

UMMUL-QURA HIGH SCHOOL

Arowona Bus-Stop, Akanran Road, Oyo State, Ibadan.
First-Term Examination, 2020/2021 Session.

SUBJECT: ENT/Elect.

CLASS: SSS 2

TIME: 2:15 minutes

PART I: **OBJECTIVES**

Instructions: Answer **all** questions in this part.

- The amount of current which a conductor can carry safely without undue heating per cross-sectional area is called.
 - cable
 - current density.
 - rating factor.
 - permissible current.
- The correct order for conduit installation is;
 - wiring, fittings, piping.
 - piping, fittings, wiring.
 - fittings, piping, wiring.
 - piping, wiring, fittings.
- An electrician discovered that on inspection of a building, the walls were shocking. What type of test should be applied to detect the fault?
 - Polarity.
 - Voltage.
 - Continuity.
 - Insulation resistance.
- Which of the following tools can be used in an atmosphere containing inflammable substance?
 - Blow lamp.
 - Grip pliers.
 - Hand pliers.
 - Punch.
- Sodium discharge lamp consists of the following parts **except**;
 - auto-transformer.
 - capacitor.
 - electrode.
 - jacket.
- In IEEE regulations, the temperature of air surrounding the conductor is called.
 - room temperature.
 - ambient temperature.
 - cable temperature.
 - absolute temperature.
- The type of switching used for lamps in stair-cases of multi-story building is;
 - three gang.
 - pendant.
 - two way and single pole.
 - intermediate and two way.
- The process of joining metals by an alloy of tin and lead is called.
 - braising.
 - soldering.
 - welding.
 - coupling.

9. The *first three* test required for a new electrical installation are;
 - A. polarity, insulation resistance, earth fault loop.
 - B. continuity of protective conductor, ring final circuit, insulation resistance.
 - C. continuity of protective conductor, polarity, insulation resistance.
 - D. ring final circuit, insulation resistance, earth fault loop.
10. Photometric bench is an instrument used in measuring;
 - A. heat formation.
 - B. humidity.
 - C. luminous Intensity.
 - D. speed of light.
11. When the flux is used in a soldering works, its function is to;
 - A. align the joint.
 - B. sellotape the joint.
 - C. elongate melting point of solder.
 - D. remove dirt from the joint.
12. The following tools/materials are used for soldering works **except**;
 - A. driller.
 - B. electrodes.
 - C. lead.
 - D. soldering iron.
13. Stroboscopic effect is a defect associated with;
 - A. discharge lighting.
 - B. four plate cookers.
 - C. incandescent lamps.
 - D. ring boiler.
14. A device which initiates discharge in the discharge lamps is;
 - A. starter.
 - B. elevator.
 - C. rectifiers.
 - D. transformers.
15. Which of the following colours of light does a neon gas discharge?
 - A. Blue.
 - B. Green.
 - C. Red.
 - D. Yellow.
16. Illumination on a work bench can be measured by a/an;
 - A. calorimeter.
 - B. hydrometer.
 - C. light meter.
 - D. pyrometer.
17. Which of the following boxes is a surface wiring accessory?
 - A. Angles.
 - B. 4-ways.
 - C. Joint.
 - D. Tee.
18. Which of these is an operation in a surface work?
 - A. Bending the conduit.
 - B. Clipping the wires.
 - C. Planning the layout.
 - D. Piping.
19. Which of these is an accessory in a wiring system?
 - A. Ceiling rose.

- B. Hammer.
- C. Gimlet.
- D. Screwdriver.

20. A socket outlet is designed to make and break the;

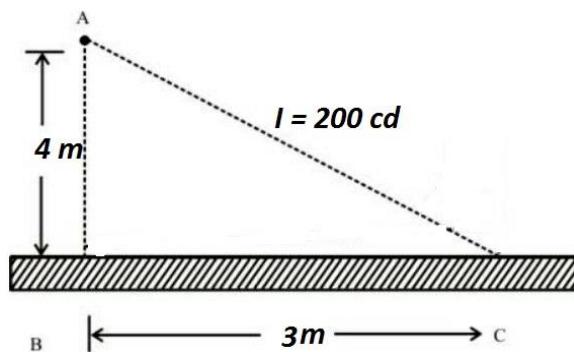
- A. earth conductor.
- B. ground conductor.
- C. live conductor.
- D. negative conductor.

21. A component used for joining of two or more cable together in a circuit is called.

- A. capacitor.
- B. collector.
- C. commutator.
- D. connector.

22. The immediate effect of a poor joint is;

- A. low resistance.
- B. electric shock.
- C. excessive heat.
- D. mechanical damage.



23. Find the illumination of a point A.

- A. 33.33 lux.
- B. 22.2 lux.
- C. 12.5 lux.
- D. 8.0 lux.

24. If the height of point A increase to 6m and the luminous intensity is increased by 60cd. What will be the illumination?

- A. 106.1 lux.
- B. 51.8 lux.
- C. 14.4 lux.
- D. 7.2 lux.

