UMMUL-QURA HIGH SCHOOL

Arowona Bus-Stop, Amuloko, Ibadan, Oyo State

Second Term Examination, 2020/2021 Academic Session.

Subject: ENT/Elect. ***Class:*** SSS 1 ***Time:*** $2\frac{1}{2}$ hours

Instructions: Answer ***all*** questions in *Section A* and ***three*** in *Section B*.

PAPER I & II [Objective and Theory]

SECTION A: OBJECTIVE (20 marks).

1. Standard color code for neutral wire is ----.
   A. red
   B. black
   C. green
   D. yellow
2. The power consumed over a period of time can be measured by the ----.
   A. energy meter
   B. wattmeter
   C. millimeter
   D. galvanometer
3. A multimeter is a device which can measure ----.
   A. resistance
   B. voltage
   C. current
   D. all of the above
4. One commercial unit of energy equals
   A. 500 watt-sec
   B. one watt-hour
   C. one kilowatt-hour
   D. ten kilowatt-hours
5. Earthing is necessary to give protection against ----.
   A. electric shock
   B. voltage fluctuation
   C. overloading
   D. high temperature of the conductors
6. The tool used for cutting, removing insulation, jointing and twisting the electric wires and cables even on live line is
   A. hammer
   B. nose plier
   C. screwdriver
   D. combination plier
7. Planning of electrical wiring work includes -----.
   A. site visit
   B. determining the customer load requirement
   C. calculating the maximum load demand
   D. all of the above
8. If two switches are connected in series to a lamp, then
   A. any one switch needs to be switched ON to energize the load.
   B. both the switches need to be switched ON to energize the load.
   C. only switch1 need to be switched ON to energize the load.
   D. only switch2 need to be switched ON to energize the load.

9. The test done to check the healthiness of the domestic wiring is
   A. polarity test
   B. insulation resistance test
   C. continuity test
   D. all of the above
10. For extremely low voltage circuit receiving supply from an isolating transformer, the minimum Insulation resistance should be
   A. 0.25megaohms
   B. 0.5megaohms
   C. 0.1megaohms
   D. 0.15megaohms
11. If a 100 ***Watts*** bulb ON for 10 hours, then what will be the amount of consumed electricity?
   A. 100 Watts per hour
   B. 100 Watts
   C. 1 kWh
   D. 1000 Watts
12. The insulation resistance of an electrical system is measured using an instrument called
   A. Clamp on meter
   B. Multimeter
   C. Megger
   D. Wattmeter
13. The method used by domestic electrician for checking the continuity in domestic wiring is
   A. bulb test or lamp test
   B. neon tester
   C. residual current device test
   D. prospective short circuit test
14. As per IEE specification minimum size of earth wire for light circuit is___ for copper and __- for aluminum.
   A. 1 mm^2 and 1.5 mm^2 respectively
   B. 1.5 mm^2 and 1 mm^2 respectively
   C. 2 mm^2 and 1 mm^2 respectively
   D. 1.5 mm^2 and 1 mm^2 respectively
15. Accident at workplace can be caused by working on unsafe or dangerous equipment such as
   A. cleaning/greasing or adjusting any of running machine
   B. working on machine under off condition
   C. using insulated tools
   D. none of the above
16. Basic fundamental of safety is that ----.
   A. cooperation of all co-workers is essential to avoid accident.
   B. accident is the result of unsafe working condition and unsafe work.
   C. use of incomplete or little knowledge is dangerous and may invite accident.
   D. all of the above.
17. Hazards occur due to ----.
   A. inadequate wiring
   B. exposed electrical ports
   C. wires with bad insulation
   D. all of the above
18. Tool used on electrical apparatus or equipment should be properly -----.
   A. insulated
   B. not insulated
   C. both (a) and (b)
   D. none of the above
19. The device that allow electrically operated equipment to be connected to the primary AC power supply in a building ----.
   A. MCB
   B. plug and socket
   C. ELCB
   D. Fuse

