

2506/204

2507/204

**AIRFIELD SAFETY PROCEDURES II
AND RESEARCH METHODS**

June/July 2020

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN AERONAUTICAL ENGINEERING
(AIRFRAMES AND ENGINES OPTION)
(AVIONICS OPTION)**

MODULE II

AIRFIELD SAFETY PROCEDURES II AND RESEARCH METHODS

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Drawing instruments;

Mathematical table/Non-programmable Scientific calculator.

This paper consists of EIGHT questions in TWO sections; A and B.

Answer TWO questions from section A; TWO questions from section B and ONE question from either section A or B.

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

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.**

SECTION A: AIRFIELD AND SAFETY PROCEDURES II

Answer at least **TWO** questions from this section.

1. With reference to civil aviation (security) regulations, discuss:
- (a) matters that form the national civil aviation security program; (12 marks)
 - (b) the composition of the national civil aviation security committee. (8 marks)
2. With reference to ICAO regulations, discuss airport lighting obstacles. (20 marks)
3. Given the following helicopter data;
- | | |
|----------------------------------|--|
| Empty weight | 1,545 lbs |
| Empty weight CG | 101.4 inches aft of datum |
| Lateral balance arm | 0.2 inches right of BLO |
| Maximum allowable weight (gross) | 2,250 lbs |
| Pilot | 170 lb @ 64 inches aft of datum and 13.5 inches left of BLO |
| Passenger | 200 lbs @ 64 inches aft of datum and 13.5 inches left of BLO |
| Fuel | 48 gal, 288 lbs @ 96 inches aft of datum and 84 inches left of BLO |
- Determine each of the following:
- (a) longitudinal centre of gravity;
 - (b) lateral offset moment. (20 marks)
4. With reference to quality assurance:
- (a) highlight the procedure for continuous improvement; (7 marks)
 - (b) highlight **five** instances when maintenance audits will be carried out; (5 marks)
 - (c) outline the duties of a quality assurance inspector., (8 marks)

SECTION B: RESEARCH METHODS

Answer at least TWO questions from this section.

5. With reference to research methodology, discuss each of the following random sampling designs:
- (a) systematic sampling; (10 marks)
 - (b) stratified sampling. (10 marks)
6. (a) Explain **seven** reasons for conducting a literature review in research. (7 marks)
- (b) Describe the sections of a literature review. (13 marks)
7. (a) Explain the types of data analysis. (10 marks)
- (b) Discuss the statistical measures used to summarize the research data. (10 marks)
8. (a) Describe the contents of a preliminary page of a research report. (4 marks)
- (b) Explain the format of a technical report for presentation. (16 marks)

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