

2506/204
2507/204
**AIRFIELD SAFETY
PROCEDURES II AND
RESEARCH METHODS**
June/July 2019
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;

Mathematical tables/Scientific calculator;

Drawing instruments.

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

*Answer **FIVE** questions by choosing at least **TWO** questions from each section.*

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.

SECTION A: AIRFIELD SAFETY AND PROCEDURES II

Answer at least TWO questions from this section.

1. (a) Describe the **three** types of runways. (6 marks)
- (b) With reference to runway safety, explain each of the following:
 - (i) excursion;
 - (ii) over-run;
 - (iii) incursion;
 - (iv) confusion;
 - (v) undershoot.(5 marks)
- (c) Outline the standard practices when driving on the runway in a non-towered airport. (9 marks)
2. (a) Explain the major considerations in preparing the aircraft for weighing. (14 marks)
- (b) Given an aircraft with total weight of 6,000 lb with CG station of 80, determine the location of the CG if 100 lbs is removed from station 150. (6 marks)
3. (a) Outline the forms of “acts of unlawful interference” with reference to aviation security as outlined in part I of the civil aviation security regulations. (10 marks)
- (b) Highlight the functions of the national civil aviation security program. (10 marks)
4. (a) Outline the **four** specific elements of aviation flight safety situational awareness. (4 marks)
- (b) With reference to occurrence reporting, explain the key voluntary reporting principles. (16 marks)

SECTION B: RESEARCH METHODS

Answer at least TWO questions from this section.

5. (a) Explain **five** advantages and **five** disadvantages of using personal interviewers as a method of collecting data. (10 marks)
- (b) Discuss the differences between questionnaires and schedules as methods of collecting data. (10 marks)
6. (a) Outline **five** factors considered when preparing a research project proposal. (5 marks)
- (b) Explain **four** methods of choosing a representative sample. (8 marks)
- (c) (i) Define a research problem;
- (ii) Explain the factors considered in selecting a research problem. (7 marks)
7. (a) Highlight **four** objectives of a research. (4 marks)
- (b) Outline **four** reasons for carrying out a research in an aviation establishment. (4 marks)
- (c) Explain **six** challenges encountered by research students in aviation training organization. (12 marks)
8. (a) Discuss the recommended steps in writing the project report for presentation. (8 marks)
- (b) Describe the general sections of a typical report for presentation. (12 marks)

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