has been carried out and an extrication plan has been developed.

- a) Detail the key points that should have been considered when formulating the initial plan. (12 marks)
  - b) Describe the post-incident tasks and actions that should be considered. (8 marks)
- 

### Question 8

With regards incident risk management, it is essential that Fire and Rescue Services ensure that sufficient appropriate measures have been taken to protect the safety of their staff and members of the public.

Discuss the managerial responsibilities and activities that should be carried out throughout an organisation to ensure that operational health and safety is effectively implemented. Include in your discussion the moral, economic and legal reasoning why health and safety should be taken seriously and what you consider to be a safe operational risk philosophy.

(20 marks)

---