

MARKER CODE				



STUDENT ENROLMENT NUMBER									

TONGA SCHOOL CERTIFICATE

2016

INDUSTRIAL ARTS

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours + 10 minutes reading

INSTRUCTIONS

1. Answer **ALL** questions.
2. You are advised to spend the first TEN minutes of the examination time
 - a. reading the instructions
 - b. becoming familiar with the questions.
3. This paper consists of **FOUR SECTIONS**

SECTION	Topics	Total Skill Level
ONE	Home Appliances	17
TWO	Land Surveying	15
THREE	Navigation	26
FOUR	Electronics	12
	TOTAL	70

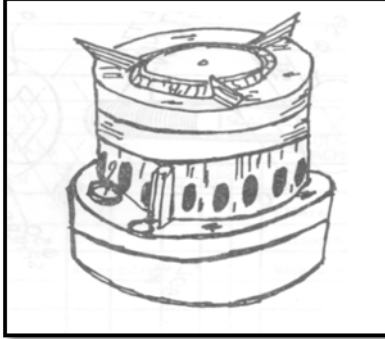
4. Write your **Student Enrolment Number** on the right hand corner and also on the last page.
5. Answer **ALL** questions in the space provide in this booklet
6. Check that your paper consists of 15 pages and that pages 14-15 has been deliberately left blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

SECTION ONE: HOME APPLIANCE

1. Study the diagram of the Wick Stove given below and answer questions that follow:

Wick Stove



- a. Name the **FOUR** (4) main parts of the Wick Stove.

Part 1: _____

Part 2: _____

Part 3: _____

Part 4: _____

Skill level 1	
1	
0	
NR	

- b. Identify any problems that may happen for Wick Stove. What is the problem that normally occur with the Wick Stove?

Skill level 1	
1	
0	
NR	

- c. What are the **TWO** (2) advantages of a Wick Stove over other stoves study in form 5?

i. _____

ii. _____

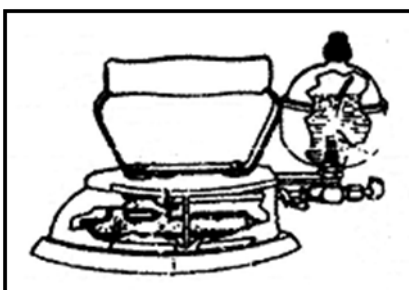
Skill level 2	
2	
1	
0	
NR	

- d. Describe the operation of the wick stove.

Skill level 2	
2	
1	
0	
NR	

2. Study the Benzene Pressure Iron below and answer the questions that follow:

Benzene Pressure Iron



- a. Name all the main parts of a Benzene Pressure Iron.

Skill level 1	
1	
0	
NR	

- b. Describe how the benzene pressure iron operated.

Skill level 2	
2	
1	
0	
NR	

- c. One of the problem happen in the Benzene Pressure Iron is the loss of pressure, briefly explain the two possible cause of the problem.

Possible cause 1. _____

Possible cause 2. _____

Skill level 3	
3	
2	
1	
0	
NR	

- d. Briefly explain the function of the three main parts of the benzene pressure iron?

Part 1: _____

Part 2: _____

Part 3: _____

Skill level 3	
3	
2	
1	
0	
NR	

3. Electrical Light

Circle the letter that corresponding to the most correct answer

- a. An electric iron has the following details shown on the data plate.

