

L3D4



THE INSTITUTION OF FIRE ENGINEERS
Founded 1918 • Incorporated 1924

IFE Level 3 Diploma in Fire Science and Fire Safety

Unit 4: Aviation Fire Operations (R/505/6009)

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 answers.
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

- a) Dangerous goods carried by air are accompanied by a Shipper's Declaration. Describe the appearance of the document, state where it is located and outline the information contained in this document. (8 marks)
- b) Detail the Airport Rescue and Firefighting Services (ARFFS) tactics in dealing with a Lithium Ion Battery Pack as found on a B787 Dreamliner. (12 marks)
-

Question 2

- a) State the classifications of Civilian Aircraft Emergencies and provide a brief description of each type. (16 marks)
- b) Describe how a Passenger Evacuation Management System (PEMS) operates. (4 marks)
-

Question 3

- a)
- i) Describe the hazards when approaching a military fast jet. (7 marks)
 - ii) Describe the control measures for the positioning of appliances and personnel when approaching a military fast jet. (3 marks)
- b) Outline the sequence of events for the rescue of aircrew from a military fast jet. (10 marks)
-

Question 4

In relation to an internal fire in a commercial passenger aircraft:

- a) describe the hazards faced by Airport Rescue and Firefighting Services (ARFFS) personnel. (12 marks)
- b) describe the control measures that should be implemented. (8 marks)
-

Question 5

- a) Describe the features and uses of an Auxiliary Power Unit as found on commercial aircraft. (6 marks)
- b) In relation to firefighting foams, define the following terms:
i) Induction Ratio
ii) Foam Solution
iii) Critical Application Rate
iv) Expansion Ratio
v) Aspirated Foam (5 marks)
- c) Describe the considerations for the Airport Rescue and Firefighting Services (ARFFS) when attending an incident involving an engine fire. (9 marks)
-

Question 6

- a) Describe the factors that should be considered when establishing Emergency Rendezvous Points (RVPs) and marshalling areas for an off-site incident. (6 marks)
- b) Emergency Rendezvous Points (RVPs) require management whilst in operation. Outline the responsibilities of the officer managing a RVP. (6 marks)
- c) The Emergency Planning Committee includes both on-airfield and off-airfield agencies. Describe the responsibilities of the committee giving examples of tasks that would be performed by the committee. (8 marks)
-

Question 7

Following an accident involving an aircraft, it is usual for a thorough investigation to take place.

Systems and equipment found on commercial aircraft and on smaller aircraft may be of use to investigators. Identify and describe the equipment found on aircraft that may be used for investigation purposes and explain the process to be followed by Airport Rescue and Firefighting Services (ARFFS) personnel in relation to this type of equipment when attending an incident.

(20 marks)

[Please turn over]

Question 8

- a) Using the Critical Area Concept and Firefighting Media Table, calculate the amount of water required for the production of Type B Foam for an Airbus A320 aircraft and confirm its Airport Rescue and Firefighting Services (ARFFS) Category. All working out must be shown.

The following information has been provided:

Fuselage length = 35.57m.

Fuselage width = 3.95m.

Rate of Application for Q1 = 5.5 Litres.

Q2 % for Cat 6 =100%

(17 marks)

- b) State the quantity of water and foam and discharge rate that should be available for Category 8 airports.

(3 marks)
