Candidate's Number: ____ ____

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND CULTURE
FORM TWO SECONDARY EDUCATION EXAMINATION, 1993

0081

ELECTRICAL INSTALLATION

TIME: 2 Hours.

Attempt ALL 25 questions.

Answers for questions 11 - 25 should be written in the answer sheet 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 - 5 choose the correct answer and write the corresponding letter in the box provided.

1. An auto-transformer works on the principle of
   A. self induction
   B. mutual induction
   C. electromagnetism
   D. Lenz's Law. [ ]

2. Effects of an electric current are
   A. chemical -, heating - and frictional-
   B. current, voltage and resistance
   C. chemical-, heating- and magnetic
   D. heating-, frictional and magnetic. [ ]

3. If a wire is heated its resistance
   A. gets larger
   B. gets smaller
   C. remains the same
   D. becomes infinite. [ ]

4. An a.c. wave being modulated is called
   A. a signal
   B. a carrier
   C. an amplitude modulated wave
   D. frequency. [ ]

5. The lamps in a household circuit are connected
   A. in series
   B. in parallel
   C. in series parallel
   D. sometimes in series sometimes in parallel. [ ]

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

6. Name the instruments used to carry out the following tests:
   (a) To measure the flow of current _____
   (b) To measure the emf and p.d. _____.

7. The requirements of IEE Regulations concerning any joint of a conductor carrying current are:
   Any Joint must be _____ and _____.

8. A 100W, 250V filament lamp connected in a sub-circuit will pass a current of _____A, when switched on.

9. TANESCO uses two major sources of power in generating electricity.
   These are (a) _____
   (b) _____.

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10. An ohmmeter is used to measure the resistance of a conductor, but another way which can be used to find the resistance is

_____

_____

11. State the maximum permissible voltage drop when lighting circuits operate at the following voltages

(a) 200V _____

(b) 240V _____

12. What is the difference between two-two ways switching and intermediate switching?

_____

_____

13. A resistor with brown body, red tip and yellow spot would be related at _____ ohms.

_____

14. What is the difference between hydroelectric power and oil-fired power plant?

_____

_____

15. Name two types of instruments used for measuring electrical quantities.

_____

_____

16. Mention two common conductors used in electrical cables.

_____

_____

17. What is frequency? _____

_____

18. Name three main parts of a cable.

_____

_____

19. State the three terms used in fuse calculations.

_____

_____

_____

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20. In connection with the I.E.E Regulations, what is the recommended space factor for

(a) Trunking _____

(b) Conduit _____

(c) Duct _____

SECTION - B (35 marks)

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

21. (a) What is the purpose of lamination in the transformer core?

(b) Sketch two types of lamination cores of transformer.

22. Draw a block diagram for the sequence of supply control in domestic installation and clearly show the supply Authority's equipment and consumer's equipment.

23. A single core cable has the resistance of 0.5 ohms and cross-sectional area of 2.5 mm^2, the material used for that cable being a copper conductor whose resistivity is 1.78 micro-ohm-cm. What is the length of the cable?

24. Draw a circuit diagram (or wiring diagram) to show how one way switch can control two malamps.

25. Draw a circuit diagram (or wiring diagram) of one lamp controlled by two - two way switch.

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