20. Safety requirement applicable at work include.
    A. wear personal protective equipment
    B. use tools in proper manner
    C. both (a) and (b)
    D. none of the above
21. Carbon dioxide fire extinguisher are designed for ----.
    A. class B fire only
    B. class B and C fire
    C. class C fire only
    D. none of the above
22. Class A type of fire extinguisher are used to extinguish fire on ----.
    A. solid that is not metal
    B. flammable liquid
    C. flammable gas
    D. metals
23. First-aid box may contain ----.
    A. clean and sterilized cotton pads
    B. three angle bandages
    C. bottle of Dettol or Savion liquid
    D. all of the above
24. Mouth to mouth procedure of artificial respiration should be repeated about
    A. 10 to 12 times in a min
    B. 30 to 32 times in a min
    C. 50 to 52 times in a min
    D. 1 to 2 times in a min
25. The undertakings shall provide suitable hoisting apparatus for hauling and carriage of loads above
    A. 500kg
    B. 50 kg
    C. 5 kg
    D. 10 kg
26. The workmen shall be trained in safe methods of handling. They should avoid ----.
    A. lifting too quickly and with a jerk
    B. lifting while in an awkward position or with a poor footing
    C. handling loads which are unwieldy or too heavy or loads which obstruct vision
    D. all the above
27. Copper as conductor for cables is used as ----.
    A. annealed
    B. hardened and tempered
    C. hard drawn
    D. alloy with chromium
28. A cable carrying alternating-current has
    A. hysteresis losses only
    B. hysteresis and leakage losses only
    C. hysteresis, leakage and copper losses only
    D. hysteresis, leakage, copper and friction losses
29. The inter-sheets in the cables are used to
    A. minimize the stress
    B. avoid the requirement of good insulation
    C. provide proper stress distribution
    D. any of the above
30. In the cables, sheaths are used to ----.
    A. prevent the moisture entering the cable
    B. provide enough strength
    C. provide enough insulation
    D. all of the above
31. In case of three core flexible cable the colour of the neutral is ----.
    A. blue
    B. black

C. brown
D. none of the above

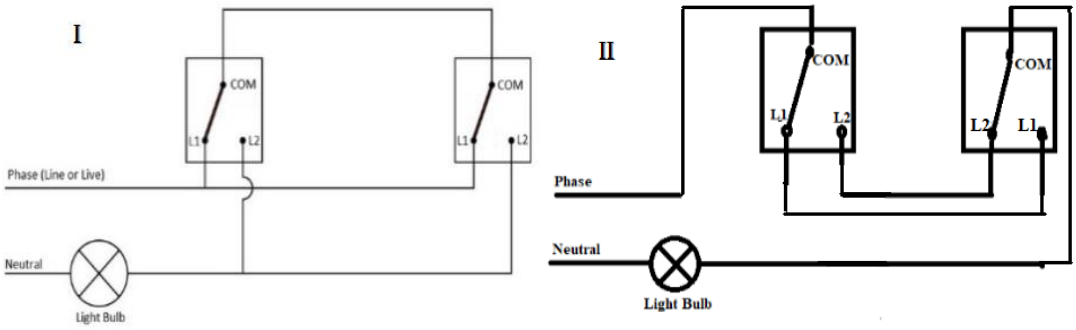
32. Which types of cables are used for 132KV lines?
    A. High tension
    B. Super tension
    C. Extra high tension
    D. Extra super tension
33. Multicore cable is generally use ----.
    A. oval shaped conductors
    B. sector shaped conductors
    C. square contactors
    D. either A or B
34. In a cable the maximum stress under operating conditions is at the ----.
    A. insulation layer
    B. sheath
    C. amour
    D. conductor surface
35. If the length of a cable is doubled its resistance is ----.
    A. doubled
    B. halved
    C. quadrupled
    D. none of the above
36. Metallic shielding is provided on underground cables to
    A. reduce thermal resistance
    B. reduce corona effect
    C. control the electrostatic voltage stress
    D. all of the above
37. The insulating material for cables should be ----.
    A. acid proof
    B. non-inflammable
    C. non-hygroscopic
    D. all above properties
38. Which one of the following are non-statutory regulations?
    A. Electricity at Work Regulation
    B. Manual Handling Regulation
    C. BS 7671
    D. Provision and use of Work Equipment Regulations
39. Which one of the following is a direct implication of not complying with statutory regulations?
    A. Loss of earnings
    B. Lost clients
    C. Dismissal
    D. Prosecution
40. Which one of the following is the maximum current carrying capacity for a single-core 6mm² 70°C thermoplastic insulation non-armoured cable, enclosed in a conduit on a wall, installed for a single-phase circuit?
    A. 31A
    B. 32A
    C. 36A
    D. 41A

SECTION B: THEORY (50 marks).

