

Qualification Code : 071305T4EIN
Qualification : Electrical Installation Operator Level 5
Unit Code : ENG/OS/EI/CR/02/5
Unit of Competency : Perform Electrical Installation
Nov. /Dec. 2022



THE KENYA NATIONAL EXAMINATIONS COUNCIL

WRITTEN ASSESSMENT

Time: 3 Hours

INSTRUCTIONS TO CANDIDATE

1. Marks for each question are indicated in the brackets.
2. The paper consists of sections A, B and C.
3. Do not write on the question paper.
4. A separate answer booklet will be provided.

This paper consists of SEVEN (7) printed pages.

Candidates should check the question paper to ascertain that all pages are printed as Indicated and that no questions are missing

SECTION A (20 MARKS)
Attempt all questions in this section

1. The appropriate personal protective equipment to handle loads with rough surfaces and sharp edges should be. (1 Mark)
 - A. Paper gloves
 - B. rubber gloves
 - C. leather gloves
 - D. Polythene gloves
2. The common mechanical hazard in a workshop is likely to be. (1 Mark)
 - A. Sickness
 - B. Current leakage
 - C. Un guarded machinery
 - D. Exposed live wires
3. The appropriate portable fire extinguisher to be used with electrical fires should be. (1 Mark)
 - A. Water
 - B. Carbon dioxide
 - C. Multipurpose powder
 - D. Fire blanket
4. The insulation mostly used in cables for domestic installation should be. (1 Mark)
 - A. Paper
 - B. Rubber
 - C. Asbestos
 - D. PVC
5. To ensure proper function of a fuse in an electrical circuit, it should be installed in. (1 Mark)
 - A. Parallel to the load
 - B. Series with the load
 - C. Either way possible
 - D. At the ground point

6. The recommended color code for neutral conductor is either black or. (1 Mark)
- A. Yellow
 - B. Blue
 - C. Green
 - D. Brown
7. PVC stands for; (1 Mark)
- A. polyvinyl chloride
 - B. post varnish conductor
 - C. pressed and varnished cloth
 - D. positive voltage conductor
8. Before using any electrical tools, one should (1 Mark)
- A. Check the rating on the label
 - B. Check for broken parts
 - C. Check that the handle is black.
 - D. All of the above
9. The possible cause of flickering of fluorescent lamp could be due to the following except? (1 Mark)
- A. Faulty tube
 - B. Faulty choke
 - C. Faulty starter
 - D. Loose terminals
10. The IEE standard cable colors for a three phase system are? (1 Mark)
- A. Brown, Black Grey
 - B. Red, Black, Green
 - C. Red, Green, Yellow
 - D. Red, Yellow, Blue

11. The IEE regulations recommendation is that all exposed metal in electrical circuit should be... (1 Mark)
- A. Connected together
 - B. Kept away
 - C. Painted
 - D. Earthed
12. The appropriate tool for terminating conductors in a junction box would be. (1 Mark)
- A. Ball peen hammer
 - B. Set of screw driver
 - C. Hacksaw frame and blade
 - D. Wheel spanner
13. After performing any installation work, one should do the following **except**; (1 Mark)
- A. Dispose waste material
 - B. Write a report of work done
 - C. Clean the working area
 - D. Leave unused materials on the site
14. The IEE regulations concerning termination of cable conductors must be as follows except. (1 Mark)
- A. Mechanically sound
 - B. Electrically sound
 - C. Easily Accessible
 - D. Concealed
15. Two pieces of heavy-gauge PVC conduits should be joined together by. (1 Mark)
- A. Male and female bushes
 - B. Couplers
 - C. Saddles
 - D. Round boxes
16. The main lighting in a room having only one entrance would probably be controlled by. (1 Mark)
- A. Isolator switch
 - B. Intermediate switch

C. 2-Two-way switch

D. One-way switch.

17. Before working on any electrical circuit, the electrician should always. (1 Mark)

A. Stand on a ladder

B. Isolate the circuit and test to ensure that it is safe.

C. Make sure all the dues are paid

D. Ensure all the loose cable joints are tighten.

18. The term connected load as used in electrical circuits can be well defined as. (1 Mark)

A. Installed electrical load in the premises of a consumer

B. Load drawn by consumer at any instant

C. Average load drawn by the consumer in a specified time

D. Maximum load a consumer draw

19. The type of electrical drawing that shows the detailed connections between components or items of equipment is known as. (1 Mark)

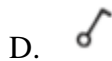
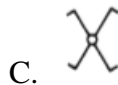
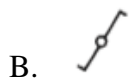
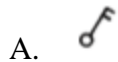
A. Block diagram

B. Wiring diagram

C. Schematic diagram

D. Layout diagram

20. The standard electrical symbol for a two gang one way switch is.... (1 Mark)



SECTION B (40 MARKS)

Attempt all questions in this section

21. Identify **two** equipment at intake point installed by the Kenya power. (2 Marks)
22. List any **five** common hand tools used while carrying out electrical installation. (5 Marks)
23. Identify **three** main tests performed on an electrical installation. (3 Marks)
24. State any **three** types of cable joints. (3 Marks)
25. Outline **three** main causes of accident in an electrical workshop. (3 marks)
26. Explain **four** reasons for carrying out polarity test in an electrical installation. (4 Marks)
27. Define the following terms as used in electrical installation earthing?
- i. Earth electrode (2 Marks)
 - ii. Earth lead (2 Marks)
28. Outline **five** factors affecting the choice of a wiring system. (5 Marks)
29. Explain **two** IEE requirements for cable joints (4 Marks)
30. Determine the resistance of a circuit operated at 50A when the supply voltage is 240V. (2 marks)
31. State any **five** IEE Regulation concerning conduits wiring system. (5 Marks)

SECTION C (40 MARKS)

Attempt any two questions in this section

32. a) With the aid of well labelled wiring diagram, Illustrate;
- i) Radial circuits. (5 Marks)
 - ii) Ring circuits (5 Marks)
- b) Draw a labeled line diagram showing the stages of power supply system from generation to consumers and corresponding voltage levels at various stages. (10 Marks)
33. a) An insulation resistance test carried out at a lighting distribution board shows that a low resistance fault exists between the neutral and the steel conduit of the installation. Outline the procedure that should be adopted to locate the fault. (10 marks)
- b) i) Draw a labeled wiring diagram of single phase equipment at intake point. (5 Marks)
- ii) State the function of each equipment in 33(b) (i) (5 Marks)
34. a) Describe how Holger-Nielson method of artificial respiration is performed to save a person who has been exposed to an electrical shock. (10 marks)
- b) Describe **five** IEE Regulations that govern the rating of a cable. (10 marks)

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