

Candidate's examination number.....

SMZ

ZANZIBAR EXAMINATIONS COUNCIL
FORM THREE ENTRANCE EXAMINATION

057

ELECTRICAL INSTALLATION

TIME: 2:30 HOURS

FRIDAY, 07th DECEMBER 2018 pm

INSTRUCTIONS TO CANDIDATES

1. This paper consists of sections A, B and C.
2. Answer ALL questions in sections A, B and C.
3. ALL answers must be written in the space provided.
4. Write your examination number on every page of this booklet.
5. Calculators and cellular phones are not allowed in the examination room.

FOR EXAMINER'S USE ONLY					
QUESTION NUMBER	MARKS	SIGNATURE	QUESTION NUMBER	MARKS	SIGNATURE
1			8		
2			9		
3			10		
4			11		
5			12		
6			13		
7			14		
TOTAL					

This paper consists of 12 printed pages.

SECTION A: (10 marks)

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

- i) Extra low voltage is the voltage is a safety voltage that does not exceed
A: 120V ac or 50V dc
B: 120V dc or 50 V ac
C: 110V dc or 50V ac
D: 110V ac Or 50Vd
- ii) The fuse rating in the plug must not exceed
A: 15A B. 10A C: 13A D: 3A
- iii) All the fire extinguishers can be used on electrical fires except
A : Foam B:Carbon dioxide C:Halon D:Powder standard
- iv) A device that automatically control the main supply for a large heating circuit
A. Triple pole switch B. Double pole switch
C. Heavy fuse. D. Heat controller
- v) Food mixer, hair dryers, vaccum cleaners are all examples of electrical
A: accessories B: apparatus C: Equipments D: appliances
- vi) The charge on the plates of capacitor is given by expression
A: $Q=VI$ B: $Q=CV$ C: $Q=IR$ D: $Q=IC$
- vii) The purpose of adding salt and charcoal around the earth electrode in adry land is to
A: Decrease the conductivity of earthling
B: Increase the earth impedance
C: Decrease the earth impudence
D: Make use of salt charcoal to earn money.

- viii) To calculate the energy used by electrical component we need
 A: Voltage and current B: Current and time of operation
 C: Power and time of operation D: Current and resistance
- ix) A good electrical conductor is the one that
 A: Has low conductance B: Is always made of copper
 C: Produces minimum voltage drop D: Has few electrons.
- x) What type of energy uses the sun's radiation to convert heat into electricity?
 A: Geothermal energy B: Solar energy
 C: Wind energy D: kinetic energy

i	ii	iii	iv	v	vi	vii	viii	ix	x

SECTION B: (30 marks)

Answer ALL questions.

2. a) Define the term 'soldering'

- b) Name two (2) types of soldering.

3. The voltage rating for a cable is given as E_o/E_1 , explain what this stand for?

4. Mention three (3) classes of voltage sources.

5. Distinguish between an insulator and conductor

6. Name three (3) actions to be taken upon finding a work note receiving an electric shock.

7. a) Define an ambient temperature.

- b) Identify two (2) factors that increases the ambient temperature

8. Sketch the electric symbol of the

i) Earth

ii) Battery

iii) Cell

9. List six(6) methods of generating electricity.

10. Write down four (4) common standard sizes of conduit.

11. a) Define the term trunking.

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- b) State the purpose of duct and conduit in a wiring system.

SECTION C: (60 marks)

Answer ALL three (3) questions.

12. a) With the help of a well labeled circuit diagram consisting of three resistors, explain the differences between the series circuit connection parallel circuit connection.

- b) If three (3) identical lamps are connected in parallel and the combined Resistance is 150Ω . Find the resistance of one lamp.

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13. a) Define the term "resistivity".

- b) A PVC twin copper cable 50m long has a total voltage drop of 8V when it is carrying a current of 40A. Calculate the crosssectional area of the cable and the power loss in the cable (Assuming that, the resistivity of copper = $1.7\text{M}\Omega\text{cm}$).

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- 14 a) Draw a circuit diagram of two (2) lamps connected in parallel which are controlled from three different positions.

b) Give the application of each of the following electrical tools

i) Crimping tool

ii) Hack saw

iii) Electrical knife.

iv) Tester.

v) Nose pliers.
