Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 10_Electricity

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Name of the Student:_____
Max. Marks : 11 Marks **Time : 11 Minutes**

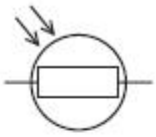
Q1.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

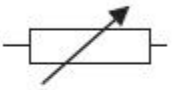
Which of these shows the correct circuit symbol for a thermistor?

(1)

☐ **A**



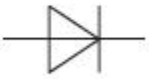
☐ **B**



☐ **C**



☐ **D**

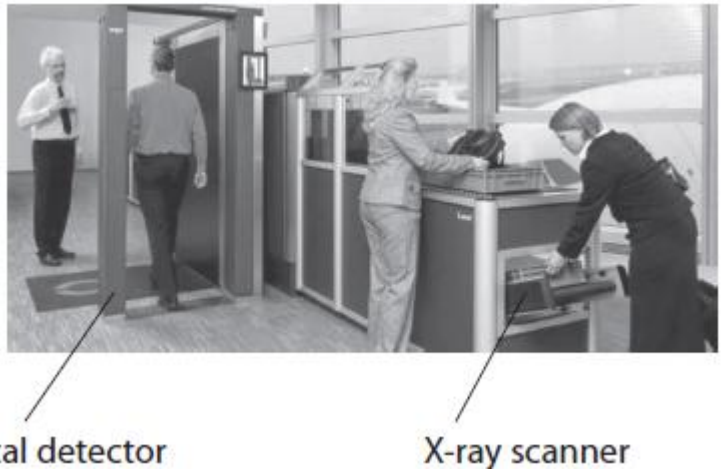


(Total for question = 1 mark)

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Q2.

The photograph shows the security check-in at an airport.



An X-ray machine is used to scan luggage for dangerous items.
A metal detector is used to check people for dangerous items.

(a) (i) Suggest why people are not scanned with X-rays in an airport but have X-rays in a hospital.

(2)

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(ii) The security people work near the X-ray machine.
Explain how they are protected from the X-rays.

(2)

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(b) X-rays are produced when fast moving electrons collide with a metal anode in a vacuum tube.

(i) The electrons come from the cathode by the process of thermionic emission.
Explain what is meant by thermionic emission.

(2)

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(ii) The current in the vacuum tube is 7.0 mA.
charge on an electron is 1.6×10^{-19} C.
Complete the sentence by putting a cross (☒) in the box next to your answer.
The number of electrons colliding with the metal anode in one second is

(1)

- ☒ **A** 2.3×10^{-20}
- ☒ **B** 2.3×10^{-17}
- ☒ **C** 4.4×10^{16}
- ☒ **D** 4.4×10^{19}

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(iii) In order to produce X-rays which can penetrate the luggage, each electron must have at least an energy of 1.4×10^{-14} J.

The charge on an electron is 1.6×10^{-19} C.

Calculate the accelerating potential difference which will produce electrons of this energy.

(3)

accelerating potential difference = ... V

(Total for Question = 10 marks)

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