Candidate's Number _____

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND CULTURE

FORM TWO SECONDARY EDUCATION EXAMINATIONS, 1992

0081

ELECTRICAL INSTALLATION

TIME: 2.00 Hours

INSTRUCTIONS TO CANDIDATES

1. Attempt all 25 questions.
2. Answers for questions 11 - 25 should be written in the answer sheets provided and attached at the end of this paper.

This paper consists of 4 printed pages.

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SECTION A (65 marks)

For questions 1 to 5 choose the correct answer and write the corresponding letter in the box provided.

1. To measure electrical power you should use
   A. a kilowatt-hour meter
   B. an ammeter
   C. a voltmeter
   D. a wattmeter

2. A fuse is used in a circuit to
   A. make an easy connection
   B. allow the current to flow freely
   C. protect the circuit from excessive current
   D. act as a switch.

3. A filament lamp is rated 15W and the current passing through the lamp is 0.5A.. The voltage drop across the lamp is
   A. 50v
   B. 75v
   C. 20v
   D. 30v

4. To forward bias a p-n junction, the negative terminal of the supply is connected to
   A. n-type material
   B. p-type material
   C. p-n type material
   D. n-p type material

5. The opposition to current flow which an inductor gives in an ac circuit is called:
   A. capacitance
   B. resistance
   C. inductive reactance
   D. impedance

Complete the statements of questions 6 - 10 by filling the spaces provided with correct terms.

6. Electric bells are devices which work on the principle of _____

7. The point of connection of the consumer's conductors to supply authority meter is called _____

9. A saddle is a fitting used on _____.

10. For proper operation of a transistor forward bias the emitter-base junction and reverse bias the _____.

Questions 10 - 20 require short answers in the answer sheets provided.

11. What is the equivalent capacitance of two 2000μF capacitors connected in parallel?

12. Mention four types of wiring systems.

13. Avometer is a combination of three instruments. Mention them.

14. Name three types of electrical joints.

15. What is the resistance of a resistor if a voltage of 4.5v between its ends causes a current of 1.5mA to flow through it?

16. The three forms of Ohm's law are

17. Three materials used for battery separators are:

18. Mention four types of cables.

19. State two advantages of using circuit breakers over rewirable fuses.

20. Draw the symbol of the following devices.

(i) Zener diode

(ii) Photo diode

(iii) npn transistor.

SECTION B (35 marks)

Answers to questions 21 - 25 should be written in the answer sheet provided.

21. A conductor 500mm long is situated in a uniform magnetic field of flux density 1.2T. Determine the force on the conductor when the current flowing in the conductor is 5A.

22. Explain the difference between the coulomb and the ampere.

23. A resistor is marked or colour coded as follows:

1st band Brown 1Ω 10000Ω.

2nd band black 0 _____

3rd band orange

What is the value of the resistor?

24: (a) Explain the difference between primary and secondary cell

(b) A conductor is marked 25/0.14mm.

What does this mean?

25. An electrical appliance is connected to 220v supply through one-way switch.

Draw a simple circuit to show how you would connect your ammeter and voltmeter to measure current and voltage of the appliance.