25. The diversity factor of an installation which has an actual load of 1.2kw when connected to a total load of 1.5kw is;

- A. 125%.
- B. 80%.
- C. 30%.
- D. 25%.

26. The type of instruments user to measure illumination is;

- A. photocell.
- B. photometric.
- C. photometer.
- D. potentiometer.

27. A ring circuit continuity may be protected with fuse rating of;

- A. 10 A.
- B. 20 A.
- C. 30 A.
- D. 40 A.

28. The unit of luminous intensity of a light source is;

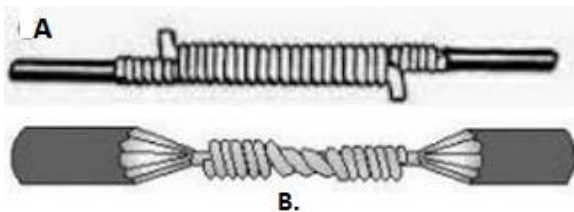
- A. lux.
- B. candela.
- C. steradian.
- D. lumen.

29. Practical lighting schemes based on lumen method take into account;

- A. utilization factor.
- B. maintenance factor.
- C. space/height factor.
- D. all of the above.

30. Joining of large cable in the township electrification can be achieved through;

- A. soldering.
- B. braising.
- C. welding.
- D. fission.



Use the diagram above to answer question 31-33.

31. What type of joint is B?

- A. Western union joint.
- B. Tee joint.
- C. Married joint.
- D. Britannia joint.

32. What type of joint is A?

- A. Scarf joint.
- B. Union joint.
- C. Britannia joint.
- D. Tee joint.

33. Which of the joint above is used under tension?

- A. A when soldered.

B. B.

C. B when soldered.

D. A and B.

34. Which of the following is **not** used in joining big cable?

- A. Soldering bit.
- B. Pot and ladle.
- C. Blow lamp.
- D. Soldering iron.

35. Water is heated in electric kettle by passing current through the;

- A. aluminum element.
- B. sodium element.
- C. nichrome element.
- D. metallic elements.

Use the information below to answer questions 36-38.

A workshop measures 10m by 12 m and height is lighted by 20 lamps of 100W each. Taking depreciation factor of 0.75, coefficient of utilization 0.6 and the lamp efficiency is 15lm/W.

36. What is the area of the workshop?

- A. 22 m²
- B. 120 m²
- C. 100 m²
- D. 20 m²

37. What is the total flux?

- A. 130 lm.
- B. 30 lm.
- C. 30, 000 lm.
- D. 300, 000 lm.

38. What is the illumination on the working plane?

- A. 12.5 *lux*.
- B. 30.5 *lux*.
- C. 112.5 *lux*.
- D. 100.5 *lux*.

39. Type of tube starter include the following **except**;

- A. glow.

B. quick.

C. thermal.

D. incandescent.

40. Light Emitting Diode (LED) works on the principle of;

- A. semi-conductor biasing.
- B. metallic heating.
- C. metal aging.
- D. electrode discharge.

PART II: THEORY PART

Instruction: Answer question **one** and any other **three**.

- 1a. With the aid of diagram only, describe how you will wire a point of light in a two-story building stair-case. 10 marks.
- 1b. Mention the materials you will need to carry out the wiring. 5 marks.
- 1c. Briefly explain how you will resolve situation when one switch control but other failed to control the bulb. 5 marks.
- 2a. With the aid of a diagram or otherwise, define a ring circuit. 1 mark.
- 2b. State **three** advantages and **two** disadvantages of the wiring method in 2a. 5marks.
- 2c. Draw the wiring diagram of **four** socket outlets connected in ring method with a rated fuse. 4 marks.
- 3a. What is Illumination? 2 marks.
- 3b. A flux of 50 lm falls perpendicularly on a surface area 100 m^2 . What is the surface illumination? 5 marks.
- 3c. State **three** advantages of radial wiring system. 3 marks.
- 4a. What is termination? 2 marks.
- 4b. List any **five** types of joints. 5 marks.
- 4c. Draw any **two** of the joints mentioned in 4b above. 3 marks.
- 5a. Define surface wiring. 2 marks.
- 5b. Mention any **three** benefits of surface wiring over conduit wiring. 3 marks.
- 5c. A workshop measures 15 m long, 9 m wide and 3 m up to trusses is to be illuminated to a level of 200 lux . Given that $\eta = 0.9$, $p = 0.8$. What is the total flux? 5 marks.
- 6a. List any **four** tools that can both be used on surface and conduit wiring. 4 marks.
- 6b. List any **three** conduit boxes. 3 marks.
- 6c. Mention **three** factors that affect electrical cables. 3 marks.

PART III: **PRACTICAL PART**

Instruction: Answer ***all*** questions.

1. Wire a point of light in series with a ceiling fan, a point of light to the joint box, to the fan regulator and switch. 20 marks.

2. With the aid of diagram only, describe how your wiring in question 1 was done.

2 marks.

3. Explain any ***three*** safety precautions needed to avoid accident while testing the wiring.

9 marks.

4. List ***three*** areas where such wiring in question can be implemented.

9 marks.

Student Name: _____