The City School

**North Nazimabad Boys Campus**

**Second Monthly Test Session 2019 – 20**

**Class - 11**

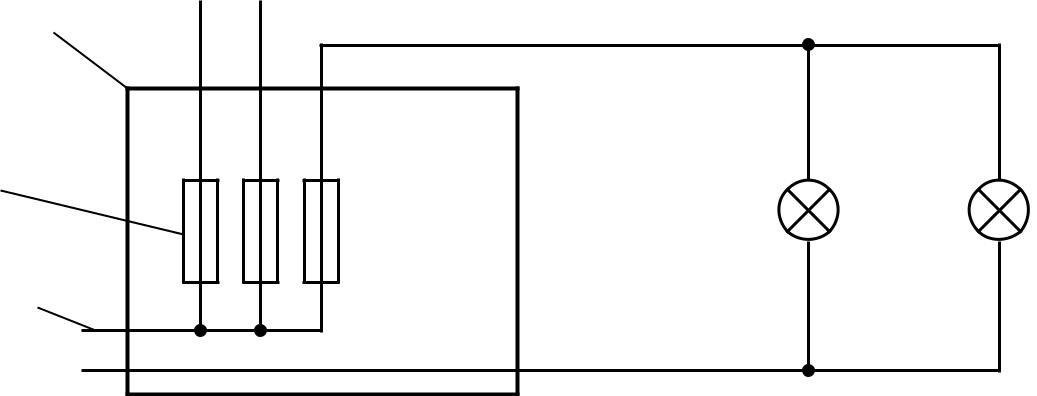
**Time: 35 Minutes Physics Marks 20**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Sec: \_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q1. A fuse is one form of protection in an electrical circuit.

* 1. State **two other** forms of protection that are included in household electrical circuits. These may protect the consumer, the circuit or an electrical appliance.

1. ....................................................................................................................................
2. .................................................................................................................................... [2]
3. Fig. 1 shows a fusebox connected to part of a lighting circuit in a house. fusebox

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fuse

wire W

Fig 1

1. State how Fig. .1 shows that wire W is the live wire.

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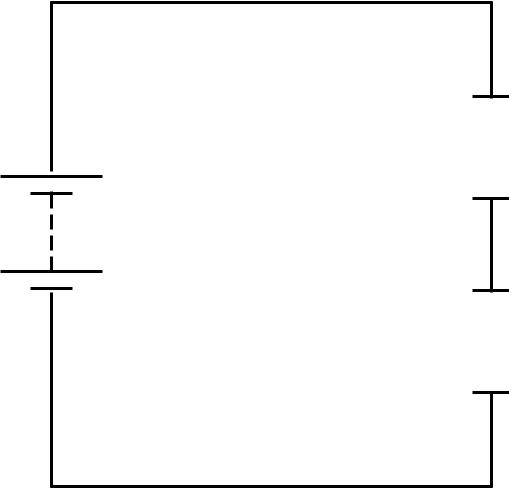
1. On Fig. .1, mark with a letter s, the correct position for a switch that controls both lamps. [1]
2. The rating of the fuse in the lighting circuit is 5 A. Explain what this means.

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Q2.A student connects a battery to two resistors. The circuit diagram is shown in Fig. 2



10 Ω

40Ω

Fig 2

The potential difference (p.d.) across the 40 Ω resistor is 9.6 V.

1. State what is meant by the *potential difference* across a resistor.

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1. **(i)** Calculate the current in the 40Ωresistor.

|  |  |
| --- | --- |
| current = ........................................................... | [3] |

1. Calculate the electromotive force (e.m.f.) of the battery.

|  |  |
| --- | --- |
| e.m.f. = ........................................................... | [2] |

1. The student has three different voltmeters to measure the p.d. across the 40 Ω resistor. These are labelled 0–2 V, 0–20 V and 0–200 V. Each has a pointer that shows the p.d. on a scale. State and explain which of the three voltmeters is best to measure this p.d.

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...............................................................................................................................................[2]

1. **(i)** Calculate the power*P* produced in the 10Ωresistor.

|  |  |
| --- | --- |
| *P* = ........................................................... | [3] |

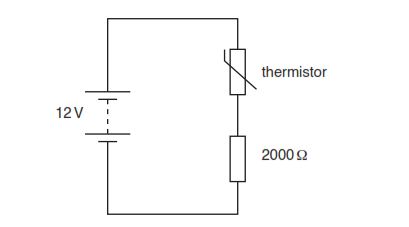
1. The student has available two 10 Ω resistors, with power ratings of 1/2*P* and 2*P.*

Suggest why a resistor with a power rating of 1/2 *P* is not suitable for the circuit in Fig. 2.

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Q3.Fig. shows a circuit diagram containing a 2000 Ω resistor of constant resistance and a thermistor.



(a) (i) At one temperature, the resistance of the thermistor is 1200 Ω.

Calculate the potential difference (p.d.) across the 2000 Ω resistor at this temperature.

p.d. = ......................................................... [2]

(ii) Explain why the p.d. across the 2000 Ω resistor increases when the temperature increases.

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