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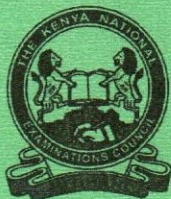
2507/105

WORKSHOP TECHNOLOGY AND

LIFE SKILLS

Oct./Nov. 2017

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

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

MODULE I

WORKSHOP TECHNOLOGY AND LIFE SKILLS

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Mathematical tables;

Non-programmable scientific calculator;

Answer booklet.

This paper consists of TWO sections; A and B.

Answer Question 1 (compulsory) and other TWO questions from section A.

Answer TWO questions from section B.

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: WORKSHOP TECHNOLOGY (60 marks)

Answer Question 1 (compulsory) and other TWO questions from this section.

1. (a) Outline **four** risks associated with unsafe handling of electricity in a workshop. (4 marks)
- (b) Differentiate between ferrous and non-ferrous metals, citing **two** examples in each case. (6 marks)
- (c) Using sketches, describe the following non-destructive metal testing methods: (10 marks)
- (i) X-ray radiography;
 - (ii) liquid/dye penetrant test.
2. (a) With the aid of a diagram explain the following types of air craft corrosion: (10 marks)
- (i) pitting;
 - (ii) galvanic.
- (b) List **four** desirable properties of an aircraft body material. (4 marks)
- (c) Illustrate the following sheet metal tools: (6 marks)
- (i) rubber mallet;
 - (ii) flat chisel;
 - (iii) stake.
3. (a) Using sketches, differentiate between metal inert gas (MIG) welding and tungsten inert gas (TIG) welding. (14 marks)
- (b) State **three** methods used in detecting corrosion in aircraft hardware. (3 marks)
- (c) Highlight **three** types of cutting fluids. (3 marks)
4. (a) Describe the following maintenance practices: (9 marks)
- (i) routine;
 - (ii) breakdown;
 - (iii) preventive.
- (b) Using a sketch, describe the 'Pack case hardening' process. (6 marks)
- (c) State **five** factors considered when disposing waste. (5 marks)

Soluble, Vegetable, semi-

*- area of disposal
- effect of waste to society
- Nature of waste*

*Brass
c. 2
Bronze
c. 4*

5. (a) Describe each of the following metal finishing processes:
- (i) polishing;
 - (ii) blackening;
 - (iii) coating;
 - (iv) buffing. (8 marks)
- (b) Define each of the following terms as used in measuring process:
- (i) datum;
 - (ii) co-ordinate;
 - (iii) linear. (6 marks)
- (c) Sketch the following forming tools:
- (i) top and bottom fullers;
 - (ii) reamer. (6 marks)

SECTION B: LIFE SKILLS (40 marks)

Answer TWO questions from this section.

6. (a) State **five** strategies that an individual may adopt to build own self esteem. (5 marks)
- (b) Outline **five** factors that may promote attainment of personal goals. (5 marks)
- (c) Explain **five** indicators of conflict in an organization. (10 marks)
7. (a) Explain the meaning of each of the following terms:
- (i) empathy;
 - (ii) assertiveness;
 - (iii) life skills. (6 marks)
- (b) Outline **six** behavioral signs and symptoms of drugs and substance abuse. (6 marks)
- (c) Explain **four** guidelines that an employee may follow to ensure effective time management. (8 marks)
8. (a) State **four** requirements for effective decision making. (4 marks)
- (b) Explain **three** factors that may enhance a healthy relationship between employees of an organization. (6 marks)
- (c) Describe the steps that should be followed in the problem solving process. (10 marks)

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