

**Qualification Code** : 071305T4EIN  
**Qualification** : Electrical Installation Operator Level 5  
**Unit Code** : ENG/OS/EI/CC/02/5/A  
**Unit of Competency** : Perform Workshop processes  
**Nov. /Dec. 2022**



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**WRITTEN ASSESSMENT**

**INSTRUCTIONS TO CANDIDATE**

- i. Time allocated: **THREE (3) hours**.
- ii. This paper has three sections **A, B** and **C**. Attempt questions in each section as per instructions given in the section.
- iii. You are provided with a separate answer booklet.
- iv. Marks for each question are indicated in the brackets.
- v. Do not write on the question paper

*This paper consists of SEVEN (7) printed pages.*

**SECTION A: (20 MARKS)**

***In this section, each question carries one (1) mark. Attempt all questions in this section. Choose the correct answer and write it in the answer booklet provided.***

1. Who of the following is responsible for assessing the workplace for the presence of hazards? (1 Mark)
  - A. Employer
  - B. Employee
  - C. Safety Manager
  - D. Assessing the ,workplace is optional
  
2. Choose the protection required for hot pan fire. (1 Mark)
  - A. Sprinkler system
  - B. Fire blanket
  - C. Fire hydrant system
  - D. Portable fire extinguisher
  
3. Which of the following combination of elements represent the fire triangle? (1 Mark)
  - A. Chemical extinguishing agent, fuel, water
  - B. Chemical extinguishing agent, heat, light
  - C. Chemical powder, fuel, air
  - D. Fuel, heat, oxygen
  
4. The accuracy of micrometres, callipers, dial indicators can be checked by a (1 Mark)
  - A. Feeler gauge
  - B. Slip gauge
  - C. Plug gauge
  - D. Ring gauge

5. A device used to make threads on metal conduit is known as (1 Mark)
- A. Bender
  - B. Die
  - C. Reamer
  - D. Cutter
6. The type of file used for a wood work is? (1 Mark)
- A. Double file
  - B. Single cut file
  - C. Rasp-cut file
  - D. Any of the above
7. The instrument which has all the features of try-square, bevel protractor, rule and scriber, is?
- A. Combination set
  - B. Outside micrometer
  - C. Inside micrometer
  - D. Depth gauge micrometer
8. In order to cut mild steel, the cutting angle of chisel should be? (1 Mark)
- A.  $40^\circ$
  - B.  $60^\circ$
  - C.  $50^\circ$
  - D.  $30^\circ$
9. Aluminium is the best material for making patterns because it is? (1 Mark)
- A. Beautiful
  - B. light in weight
  - C. corrosive
  - D. Hard to use
10. A file removes the metal during
- A. forward stroke
  - B. none of these
  - C. return stroke
  - D. both forward and return strokes

11. Which of the following is true about Class C fire extinguisher? (1 Mark)
- A. It is used on fires involving materials such as wood, paper & cloth.
  - B. Water extinguisher is the most commonly used.
  - C. It is used on fires caused by combustible metals
  - D. It is used on fires involving gases
12. Why should an instrument be calibrated? (1 Mark)
- A. To comply with workshop regulations
  - B. To ensure readings from an instrument are clear.
  - C. For Accuracy of the instrument readings.
  - D. For ease of use
13. Which one of the following is **NOT** a benefit of using PPE? (1 Mark)
- A. Reduced chances of electric shock
  - B. Prevents death
  - C. Prevents respiratory infections
  - D. Restricts comfort and movement
14. Which of the following is a correct combination of the three components needed to start a fire? (1 Mark)
- A. Fuel, Ignition/heat, Oxygen
  - B. Fuel, Ignition/heat, Hydrogen
  - C. Fuel, Oxygen, Hydrogen
  - D. Fuel, Oxygen, Power
15. The abbreviation PPE stands for? (1 Mark)
- A. Personal Preventive Equipment
  - B. Personal Protective Equipment
  - C. Proper Protective Equipment
  - D. Protective Personal Equipment
16. Which of the following is a test carried out in electrical installation? (1 Mark)
- A. Insulation continuity test
  - B. Power level test
  - C. Polarity test
  - D. Component test

