

2506/206  
AIRFRAME SYSTEMS I  
Oct./Nov. 2019  
Time: 3 hours



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

MODULE II

AIRFRAME SYSTEMS I

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*Answer booklet;*

*Drawing instruments.*

*This paper consists of EIGHT questions.*

*Answer FIVE 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 3 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) Sketch each of the following aircraft hydraulic seal maintenance tool types:
  - (i) external internal pull;
  - (ii) wedge;
  - (iii) push;
  - (iv) spoon.

(4 marks)
- (b) Explain the operation of the double stroke hydraulic hand pump (illustrate your answer). (8 marks)
- (c) With the aid of a labelled schematic diagram, show the flow in a typical hydraulic filter. (8 marks)
2. With the aid of a labelled schematic diagram, show a typical twin engine aircraft pneumatic system layout. (20 marks)
3. Highlight the procedure of bleeding light aircraft brake system using the two methods (illustrate your answers). (20 marks)
4. (a) With the aid of a labelled sketch, describe a typical basic continuous flow oxygen system. (13 marks)
- (b) Explain the operation of aircraft oxygen system passenger mask. (7 marks)
5. (a) With the aid of a labelled graph, show a typical aircraft pressurization profile at a cruise altitude of 25,000 ft. (10 marks)
- (b) With the aid of sketches, explain how sealing is achieved on a pressurized aircraft with reference to:
  - (i) skin joint;
  - (ii) doors.

(10 marks)
6. With the aid of a labelled exploded view diagram, show the parts of an aircraft split wheel assembly. (20 marks)
7. (a) With the aid of an exploded view labelled diagram, show the parts of a typical aircraft single disc brake unit. (5 marks)
- (b) Discuss aircraft tyre burst and subsequent inspections. (15 marks)



8. (a) With the aid of a labelled sketch, explain the principle of operation of a simple A.C generator. (7 marks)
- (b) With the aid of a labelled schematic diagram, explain the principle of operation of a simple rotating armature generator. (6 marks)
- (c) With reference to generators:
- (i) sketch and label a simple series wound generator circuit; (4 marks)
- (ii) outline **three** advantages of rotating field type generator. (3 marks)

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