

2506/105

2507/105

**WORKSHOP TECHNOLOGY AND
LIFE SKILLS**

Oct./Nov. 2021

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:

Answer booklet;

Mathematical tables/Non-programmable scientific calculator.

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

Answer question 1 (Compulsory) and any 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 4 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 any other TWO questions from this section.

1. (a) (i) List **three** factors that enhance safety in the workshop.
(ii) Highlight the first aid procedure for minor burns. (8 marks)
- (b) Describe each of the following workshop tests used for identifying ferrous metals:
(i) spark test;
(ii) ringing test. (4 marks)
- (c) With the aid of a sketch, describe the electric arc process of producing steel. (8 marks)
2. (a) Outline **three** mechanical joining methods in the aircraft industry. (3 marks)
- (b) Explain each of the following types of corrosion that commonly occur on the body of an aircraft:
(i) crevice corrosion;
(ii) exfoliation. (4 marks)
- (c) (i) Describe a control cable as used in aircrafts.
(ii) With the aid of a sketch, describe a turnbuckle and list **two** areas of its application. (13 marks)
3. (a) List **three** methods of holding a drill bit on a drilling machine. (3 marks)
- (b) (i) Explain the following lathe machine processes and outline the purpose of each:
(I) facing;
(II) knurling.
(ii) Label the tool angles masked a, b and c in figure 1. (8 marks)

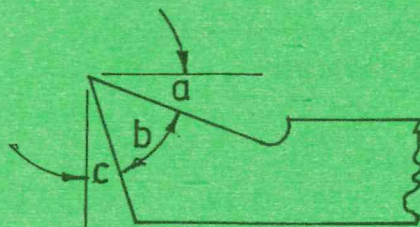


Fig. 1

- (c) (i) Outline **three** functions of cutting fluids.
(ii) Differentiate between dressing and truing as applied to grinding wheels. (5 marks)

- (d) Illustrate straddle milling. (4 marks)

4. (a) List **three** factors that may determine the marketability of a product. (3 marks)

- (b) Explain each of the following methods of waste disposal citing **one** example in each case:
(i) recycling;
(ii) re-use. (4 marks)

- (c) (i) Differentiate between measuring and inspection listing **two** instruments used in each case.
(ii) Highlight the procedure for marking out the component shown in figure 2. (9 marks)

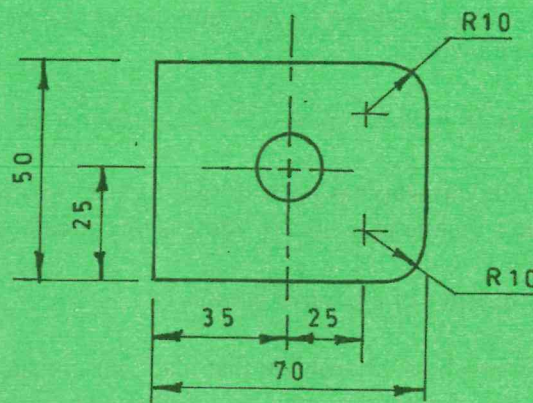


Fig. 2

- (d) With the aid of a sketch, explain hollowing as applied to hand metal forming. (4 marks)

5. (a) Outline **four** objectives of equipment maintenance. (4 marks)

- (b) Describe each of the following heat treatment processes and outline the purpose of each:
(i) hardening;
(ii) normalising. (6 marks)

- (c) Illustrate single riveted butt joint. (4 marks)

- (d) With the aid of a sketch, explain the leftward welding technique. (6 marks)

SECTION B: LIFE SKILLS (40 marks)

Answer TWO questions from this section.

6. (a) Annette has realized that procrastination often hinders her from attaining personal goals. Highlight **four** strategies that she may adopt to deal with this hinderance. (4 marks)
- (b) Categorize each of the following as either life skills or living values:
- (i) problem solving;
 - (ii) simplicity;
 - (iii) effective communication;
 - (iv) respect;
 - (v) tolerance;
 - (vi) decision making;
 - (vii) empathy;
 - (viii) honesty. (4 marks)
- (c) Marianna intends to make a decision on a certain matter. Explain **three** factors that may influence her decision. (6 marks)
- (d) Explain **three** features of good interpersonal relationship at the workplace. (6 marks)
7. (a) Witness is a college student who has been struggling with low self esteem. Explain **four** measures that he may take to address this situation. (8 marks)
- (b) Outline **three** characteristics of a passive person. (3 marks)
- (c) Mike recently fixed a mechanical problem that made his car stall as he drove along a major highway. Outline the steps he may have followed to resolve the problem. (5 marks)
- (d) Certain child rights are violated as a result of gender stereotypes. Identify **two** such rights. (4 marks)
8. (a) Outline **five** situations that may lead to positive stress in the life of an individual. (5 marks)
- (b) Most managers emphasize on effective time management at the workplace. Outline **four** reasons that may account for such emphasis. (4 marks)
- (c) Explain **three** factors that may hinder effective negotiation between two individuals. (6 marks)
- (d) Outline **five** measures that the management of an organization may take to encourage creative thinking among employees. (5 marks)

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