

071303T4EIN

Electrical Installation Level 3

ENG/OS/EI/CR/01/3/A

Perform PVC sheathed cabling, conduiting, trunking and cable trays laying

March /April 2023

Time: 2 Hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

WRITTEN ASSESSMENT

2 HOURS

INSTRUCTIONS TO CANDIDATE

*This paper consists of **TWO** sections: **A** and **B**.*

*Answer **ALL** questions in sections **A** and **B** in the answer booklet provided.*

Marks for each question are indicated in brackets.

Do not write on this question paper.

*Answer the questions in **English**.*

This paper consists of four (4) printed pages.

Candidate should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (20 MARKS)

Answer all questions in this section.

For questions 1-10, state whether the statement is true or false.

For questions 11-20, chose the correct answer.

1. Non-metallic sheathed cable must be clipped or stapled at a minimum of 8 inches from any fitting. (1 Mark)
2. Stranded core wire is more flexible than single core wire. (1 Mark)
3. Where an installation is temporary, embedded conduits in concrete is better than surface wiring. (1 Mark)
4. Using cables of wrong size can cause electric fire. (1 Mark)
5. In electrical installation, a circuit breaker should be connected to the earth wire. (1 Mark)
6. For a PVC conduit wiring system, saddles shall not be more than 60 cm apart. (1 Mark)
7. Keeping an inventory of tools equipment and materials is not necessary during installation. (1 Mark)
8. Green/ yellow wire is always considered as part of the live circuit. (1 Mark)
9. Cable trays are mostly used in commercial and industrial wiring systems. (1 Mark)
10. It is advisable to install entire conduit and other accessories first before drawing in wires. (1 Mark)
11. Which one of the following items is not a necessary safety wear during electrical installation work? (1 Mark)
 - A. Overall
 - B. Safety boot
 - C. Nose mask
 - D. Working gloves
12. Which one of the following is not a possible hazard during electrical installation work? (1 Mark)
 - A. Electric shock
 - B. Chemical burn
 - C. Mechanical injury
 - D. Fire
13. You are to fix a 2.5mm² cable on a wall service, which of the following tools is not necessary? (1 Mark)
 - A. Cable stripper
 - B. Pliers

- C. Bending spring
- D. Ball- pein hammer

14. Which of the following is not an accessory for light circuit? (1 Mark)

- A. Wall switch
- B. Junction box
- C. Lamp bolder
- D. Socket

15. Socket outlets can be connected in either of the following ways/methods except_____ (1 Mark)

- A. Radial
- B. Ring
- C. Star delta
- D. Spur

16. What size of cable is suitable for installing domestic 13A socket outlets? (1 Mark)

- A. 4.0mm^2
- B. 1.5mm^2
- C. 2.5mm^2
- D. 1.0mm^2

17. A cable is rated 7/0.5 what does this mean according to you?

- A. 7 strands with each measuring 0.5cm in diameter
- B. 7 strands with each measuring 0.5cm^2 cross-sectional area
- C. 7 strands with each measuring 0.5mm in diameter
- D. 7 strands with each measuring 0.5mm^2 cross-sectional area

18. Which of the following is a possible application of a 4mm^2 cable? (1 Mark)

- A. Lighting a flood light
- B. Household TV socket
- C. Installing electric cooker socket
- D. Internet installation

19. Which of the following is the major reason why we use cable trays? (1 Mark)
- A. They are cheap to install
 - B. They allow for lumping of cables together
 - C. They are easier to install
 - D. They look elegant
20. Which of the following is not a component of consumer control unit (C.C.U)? (1 Mark)
- A. Main switch
 - B. Circuit breakers
 - C. Bus bar
 - D. Energy meter

SECTION B (30 MARKS)

Answer all questions in this section.

21. List **two** reasons why it is important to observe safety at place of work (2 Marks)
22. Draw and label an armoured cable. (4 Marks)
23. State **three** special features a ball- pein hammer have over ordinary hammer. (2 Marks)
24. State **two** reasons why most conductors are made of copper. (2 Marks)
25. List **four** fittings that go hand in hand with PVC conduit wiring systems. (2 Marks)
26. State **three** types of electrical joints you can make when carrying out installation. (3 Marks)
27. State **two** classes of steel conduits. (2 Marks)
28. List **three** fittings used on conduits. (3 Marks)
29. Explain the reason why earth continuity conductor is always connected to the ground. (2 Marks)
30. Outline **two** reasons of keeping an inventory of the tools, equipment and materials at workplace. (2 Marks)
31. State **two** IEEE regulations regarding non-metallic trunking (2 Marks)
32. State **four** statutory regulations that apply to electrical works in Kenya (4 Marks)

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