THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN AERONAUTICAL ENGINEERING (AIRFRAME AND ENGINES OPTION)

AIRFIELD AND SAFETY PROCEDURES

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet
Mathematical tables/non-programmable calculator
Drawing instruments

*Answer any **FIVE** of the following **EIGHT** questions.*
All questions carry equal marks.
Maximum marks for each part of a question are indicated.

This paper consists of 4 printed pages.

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

Airfield 08

1. (a) Describe each of the following aircraft documents:

(i) accepted deferred defects;
(ii) initial spares provisioning;
(iii) wiring manual.

(6 marks)

(b) Discuss how aircraft modification is brought about on an aircraft to become a service bulletin and the format. (6 marks)

(c) Explain each of any **four** categories of licensed aircraft engineers.

(8 marks)

2. (a) Outline the purposes of inventory control of an aircraft technical stores.

(5 marks)

(b) Differentiate between the following terms as applied to aircraft technical stores.

(i) guarentine and bonded.
(ii) centralized and decentralized.
(iii) lifed and shelf lifed spares.

(6 marks)

(c) Describe the procedure of stores' spares transaction in an airline technical stores.

(9 marks)

3. (a) Explain **three** inspection methods used to determine the level of contamination of an aircraft hydraulic fluid. (6 marks)

(b) Describe the procedure required to bring the aircraft in (a) above back up to airworthy standards.

(6 marks)

(c) Outline the inspections required to render the aircraft hydraulic system components serviceable.

(8 marks)

4. (a) Outline the safety precautions taken whilst working with hoisting and lifting equipment.

(5 marks)

(b) Figure 1 shows a 55 ton Royce Rolls engine being removed from the aircraft. For the set up shown, calculate the force on slings F_1 and F_2.

(7 marks)

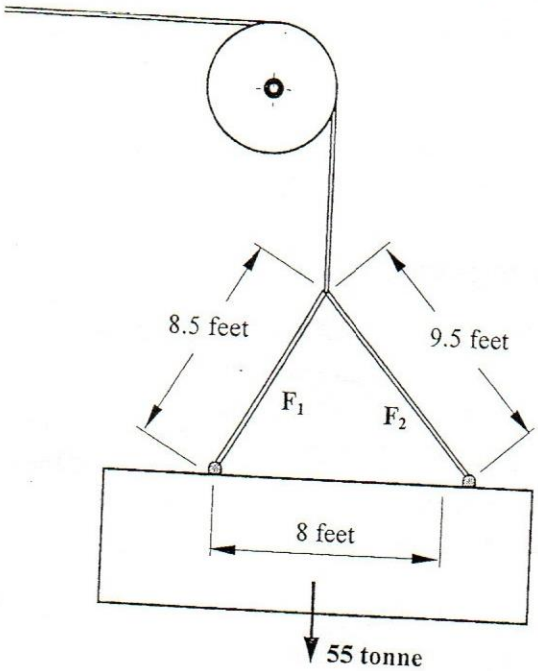

Figure 1

(c) Describe any **four** ground equipment which supply power to the aircraft when on the ground.

(8 marks)

6. (a) Discuss the main source of sound produced by an aircraft gas turbine engine and high light the intensity and frequency.

(5 marks)

(b) Explain each of the following terms of sound as applied to aviation:

(i) vibration;
(ii) wave motion;
(iii) intensity.

(6 marks)

(c) With the aid of a **four** engine jet aircraft diagram show the hazard zones when engine No.1 is at full power and No.4 engine at idle power.

(9 marks)

7. (a) Describe each of the following aircraft communications safety devices:

(i) glide slope;
(ii) flight data Recorder;
(iii) stall warning.

(6 marks)

(b) Describe any **three** maintenance tasks carried out on an aircraft gas turbine engine before storage. (6 marks)

(c) Design a Civil Aviation occurrence reporting form for a damaged aircraft propeller. (8 marks)

8. (a) Identify the location of each of the following crash and rescue equipment carried in aircraft and explain the purpose of each:

(i) escape routing chart;
(ii) radio beacon;
(iii) flare;
(iv) life jacket.

(10 marks)

(b) Explain the safety precautions observed immediately after an aircraft has crashed with respect to the following:

(i) explosive actuated device;
(ii) gaining access to the aircraft;
(iii) approaching the aircraft with engines still running.

(10 marks)