Candidate's Examination Number……

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

56 WORKSHOP TECHNOLOGY

TIME 2:30 HOURS FRIDAY 1ST DECEMBER, 2017 PM

1. **This paper consists of sections A, B and C.**
2. **Answer ALL questions in sections A and B and any three (3) questions in section C.**
3. **Answers for each question should be written in the space provided.**
4. **Calculators and cellular phones are not allowed in the examination room.**
5. **Write your examination number on every page of this booklet.**
6. **Use a blue or black pen in writing. The diagrams must be drawn in a pencil.**

FOR EXAMINER'S USE ONLY					
Question number	Marks	Signature	Question number	Marks	Signature
1			9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8					
TOTAL					

This paper consists of 12 printed pages.

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SECTIN A (10 marks)

Answer ALL questions in this section.

1. Choose the letter of the correct answer and write it in the table below.

i)The material used to make vice body is

A. Wrought iron
B. Copper
C. Zinc
D. Cast iron
E. Aluminum

ii) Aluminum, copper, zinc, tin and lead are examples of

A. Ferrous metals
B. Non ferrous metals
C. Non metals
D. Manufactured materials
E. Plastic materials

iii) A steel which responds heat treatment must have a carbon above

A. 01%
B. 0.1%
C. 0.3%
D. 0.25%
E. 0.05%

iv) The element which increases hardness, wear resistance, corrosion resistance to steel is

A. Sodium
B. Titanium
C. Phosphorous
D. Chromium
E. Molybdenum

v) The metal used to make surface plate

A. Wrought iron
B. Zinc
C. Pig iron
D. Cast iron
E. Mild steel

vi) A hard metal is the one which can

A. Bends easily
B. Resist scratching
C. Break easily
D. Rust quickly
E. Absorb heat

vii) The charges in blast furnace are loaded in by using

A. tuyeres
B. Stove
C. Scip car
D. Ladle
E. Torpedo

viii) Round work pieces in machines operations are supported by

A. vice
B. clamp
C. pliers
D. vice block
E. angle bar.

ix) A large diameter circle on a work piece can be drawn by using

A. venier caliper
B. micrometer
C. trammel
D. divider
E. odd leg caliper

x) Heating a piece of steel and allow it to cool slowly make the steel to be come

A. hard and brittle
B. soft and ductile
C. thin and long
D. thick and wide
E. make plasticity

ANSWERS

Item number	i	ii	iii	iv	v	vi	vii	viii	ix	x
Answer										

SECTION B: (30 Marks)

Answer ALL questions in this section.

2. Give three (3) mechanical properties of metal.

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3. Distinguish between cold rolling and hot rolling.

4. a) Define plastics

b) Identify the two (2) classes of plastics.

5. With the help of diagram, show how the engineering materials are classified.

6. Why is necessary to temper steel after hardening?

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7. List down any three (3) heat treatment operations.

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8. State three advantages of basic oxygen furnace.

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9. Give one application for each of the following,

   i) Low carbon steel

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   ii) Medium carbon steel

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iii) High carbon steel.

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10. Enumerate six examples of non ferrous materials.

i)_____

ii)_____

iii)_____

iv)_____

v)_____

vi)_____

11. Name the type of furnace suitable for the production of

i) Greatest percentage of steel.

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ii) Better quality of steel.

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SECTION C (60 Marks)
Answer any three (3) questions.

12. a) Explain the reasons for majority of components in engineering to be made from ferrous materials.

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b) Why lathe beds are made from cast iron?

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13. a) What is an accident?

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b) What are the effects of accidents?

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c) Identify any three (3) causes of accidents in a workshop.

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d) Explain any three (3) safety precautions that should be observed in a workshop.

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14. a) Draw a simple sketch of a blast furnace.

b) Explain the principle of operations of a blast furnace.

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c) Distinguish between plasticity and elasticity.

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15. a) Compare cast iron, wrought iron and steel.

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b) Why wrought iron is not widely used?

c) Examine the properties of cast iron.