

# L4C4



THE INSTITUTION OF FIRE ENGINEERS  
Founded 1918 • Incorporated 1924

**IFE Level 4 Certificate in Fire Science and Fire Safety**

## **Unit 4: Aviation Fire Operations (K/505/5934)**

**Thursday 12 March 2020**

**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

When preparing an Aerodrome Emergency Plan (AEP) the Aerodrome Operator must ensure that the Airport Rescue and Firefighting Service (ARFFS) is correctly provisioned to deal with all foreseen aircraft-related incidents.

a) An integral element of ensuring a correctly provisioned ARFFS can deal with all foreseen aircraft-related incidents is the Task Resource Analysis (TRA). Describe the purpose of a TRA.

(2 marks)

b) Detail the actions that should be completed by the Aerodrome Operator in preparation for a TRA being carried out.

(6 marks)

c) The TRA is a six-phase process. Describe the six phases.

(12 marks)

---

### Question 2

As the Senior Airport Fire Officer (SAFO), the Airport Operations Manager has just informed you that one of the airport's biggest aircraft operators is to start using a Jetstream 41 aircraft for 10 flights (inbound/outbound) daily. Currently, the biggest aircraft operating from the airport is a Cessna Citation X aircraft.

The BAE Jetstream 41 aircraft length is 19.25mtrs long with a fuselage width of 2.0mtrs. The Airport Rescue and Firefighting Services (ARFFS) provision is currently ICAO 4 utilising a single ARFFS vehicle carrying 4000ltrs of water, 500ltrs of Level B foam (6%) and 135kg of dry powder. This vehicle is staffed by a total of four ARFFS personnel.

Describe the actions that need to be carried out to ensure that the ARFFS provision meets the requirements of this new aircraft.

(20 marks)

---

### Question 3

You are the Senior Airport Fire Officer (SAFO) at a large international airport. You are developing an emergency plan for situations that involve an aircraft crash off-aerodrome within close proximity and within the aerodrome's area of responsibility.

State the other agencies that you would expect to be involved in responding to this incident and describe the actions that you would expect them to take to assist in resolving the incident.

(20 marks)

---

#### Question 4

Aerodrome categories are set using the size of the largest aircraft operating from that location. However, there are several examples of when an aircraft can operate at a reduced level of Airport Rescue and Firefighting Services (ARFFS) provision.

- a) Explain the meaning of the term “Reduced Hazard Profile” and detail the reductions that are acceptable. (6 marks)
- b) Explain the reductions that are acceptable for a Nominated Diversion Aerodrome (NDA). (1 mark)
- c) Describe the actions that the aerodrome licence holder should complete prior to implementing any ARFFS reduction as detailed in parts a) and b) above. (6 marks)
- d) Regulations require that licensed Category 3 airports and above have a full-scale emergency exercise every two years. Outline the requirements for this exercise. (7 marks)
- 

#### Question 5

There are several different types of foam concentrate from which effective firefighting foams can be produced. Explain the factors to be taken into consideration when selecting or using the different types of foam concentrates available. (20 marks)

---

#### Question 6

A fixed Emergency Operations Centre should be available to deal with emergency situations at each aerodrome. Certain emergency situations will also require a Mobile Command Post at the scene, normally under the direction of the airport authority’s on-scene Commander.

- a) Describe the main features and role of an Aerodrome Emergency Operations Centre (EOC). (10 marks)
- b) Describe the main features and role of an Aerodrome Mobile Command Post (MCP). (10 marks)
- 

**[Please turn over]**

### **Question 7**

The principal objective of the Airport Rescue and Firefighting Services (ARFFS) is to save lives in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome. Describe the tasks, tactics, techniques and procedures that would need to be considered to ensure that this principal objective is met.

(20 marks)

---

### **Question 8**

Incidents/emergencies involving aircraft are categorised for both civil and military at aerodromes.

a) Compare the different classifications used for civil and military incidents/emergencies in terms of the implications for the Airport Rescue and Firefighting Services (ARFFS).

(15 marks)

b) Detail the type of information that both civilian and military ARFFS Incident Commanders would expect to be provided by Air Traffic Control (ATC) when responding to incidents involving aircraft.

(5 marks)

---