



Grade 11

Science

Unit : 10

**POWER AND ENERGY OF ELECTRONIC APPLIANCES**

01) The correct answer for 1 kWh is,

- 1)  $3.6 \times 10^6\text{J}$                                   2)  $3.6 \times 10^5\text{J}$     3)  $3.6 \times 10^7\text{J}$     4)  $3.6 \times 10^4\text{J}$

02) The electrical equipment in house which is automatically switched off in lightening is,

- 1) Trip switch                                                          2) Multi circuit breaker  
3) Main switch                                                                  4) Electric meter

03) Unit of measuring the electrical energy used in household circuit is,

- 1) KWs                                                                          2) KWs                                                                          3) KW                                                                          4) kJh

04) 5 bulbs of 4W are used in 4 hours per day in a house find the number of electrical units (kWh) consumed during 30 days.

- 1)  $\frac{40 \times 5 \times 4 \times 30}{1000}$                                   2)  $\frac{1000}{40 \times 5 \times 4 \times 30}$     3)  $\frac{40 \times 100}{5 \times 4 \times 30}$                                   4)  $\frac{5 \times 4 \times 30}{40 \times 100}$

05) Select the correct response.

- 1)  $1\text{ kWh} = 3600\,000\text{ J}$                                                           2)  $3.6 \times 10\text{J} = 10\text{ kWh}$   
3)  $1\text{ kWh} = 3600\text{ J}$                                                                   4)  $10\text{ kWh} = 600\text{J}$

06) A 6V bicycle electric bulb draw a current 0.6A. What is the power consumed in lighting this bulb for five minutes.

- 1)  $\frac{6 \times 6 \times 5 \times 60 \times 2}{60}$                                                                                   2)  $6 \times 0.6 \times 5 \times 60$   
3)  $\frac{6 \times 0.6 \times 5 \times 60}{3600}$                                                                                   4)  $\frac{6 \times 0.6 \times 5}{60}$

07)



The figure represents a,

- i) Circuit fuse  
ii) An electricity meter  
iii) Overload circuit breaker  
iv) Bulb

08) The power of an electricity water pump is 750 W. Find the current draw by the motor which it is connected to 230V supply.

- 1) 3.0A      2) 0.32A      3) 0.6A      4) 6A

09) Select the correct relationship,

- 1) Number of KWh =  $\frac{\text{number of watts}}{1000}$  x number of hours
- 2) Number of KWh =  $\frac{\text{number of watts}}{3600}$  x number of hours
- 3) Number of KWh =  $\frac{\text{number of watts}}{1000}$  x number of hours
- 4) Number of KWh =  $\frac{\text{number of watts}}{1000 \times 3600}$  x number of hours x 60

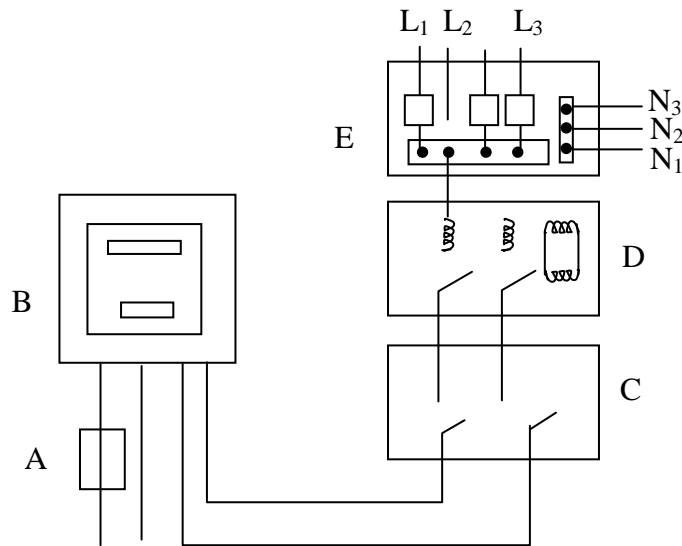
10) What is the colour which denotes earth wire,

- 1) red      2) Green      3) blue      4) violet

**STRUCTURED ESSAY QUESTION**

01) The diagram illustrates the connection of

A) Main parts of a house hold circuit.



i) Name A, B, C and D components

- A → .....      C → .....
- B → .....      D → .....

ii) Write the function of B, C and D components separately.

B → .....

C → .....

D → .....

iii) Name the wire that is connected with fuse or circuit breakers.

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iv) Write two special properties of the metal used in the fuses.

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v) What is the appliance used in modern circuits instead of fuses.

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B) Certain plugs are connected with 3 core wires,

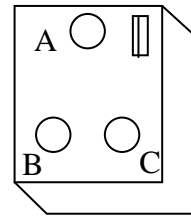
i) What are the three wires in three core wires.

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ii) Mention suitable wires for A, B and C.

A - ..... B - .....

C - .....



**STRUCTURED ESSAY**

02) a) i) What is the unit used measure electrical energy used in household circuits.

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ii) An electrical appliance of 100W is used for 300 hours. Give this in unit you mentioned.

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iii) Name two components of house wiring circuit which protect the electrical appliance from damages.

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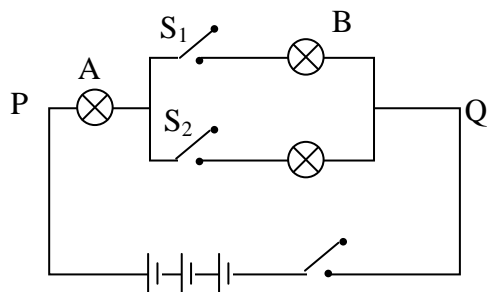
iv) Give three safety precautions in using electricity.

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b)



Above circuit is with three similar bulbs three similar cells and three switches.

- i) How many switches must be closed to flow current through the circuit?  
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- ii) What are they ? .....
- iii) If the cells connected parallelly what will happen to the luminosity of the bulbs.  
.....
- iv) Even all the bulbs are lighting luminosity of a one bulb was higher. What is that bulb.  
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- v) Find the total energy of the two bulbs which was connected parallelly. If the resistance of each bulb is  $30\Omega$ .  
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### ESSAY QUESTIONS

- 1) Draw the structure of a househouse electric circuit and name the parts of it.
- 2) After settling in a new house Isuru bought an electric motor. In the motor it was indicated  $v = 230\text{ V}$  and  $I = 8\text{A}$ 
  - i) Write down all the energy conversions taken place in the motor.
  - ii) Find the efficiency of the motor.
  - iii) If the motor works 15 minutes a day find the electrical energy spent a day.
  - iv) Therefore find the number of units in the electricity bill due to the usage of the motor.