Practice Question Set For A-Level
Subject : Physics
Paper-1 Topic: Electricity

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Name of the Student:_____
Max. Marks : 24 Marks **Time :** 24 **Minutes**

Q1.

A student wishes to collect data so he can plot the *I-V* curve for a semiconductor diode.

(a) (i) Draw a suitable diagram of the circuit that would enable the student to collect this data.

(3)

(ii) Describe the procedure the student would follow in order to obtain an *I-V* curve for the semiconductor diode.

The quality of your written communication will be assessed in this question.

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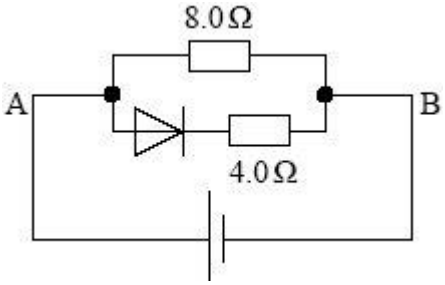
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(6)

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(b) The diagram below shows an arrangement of a semiconducting diode and two resistors.



A 12.0 V battery is connected with its positive terminal to A and negative terminal to B.

(i) Calculate the current in the 8.0 Ω resistor

_____

_____

_____

answer _____ A

(2)

(ii) Calculate the current in the 4.0 Ω resistor if the p.d. across the diode, when in forward bias, is 0.65 V expressing your answer to an appropriate number of significant figures.

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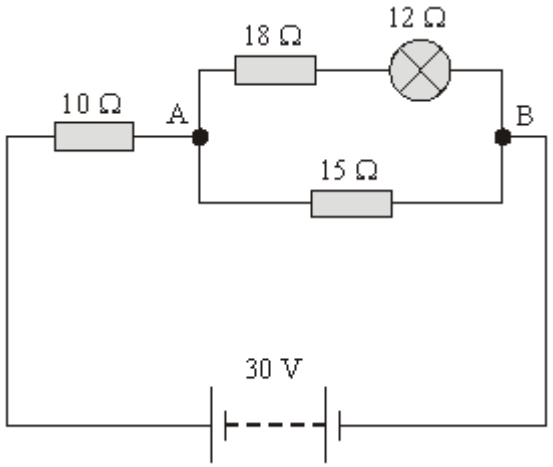
answer _____ A

(3)

(Total 14 marks)

Q2.

In the circuit shown in the figure below, the battery, of negligible internal resistance, has an emf of 30 V. The pd across the lamp is 6.0 V and its resistance is 12 Ω.



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(a) Show that the total resistance of the circuit is 20 Ω.

_____

_____

_____

_____

(3)

(b) Calculate

(i) the current supplied by the battery,

_____

_____

(ii) the pd between the points A and B,

_____

_____

(iii) the current in the lamp.

_____

_____

(4)

(c) (i) What is the power of the lamp, in W?

_____

_____

(ii) What percentage of the power supplied by the battery is dissipated in the lamp?

_____

_____

(3)

(Total 10 marks)

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