Instructions: Answer question 1 in Part A and ***any two*** from Part B.

PART A: Test of Practical

1ai. What type of wiring is illustrated in the diagram ***I*** and ***II***?



Use the diagram ***I*** to complete the table below.

SN	Switch1	Switch2	Condition of the	
	COM	COM	Lamp	Circuit
1	L1	L2	------	------
2	------	------	------	Open
3	------	------	OFF	------
4	L2	L1	------	------

1bi. Tabulate the operating conditions of the diagram ***II***.

1bii. List ***three*** materials and ***two*** tools required to accomplish the task.

1c. Apart from the circuit diagrams shown, draw any other circuits for similar function.

20 marks.

PART B: Theory

2ai. List ***three*** types of electrical tests for domestic installations.

2aii. Why is it important to conduct electrical tests in a domestic installation?

2bi. Name ***three*** instruments used for conducting test in electrical installations.

2bii. What is intermediate switching?

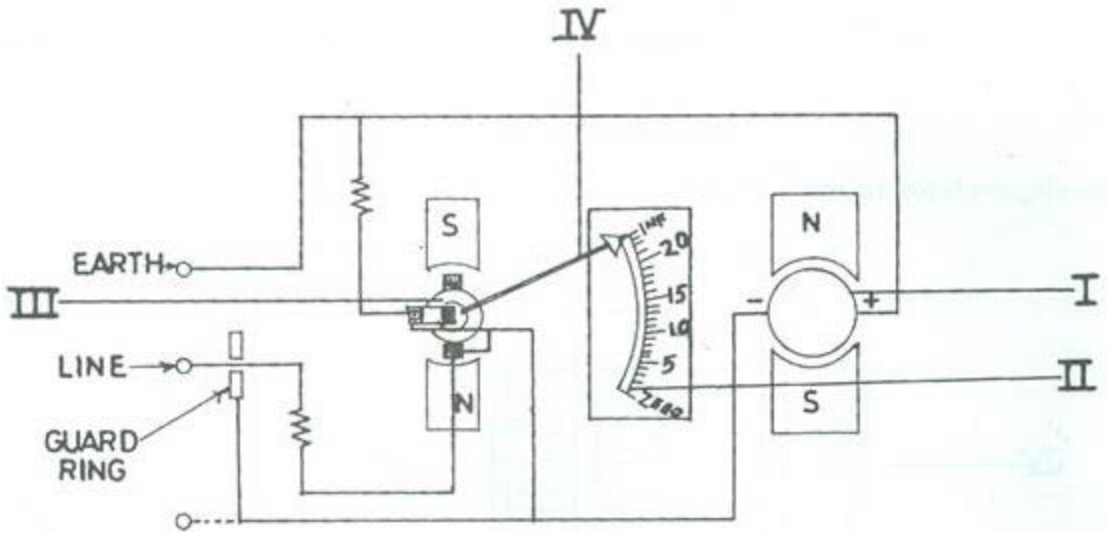
15 marks

3i. Define cable.

ii. List ***four*** types of cables based on their constructional features.

iii. What is current rating of a cable? And how does current rating of a cable is affected by ambient temperature?

15 marks



4ai. Name the parts labelled ***I, II, III*** and ***IV***.
4aii. State ***one*** function of each of the part named in (ai).
4bi. What is the minimum reading for the instrument when used in measuring insulation resistance?
4bii. Give ***two*** applications of this instrument.
4bii. State ***two*** precautions that should be taken in using this type of instruments.

15 marks

5ai. Outline ***four*** steps in the procedure of operating a merger instrument.
5aii. List ***three*** other types of measuring instruments and ***two*** testing instruments, used by electrician.
5bi. List ***four*** sources of danger to an electrician in electrician in electrical workshop.
5bii. State ***three*** precautions for rescuing a victim of electric shock.

15 marks