

2107/308

AIRFIELD AND SAFETY PROCEDURES

Oct./Nov. 2005

Time: 3 hours

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THE KENYA NATIONAL EXAMINATIONS COUNCIL  
DIPLOMA IN AERONAUTICAL ENGINEERING  
(AIRFRAMES AND ENGINES OPTION)  
AIRFIELD AND SAFETY PROCEDURES

3 hours

**INSTRUCTIONS TO CANDIDATES:**

You should have the following for this examination.

Answer booklet  
Drawing instruments

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



X1.

- (a) Explain how a marshaller signals to the aircraft flight crew on the following.
  - (i) Shut number one engine.
  - (ii) Stop.
  - (iii) Ground lock pins removed. (6 marks)

- (b) Outline the procedure for carrying out each of the following aircraft ground handling operations.
  - (i) Starting a high bypass engine. 12
  - (ii) Towing an aircraft to the ramp. (14 marks)

2

- (a) Explain each of the following aircraft maintenance tasks and state when each is applicable.
  - (i) Intercheck. - Cross check
  - (ii) Modification. - Improve component
  - (iii) Check C. (6 marks)

3.

- (b) Outline the procedure to be followed when carrying out a complete overhaul of an aircraft main wheel. - description of operation, disassembly, clean, re-assembly, inspection, test (14 marks)
- (a) State the THREE factors fulfilled by an airline to be granted an air operators licence by the Civil Aviation Authority. (3 marks)

- (b) Sketch and label the layout of an approved aircraft technical stores and state the activities carried out in any FIVE sections. (17 marks)

4.

- (a) List FIVE precautions to be observed when using aircraft tools in the hangar. (5 marks)
- (b) Describe THREE occurrences that would create engine foreign object damage on an aircraft engine in flight and how each can be prevented. - Bird strikes (6 marks)
- (c) Sketch an occurrence report chart of a belly landing aircraft to be presented to the Kenya Civil Aviation Authority. (9 marks)

5.

- (a) Describe each of the following aircraft ground equipment.
  - (i) Gang tray. - Collection of used tools & parts
  - (ii) Hoist tugmaster. - Lift
  - (iii) Hydraulic rig. - Test (6 marks)



(b) Explain the difference in identification between each of the following aircraft ground equipment bottles.

- (i) Acetylene and oxygen.
- (ii) Carbon dioxide and nitrogen.
- (iii) Freon and helium.

(6 marks)

(c) Outline any FOUR proper care and maintenance of the following craft ground equipment.

- (i) Jacks.
- (ii) Docks and steps.

(8 marks)

✓ 6.

(a) Explain the classification of an aircraft by the help of a line diagram.

(6 marks)

(b) Outline the roles of each of the following aircraft personnel.

- (i) Captain.
- (ii) Flight engineer.
- (iii) Navigator.

(6 marks)

(c) List the conditions of each of the following aircraft certificates.

- (i) Airworthiness.
- (ii) Validity/Fitness for flight.

(8 marks)

✓ 7.

(a) List any FIVE minimum rescue equipment carried on an aircraft.

(5 marks)

(b) Describe any THREE procedures for gaining access to a crashed aircraft.

(6 marks)

(c) With the aid of a flow diagram explain the mandatory service bulletin of escape routing on a modern aircraft.

(9 marks)

✓ 8.

(a) Describe any THREE methods used to lower the noise level on aircraft engines.

(6 marks)

(b) (i) Outline the precautions to be observed in the hangar for the prevention of accidents.

(ii) Sketch the layout of a modern aircraft hangar and state the activity of at least FIVE sections.

(14 marks)