



# MASENO SCHOOL

Kenya Certificate of Secondary Education 2020

451/2-

## AVIATION TECHNOLOGY

-Paper 2

(PRACTICAL)

DEC. 2020 - 2 ½ hours

## THE MASENO SCHOOL MOCK

Name ..... Index Number.....

Candidate's Signature ..... Date .....

### Instructions to Candidates

- (a) Write your name and index number in the spaces provided
- (b) Sign and write the date
- (c) There are ten stations in this examination
- (d) Candidates are allowed 15 minutes at each station
- (e) Candidates are not allowed to either review the previous station or read instructions of the next /other stations
- (f) Attempt all exercises in each station
- (g) All dimensions are in millimeters unless otherwise stated
- (h) Candidates should check to ensure all questions are well printed as indicated and no questions are missing

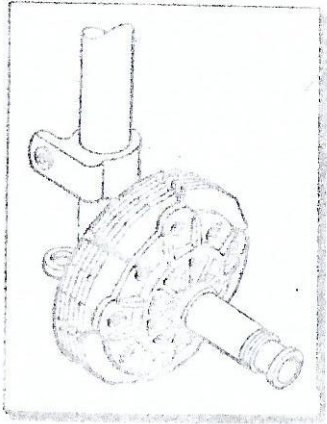
For examiners use only

Stations	1	2	3	4	5	6	7	8	9	10	TOTAL
Maximum Score	10	10	10	10	10	10	10	10	10	10	100
Students Score											

## STATION 1

### **INSTRUCTIONS**

Below is an assembled diagram of a rotor brake assembly unit. Study it and answer the questions below.



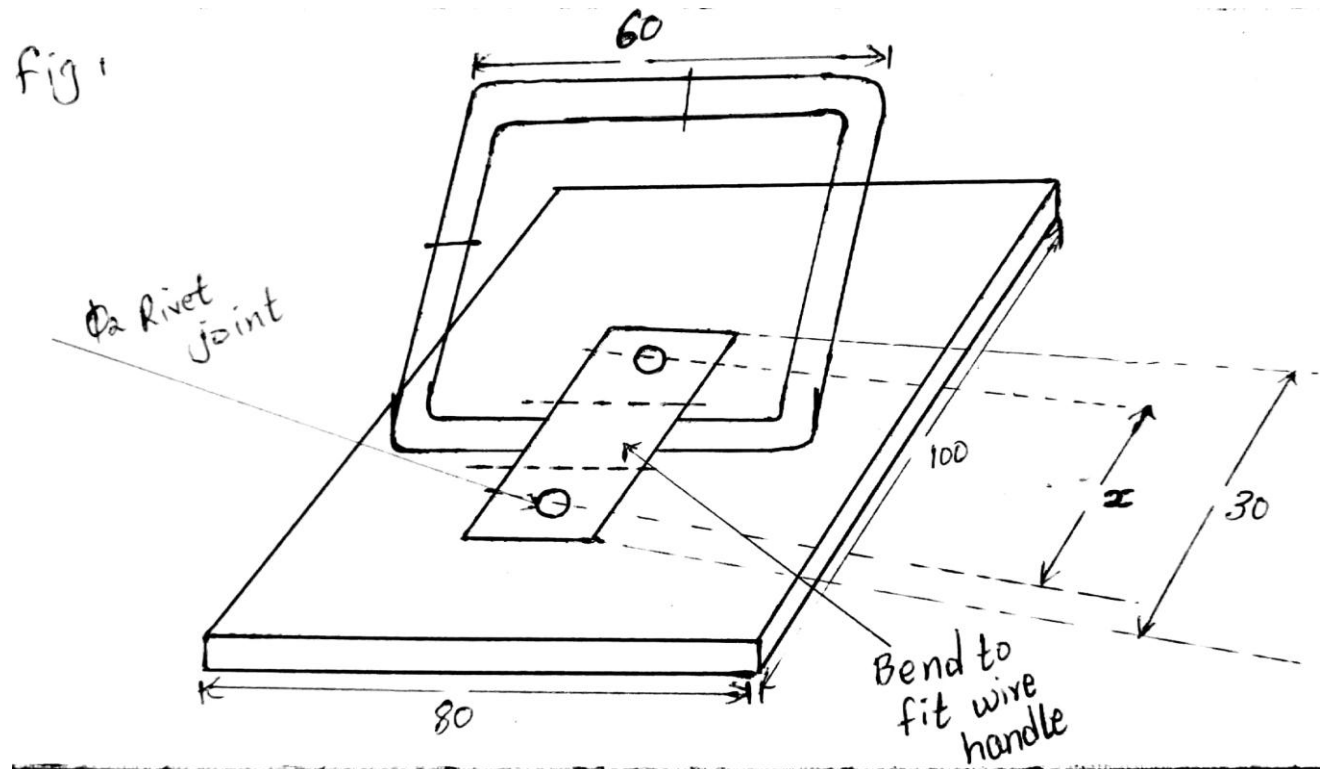
(a) In good proportion present an exploded diagram of the figure above and label at least 4parts. (8marks)

(b) Describe two loads experienced on the unit presented by the figure above. (2marks)

## STATION 2

### **INSTRUCTIONS**

Using the tools, materials and equipment provided make the handle as shown in figure 1 below.  
(8marks)



(a) Define the name of the distance indicated as x on the figure

(2marks)

### STATION3

#### ***INSTRUCTIONS***

(a) Using provided available materials and tools construct the following types of wing form as applied in aviation.