17. Fire in an electrical installation can be caused by? (1 Mark)
- A. Any type of connection
  - B. Open circuit
  - C. Water leakages
  - D. Sustained overloading of wire or equipment
18. Which of the following is true about preventive maintenance? (1 Mark)
- A. Catches and fixes problems before they happen
  - B. Carried out once a year
  - C. Checks for the major equipment problems
  - D. Sensor devices are used to monitor systems
19. The instrument used to measure the amount of electrical current in a circuit is called? (1 Mark)
- A. Voltmeter
  - B. Ammeter
  - C. Micrometer
  - D. Ohmmeter
20. Special waste must be disposed off,..... (1 Mark)
- A. in the general site skips
  - B. in a compost pit
  - C. at the 'Household Waste' re-cycling centre
  - D. by an authorised company using a system of waste transfer notes

**SECTION B: (40 MARKS)**

*Attempt all questions*

21. Explain the reason for earthing electrical equipment. (2 Marks)
22. List any **four** objectives of industrial safety (4 Marks)
23. Mary wants to carry out electrical installation in a workshop. List any **three** PPE that she may need: (3 Marks)
24. State **five** reasons for record keeping in an electrical workshop (5 Marks)
25. State any **two** safety precautions to be observed while working with the following tools (10 Marks)
- I. Screw drivers
  - II. Wrenches
  - III. Chisels
  - IV. Saws
  - V. Reamers
26. List any **four** measuring tools used in engineering for accuracy and precision (4 Marks)
27. State any **two** ways of identifying a faulty machine. (2 Marks)
28. List **four** factors to consider when deciding whether to repair or replace equipment in the workshop. (4 Marks)
29. State any **three** items that a first aid kit **must** have (3 Marks)
30. State any **three** mechanical causes of accident (3 Marks)

**SECTION C: (40 MARKS)**

*Attempt any TWO questions (Each question carries equal marks)*

31. a) Explain any **four** factors to be considered in designing workshop layout (8 Marks)
- b) Outline the procedure of carrying out the Holger-Nielsen method of artificial respiration. (8 Marks)
- c) Outline **four** obligations of the employer at a work place as stipulated in the Safety and Health Act (4 Marks)
32. a) State **two** reasons for the formulation of IEE regulations (2 Marks)
- b) State any **five** possible causes for the following faults on discharge lamps. (5 Marks)
- i. Fuse blows when lamp is switched off
  - ii. Lamp does not light at all
  - iii. Lamp flickers repeatedly in an effort to start
  - iv. Lamp electrode glow continuously but lamp does not light
  - v. Lamp produce a certain sound continuously
- c) State any **five** merits of a good plant layout (5 Marks)
- d) Explain **four** types of plant layout (8 Marks)

33. a) Name the labelled parts A, B, C, D, E and F of the drilling machine shown in figure 1 below. (6 Marks)

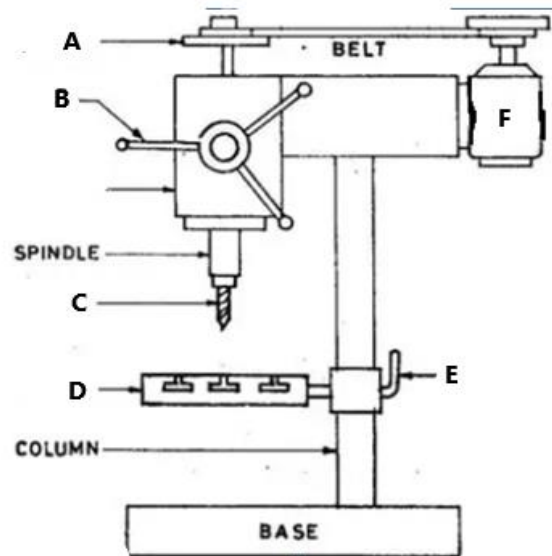


Figure 1

- b) State the functions of the named parts in 33 (a) above (6 Marks)
- c) List **four** regulations governing health and safety at the workplace (4 Marks)
- d) List **four** importance of proper maintenance of electrical equipment. (4 Marks)