2506/105
2507/105
WORKSHOP TECHNOLOGY AND
LIFE SKILLS
Oct./Nov. 2016
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-programmble Scientific calculator;
Answer booklet.
*This paper consists of **TWO** sections, **A** and **B**.*
*Answer question **ONE** and any other **TWO** questions from section **A**.*
*Answer any **TWO** questions from section **B**.*
__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 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.

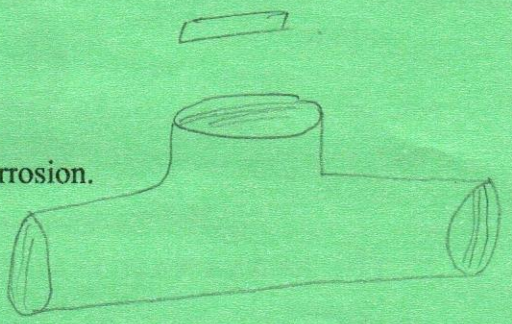
SECTION A: WORKSHOP TECHNOLOGY (60 marks)

*Answer question **ONE** and any other **TWO** questions from this section.*

1. (a) Sketch the following aircraft hardwares:

(i) bolt, nut and washer;
(ii) piping union.

(4 marks)



(b) Explain any **two** causes of aircraft corrosion. (4 marks)

(c) Sketch the following welding joints:

(i) Lap;
(ii) V-butt;
(iii) Open corner.

(3 marks)

(d) State the procedure for testing surface defects using the dye penetrant method.

(5 marks)

(e) Illustrate hollowing process as used in sheet metal forming. (4 marks)

2. (a) State any **three** safety precautions observed in a mechanical workshop. (3 marks)

(b) Explain the causes of the following classes of fire stating their respective extinguishers:

(i) Class A; – free burning
(ii) Class B; – liquid ~~gases~~.
(iii) Class C. – gases.

(9 marks)

(c) Explain any **four** methods employed in waste disposal. (8 marks)

3. (a) Define the following engineering materials giving two examples in each case:

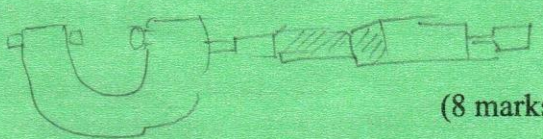
(i) ferrous metals;
(ii) non-ferrous metals;
(iii) alloys.

(9 marks)

(b) Differentiate between marking out tools and measuring tools. (3 marks)

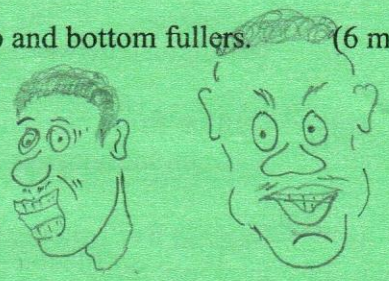
(c) Illustrate the application of the following tools:

(i) engineers try square;
(ii) micrometer screw gauge.



(8 marks)

4. (a) With the aid of sketches, describe the working of top and bottom fullers. (6 marks)



(b) Explain the following processes:

(i) tapping;
(ii) reaming;
(iii) punching.

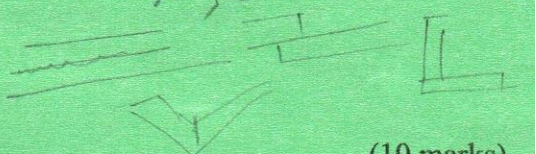
(6 marks)

(c) (i) State **two** functions of cutting fluids.

(ii) Draw a labelled diagram of a lathe turning tool.

(8 marks)

5. (a) Illustrate the following lathe operations:



(i) facing;
(ii) knurling.

(10 marks)

(b) Explain the following terms as used in grinding:

(i) abrasive;
(ii) loading.

(4 marks)

(c) With the aid of sketches, explain the procedure of metal joining using rivets. (6 marks)

SECTION B: LIFE SKILLS (40 marks)

*Answer any **TWO** questions from this section.*

6. (a) Explain the meaning of each of the following terms as used in life skills:

(i) values;
(ii) assertiveness.

(4 marks)

(b) State **six** factors that may hinder the youth from attaining their personal goals. (6 marks)

(c) Explain **five** positive consequences of conflicts in an organisation. (10 marks)

7. (a) Distinguish between sympathy and empathy. (4 marks)

(b) Outline **three** circumstances under which effective negotiation may be achieved between individuals. (6 marks)

(c) Explain **five** benefits that an organisation may achieve through employees' creative thinking. - Quality - Market domination. - Innovation - Quantity - Growth. (10 marks)

8. (a) Mambo has formed a habit of frequently and heavily consuming alcohol. Outline **four** ways in which this habit may impact on his health. (4 marks)
- Hallucination dipressions intestinal problems (4) =15
- liver cirrhosis lazyness

(b) Explain the meaning of each of the following terms in relation to Human Rights:

(i) ratification;
(ii) abuse; - taking drugs for the wrong purpose. (violating the rights of a person)
(iii) respect. — 4 (4)

(6 marks)

(c) Explain **five** measures that the management of an organization may take to control the spread of HIV and AIDS. (10 marks)

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Providing — ✓
elimination ✓ 10
VCT — ✓
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