- (i) Delta (1mark)
- (ii) swept back (1mark)
- (iii) elliptical (1mark)
- (iv) Forward trailing straight leading edge. (1mark)

b. Provided is an aircraft model:

- (i) Identify the models type of wing. (1/2 mark)
- (ii) Measure and calculate the area of the wing. (1mark)
- (iii) Calculate the aspect ratio of the wing. (1 ½ marks)
- (v) Calculate the fineness ratio of the wing. (1 ½ marks)
- (vi) Measure and find out the wing loading of the aircraft model. (1 ½ marks)

## **STATION 4**

### **INSTRUCTIONS**

An aircraft with registration number 5y-ccn is flying from airport A to airport B at 360knots.it encounters wind  $330^0$  at 60knots.

(a) On the map provided plot a labeled vector diagram and determine each of the following:

(i) Track bearing (5marks)

(ii) Types of wind (1mark)

(iii) Two effects of the wind (2marks)

(b) State the most appropriate instruments used for navigation of the flight. (2marks)

## STATION 5

### INSTRUCTIONS

Using the tools, equipment's and materials provided carry out the following.

(a) (i) Check and record the roundness of the rod labeled X at designated marked point.

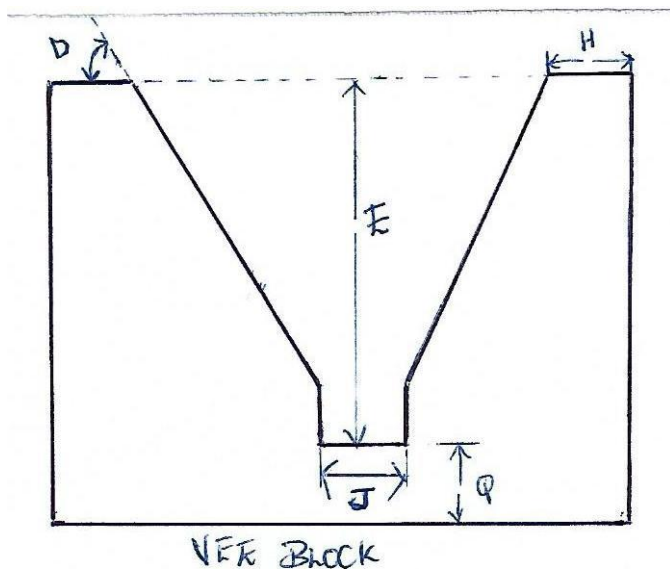
(1mark)

(ii) Repeat a (i) for rod Y

(1mark)

(b) Measure and record the following measurements on the vee block areas labeled.

(4marks)



D  
E  
H  
J  
Q

(c) State two safety factors to be observed while using dial test indicator.(2marks)

## STATION 6

### INSTRUCTION

(a) Study the components provided and answer the questions below

(i) Identify the instruments labeled as: (2marks)

(ii) S  
t  
a  
t  
e  
t  
h  
e

Component	Name of the instrument
P	
R	
X	
S	

(ii) State the category of each instrument labeled and the function as indicated in the table below. (4marks)

component	group	function
P		
R		
X		
S		

(iii) With an aid of a well labeled diagram show the pitot static system instrument in spaces provided below. (4marks)

## STATION 7

### INSTRUCTIONS

Study the components provided and answer the questions below.

- (a) Using component Q and millimeter check the continuity and the table below with respective numerical. (6marks)

Number	letter
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

- (b) Measure the resistance of the component labeled B. (2marks)

- (c) Describe the color bands on the component B . (2marks)



## STATION 8

### INSTRUCTIONS

Place the ball in the beaker labeled K, pour water into the beaker to the marked height. Answer the following questions after making your observation

- (a) State what happens to the ball. (1mark)
- (b) State the principle behind your observations. (1mark)
- (c) Identify aircraft component based on the above principle. (1mark)
- (d) State the function of the component identified in (c) above. (1mark)
- (e) (i) Identify component labeled Y. (1mark)
- (ii) Outline the effect of the component in aircraft system related. (3marks)
- (iv) In spaces provided below illustrate the occurrence of the component Y in operation at every stage. (2marks)

## STATION 9

### INSTRUCTIONS

Using the tools, materials and equipment provided perform the tasks and answer questions below:

- (a) Strip the cable at the end marked X 15mm and let the examiner check your work  
(1mark)
- (b) With an aid of a labeled sketch present the stripped end in space provided below.  
(2marks)
- (c) Strip the other end marked Y of the cable and tin. (1mark)
- (d) Join the tinned end of the cable to the bread board by soldiering method  
(3marks)
- (e) State three reasons why soldiering flux is used. (3marks)

## STATION 10

### INSTRUCTIONS

Using the material provided and tools perform the task s below and answer the following questions.

- (a) Identify the process illustrated in the figure1 below. (1mark)

Fig.1



- (b) Perform the task illustrated above in figure 1 as set up using tools and material provided and .let the examiner check your work after which you will unlock the wire.(7marks)

- (c) Identify the type of bolt used in the task above (1mark)

- (d) State two advantages of the method applied above. (1mark)