

2506/204

2507/204

**AIRFIELD SAFETY AND PROCEDURES II
AND RESEARCH METHODS**

Oct. / Nov. 2022

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

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

MODULE II

AIRFIELD SAFETY AND PROCEDURES II AND RESEARCH METHODS

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Mathematical tables/Non-programmable 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 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 SAFETY AND PROCEDURES II

Answer at least TWO questions from this section.

1. With reference to quality assurance:
 - (a) show the quality management system organizational chart for an approved maintenance organization according to JAR; (6 marks)
 - (b) highlight the requirements of a quality management system; (5 marks)
 - (c) with reference to ageing aircraft maintenance:
 - (i) describe the maintenance steering group 3 (MSG-3);
 - (ii) outline the governing principles of maintenance steering group 3 (MSG-3). (9 marks)

2. (a) With reference to radio telephony principles, highlight the transmitting techniques that will ensure that transmitted speech is clearly and satisfactorily received. (12 marks)
- (b) Differentiate between each of the following standard words and phrases according to ICAO Annex 10:
 - (i) break and correction;
 - (ii) hold short and maintain;
 - (iii) caution and confirm;
 - (iv) squawk and unable. (8 marks)

3. With reference to Civil Aviation (Security) Regulations, 2015:
 - (a) describe the functions of the aviation security quality control programme; (4 marks)
 - (b) explain the specific security measures followed by the operator to protect passengers, crew, ground personnel, aircraft and facilities from acts of unlawful interference with reference to the aircraft operator security programme; (12 marks)
 - (c) describe four functions of the airport security committee. (4 marks)

4. (a) Highlight the weight and balance information found in a type certificate data sheet. (5 marks)
- (b) Discuss each of the following with reference to aircraft weighing:
 - (i) weighing points; (7 marks)
 - (ii) fuel system. (8 marks)

SECTION B: RESEARCH METHODS

Answer at least TWO questions from this section.

5. (a) Describe the contents of a preliminary page of a research report. (4 marks)
- (b) Outline the format of a technical research report for presentation. (16 marks)
6. With reference to research methodology, explain the steps followed in developing a sampling design. (20 marks)
7. (a) With reference to research project proposal:
- (i) describe literature review; (4 marks)
- (ii) outline **four** requirements of literature review; (4 marks)
- (iii) discuss how to revise and edit your work after completion to write the literature review. (7 marks)
- (b) Highlight **five** issues addressed by preparing a research project proposal. (5 marks)
8. (a) Explain **five** types of data analysis. (10 marks)
- (b) Explain **five** statistical measures used to summarize the research data. (10 marks)

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