

2207/306

**AIRFIELD AND SAFETY
PROCEDURES**

Oct./Nov. 2016

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN AERONAUTICAL ENGINEERING
(COMMUNICATION AND NAVIGATION OPTION)**

AIRFIELD AND SAFETY PROCEDURES

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Mathematical tables/ Non programmable scientific calculator;

Drawing instruments.

*Answer **FIVE** of the following **EIGHT** questions in the answer booklet provided.*

All questions carry equal marks.

Maximum marks for each part of a question are as indicated.

Candidates should answer the questions in English.

This paper consists of 4 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

- ✓ 1. (a) List **three** inspections carried out on an aircraft in the technical quarantine stores. (3 marks)
- (b) (i) Differentiate between decentralized and centralized aircraft technical stores.
(ii) Outline **five** advantages of decentralized over centralized aircraft technical stores. (7 marks)
- (c) Explain the importance of each of the following in aircraft technical stores:
(i) stock control cards;
(ii) inventories. (10 marks)

2. (a) Outline **five**:
(i) inspections to be carried out after an aircraft lightning strike;
(ii) precautions to be observed when gaining access to the aircraft cabin after crash landing. (10 marks)
- (b) Discuss each of the following aircraft crash and rescue items:
(i) radio beacon;
(ii) black box;
(iii) dinghy;
(iv) flare. (10 marks)

3. With the aid of a labelled sketch, show details contained in each of the following civil aviation documents in accordance with the Kenya Air Navigations Act chapter 394:
(a) component report chart;
(b) accident investigation chart. (20 marks)

- X 4. (a) Define each of the following terms as applied to aircraft maintenance:
(i) time between overhaul;
(ii) turn round time;
(iii) flight time. (3 marks)
- (b) Explain **four** major levels of aircraft maintenance. (8 marks)
- (c) With the aid of a typical layout of avionics overhaul shop, show the sequential flow process of items. (9 marks)

*weather briefing
Run way monitoring*

5. (a) Outline:
- (i) **five** roles of air traffic controllers in an aerodrome;
 - (ii) **five** precautions to be observed when towing an aircraft from the ramp to the hangar.
- (10 marks)
- (b) With the aid of a labelled sketch, show the aircraft engine intake and exhaust hazard areas of a twin engine high bypass turbo jet with No. 1 engine at full (take off) power and No. 2 engine at idle power in reference to the following:
- (i) distance;
 - (ii) velocity;
 - (iii) temperature.
- (10 marks)

6. (a) Explain each of the following aircraft documents:
- (i) overhaul manuals;
 - (ii) maintenance manuals;
 - (iii) initial provisioning.
- (6 marks)
- (b) Discuss each of the following as applied to aircraft maintenance:
- (i) service bulletin;
 - (ii) accepted deferred defect.
- (14 marks)

7. Highlight the procedure of:
- (a) reporting fire outbreak in a hangar; (5 marks)
 - (b) performing first aid in case of electrical shock; (5 marks)
 - (c) reporting a fatal aircraft accident in accordance with the Kenya Air Navigation act chapter 394. (10 marks)

8. (a) Describe each of the following methods of providing electrical power to an aircraft when the engines are not running:

- (i) auxiliary power unit;
- (ii) mobile electrical power unit;
- (iii) fixed power supplies.

(6 marks)

(b) Outline the inspections to be carried out on each of the following ground equipment:

- (i) battery cart;
- (ii) mobile servicing platform;
- (iii) oxygen bottles trolley.

(14 marks)

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