

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.

SECTION A (65 marks)

9

10

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 $2000\mu\text{F}$ 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 10000Ω

2nd band black

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.