SOKANY: Steam Iron
Model: DR-2088

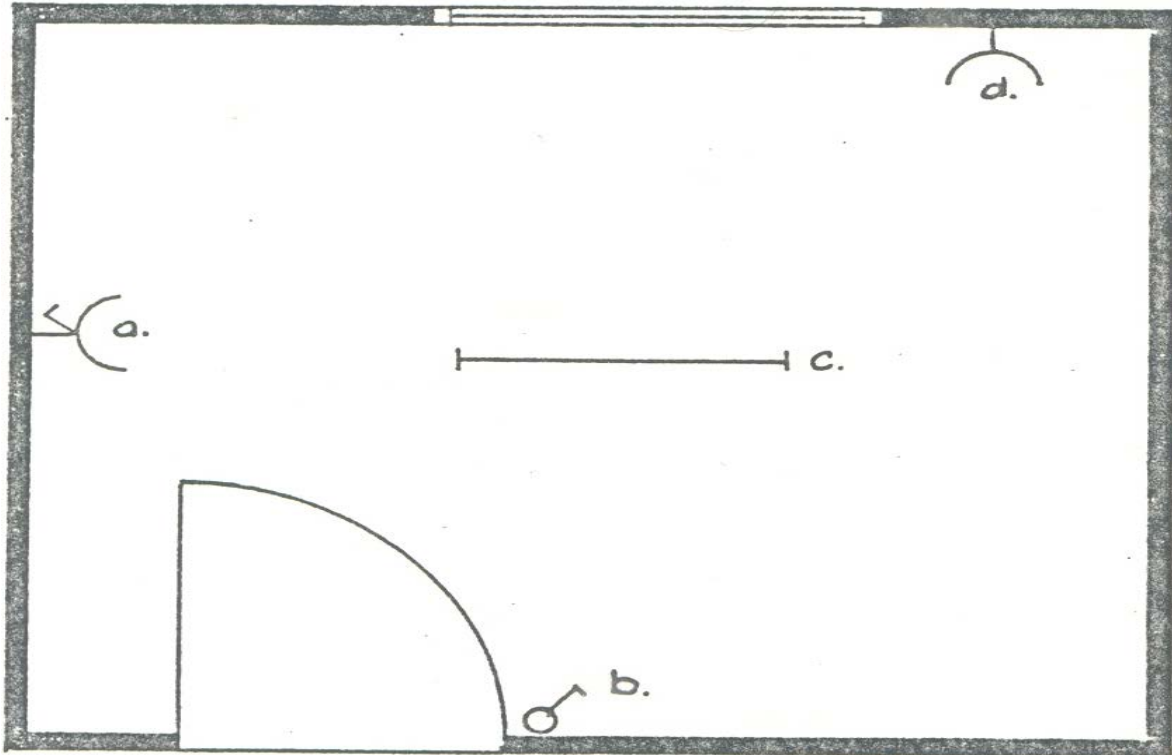
1500 Watts
240 Volts
50 Hz

Which of the following fuse ratings should be used for the iron?

- A. 20 amps.
B. 15 amps
C. 10 amps.
D. 5 amps

Skill level 1	
1	
0	
NR	

- b. Study the floor plan of a storage shed given below and answer the following questions.



Complete the table below with the correct name of electrical fittings **a**, **b**, **c** and **d**.

Symbols	Correct name of electrical fittings
a	
b	
c	
d	

Skill level 1	
1	
0	
NR	

SECTION TWO: LAND SURVEYING

1. Name the **THREE** (3) methods of plane table survey.

Method 1: _____

Method 2: _____

Method 3: _____

Skill level 3	
3	
2	
1	
0	
NR	

2. Briefly explain the function of the plane tabling equipment.

Skill level 2	
2	
1	
0	
NR	

3. In point form list the correct method of how to carry out the chain surveying techniques.

Skill level 2	
2	
1	
0	
NR	

4. Briefly describe the two methods of plane table technique.

Method 1: _____

Method 2: _____

Skill level 2	
2	
1	
0	
NR	

5. Explain the main purpose of plane table technique.

Skill level 3	
3	
2	
1	
0	
NR	

6. Explain the method of surveying by offset.

Offset Method: _____

Skill level 3	
3	
2	
1	
0	
NR	

SECTION THREE:**NAVIGATION**

1. List the detail for admiralty chart.

Skill level 1	
1	
0	
NR	

2. What scale do navigators use on navigational charts for distance?

Skill level 1	
1	
0	
NR	

3. Define the following navigation terms:

- a. Sounding

Skill level 1	
1	
0	
NR	

- b. Chart

Skill level 1	
1	
0	
NR	

- c. Beacons

Skill level 1	
1	
0	
NR	

- d. Abeam

Skill level 1	
1	
0	
NR	

- e. Starboard

Skill level 1	
1	
0	
NR	

- f. Variation

Skill level 1	
1	
0	
NR	

4. Describe the differences between longitude and latitude.

Skill level 2	
2	
1	
0	
NR	

5. Describe the type of compass that used by navigators.

Skill level 2	
2	
1	
0	
NR	

6. List the 4 methods of obtaining fix.

Method 1: _____

Method 2: _____

Method 3: _____

Method 4: _____

Skill level 2	
2	
1	
0	
NR	

7. In bearing, describe the different between compass bearing and true bearing.

Skill level 2	
2	
1	
0	
NR	

8. Describe two-point fix.

Skill level 2	
2	
1	
0	
NR	

9. Complete the table below.

COMPASS BEARING	MAGNETIC BEARING	TRUE BEARING
116°15'		103°
	12°25''	220°

Skill level 2	
2	
1	
0	
NR	

10. On the Tongatapu Group chart the magnetic variation is 13° 18' E in 1996. The annual drift is 02' E. What is the magnetic variation for the year 2016?

Skill level 3	
3	
2	
1	
0	
NR	

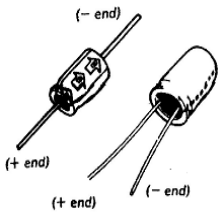
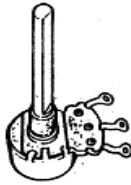
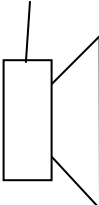
11. MV Lose depart from Nuku'alofa at 0620 hr. tomorrow on a trip to 'Oneata island. The distance from Nuku'alofa to 'Oneata island is 24 nautical miles. MV Lose travel on an average speed of 8 knots.

Calculate the EAT (Expected Arrival Time) at 'Oneata island.

Skill level 3	
3	
2	
1	
0	
NR	

SECTION D:**ELECTRONICS**

1. Complete the table below by write the name of electronic components shown by its picture.

PICTURE/SYMBOL	NAME
	
	
	

Skill level 3	
3	
2	
1	
0	
NR	

2. Draw and label the symbol of Transistor.

Skill level 2	
2	
1	
0	
NR	

3. Why is the power diode installed in front of the circuit compare to other component?

Skill level 2	
2	
1	
0	
NR	

4. Manufactures of Light Emitting Diode (LED) provide you with two possible ways to easily identify the negative terminal of an LED. Describe each way.

Possible way 1: _____

Possible way 2: _____

Skill level 2	
2	
1	
0	
NR	

5. Explain the functions of Transformer?

Skill level 3	
3	
2	
1	
0	
NR	

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