

2024 END-OF-SEMESTER EXAMS – APPLIED ELECTRICITY 2
SUBJECT: APPLIED ELECTRICITY
CLASS: SHS ONE
SECTION B
ESSAY (1 HOUR)
[50 marks]

Answer five questions only from this section.

1. i. What is a resistor? [5 marks]

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- ii. If three identical lamps are connected in parallel and the combined resistance is 150Ω , find the resistance of one lamp. [5 marks]

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2. State three differences between series and parallel circuits in terms of the following parameters:
 i. current ii. Voltage iii. Resistance.

Parameters	Series circuit	Parallel circuit

[10 marks]

3. Name three (3) factors that can affect the resistance of a conductor. [3 marks]

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- b. Calculate the resistance of a 2 km length of aluminum overhead power cable if the cross-sectional area of the cable is 100mm^2 . Take the resistivity of aluminum to be $0.03 \times 10^{-6}\Omega\text{m}$.

[4 marks]

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State three (3) differences between a conductor and an insulator.

[3 marks]

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4. A 150Ω resistor has an e.m.f of 120V, applied across it.

[3 marks]

a. Calculate how much current flows through the resistor.

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[3marks]

b. If the resistance is reduced to 50Ω , calculate the new e.m.f required to maintain the Same Current as in part (a).

[3 marks]

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c. To what value must the resistance be increased if a current of 50mA must flow when the e.m.f is 60V?

[4 marks]

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5. Three resistors of values 6Ω , 12Ω and 3Ω are connected in parallel to a 120v supply. Calculate

i. The current flowing through each resistor.

[5 marks]

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ii. The total current drawn from the supply. [5 marks]

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6. a. State and explain any two (2) qualities of good protective devices. [5 marks]

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b. Group the following under Classes A, B, C, and D fires: [5marks]

Wood, butane, gasoline, magnesium, cardboard, paper, kerosene, aluminum, propane and plastics.

CLASS				
A				
B				
C				
D				