

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 14 March 2019

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

Airport Rescue and Firefighting Services (ARFFS) must achieve the response time of two minutes and not exceeding three minutes to the end of each runway, as well as any other part of the movement area, in optimum conditions of visibility and surface conditions.

a) Explain the meaning of the term 'Response Time'. (2 Marks)

b) Describe the pre-planning that should be carried out to assist in achieving this requirement. (18 marks)

Question 2

The method for the determination of Airport Rescue and Firefighting Services (ARFFS) requirements for aircraft is based on the concept of a Critical Area (CA) to be protected in any post-accident fire situation to permit the evacuation of the aircraft occupants.

a) Describe the Critical Area for helicopters. (10 Marks)

b) Calculate the ICAO aircraft category and water on wheels requirements for a helicopter (fuselage length is 16.66 metres, average fuselage width is 2 metres) when operating from a surface level heliport. (10 marks)

Question 3

As the Senior Airport Fire Officer (SAFO) you have been tasked to create a specification for a new Airport Rescue and Firefighting Services (ARFFS) vehicle to replace an aging appliance within the airport vehicle fleet.

Outline the factors that you would consider in drafting the specification and also the characteristics required for this new vehicle which is required to hold less than 4500 litres of water. (20 marks)

Question 4

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 airport. The ARFFS is provided to create and maintain survivable conditions, to provide egress routes for occupants and to initiate the rescue of those occupants unable to make their escape without direct aid. During an aircraft accident or incident, the aircraft crew members' efforts are directed towards a common goal i.e. safety of all occupants of the aircraft.

Describe the ways in which the ARFFS and aircraft crew liaise and work together in order to ensure the safety of passengers prior to, during and following a survivable aircraft crash on or near the aerodrome.

(20 marks)

Question 5

Military aircraft can differ from their civilian counterparts although, in some circumstances, they may use the same airframe. Explain the information that would need to be included within a training package covering military aircraft to enable Airport Rescue and Firefighting Services (ARFFS) to successfully respond to incidents.

(20 marks)

Question 6

Aerodrome Managers are required to ensure that in preparation for an aircraft incident emergency, planning has been carried out and an Aerodrome Emergency Plan has been created in consultation, and shared with, the local resilience forum.

Describe five examples of typical information that should be contained within an Aerodrome Emergency Plan.

(20 marks)

[Please turn over]

Question 7

- a) It is vitally important that Airport Rescue and Firefighting Services (ARFFS) personnel are familiarised with all regulations, national and local, regarding movements of wreckage and disposal of human remains and the preservation of evidence following an aircraft crash.

Describe the procedures and the reasons why these must be observed by ARFFS personnel once fire suppression and survivor rescue have been completed.

(10 Marks)

- b) Explain the socio-economic and environmental consequences that may follow an aircraft crash.

(10 marks)

Question 8

- a) At the scene of an incident involving a large passenger carrying aircraft, the Incident Commander may choose to carry out sectorisation of the incident utilising the Incident Command System.

Compare the different approaches to sectorisation that an incident Commander may take regarding attendance at:

- i) an internal (cabin) fire.

(2 Marks)

- ii) an external (engine) fire.

(2 Marks)

- b) Aerodrome Emergency Planning exercises will have identified the procedures to be followed in the event of an aircraft crash. This will normally result in a multi-agency response from both internal resources such as Airport Rescue and Firefighting Services (ARFFS) and external support provided by the Civilian Emergency Services. This response will often require that Command Support is instigated during the early stages of the incident. Describe the Command Support function.

(16 marks)
