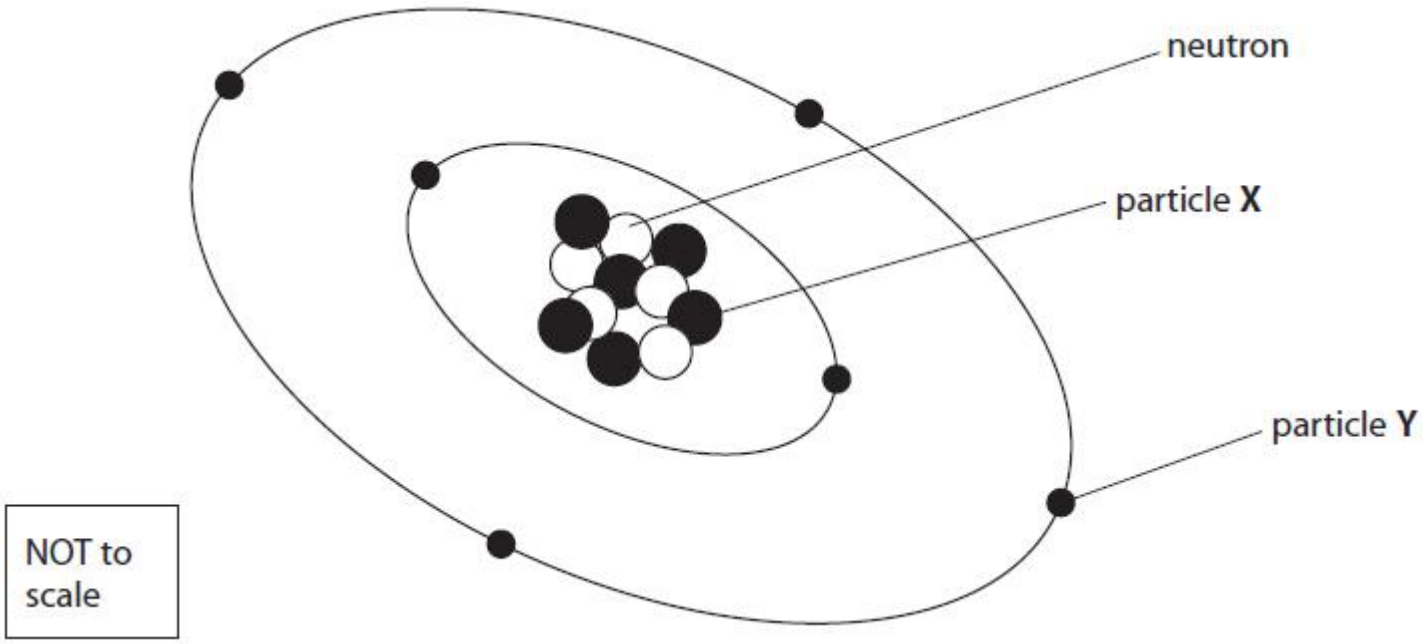
Practice Question Set For GCSE
**Subject : Physics**
**Paper-1 Topic : 6_ Radioactivity**



**Name of the Student**:_____
**Max. Marks : 25 Marks** **Time : 25 Minutes**

**Q1.**

(a) The diagram represents an atom of carbon.




(i) State the name of particle **X**.

**(1)**

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(ii) State the name of particle **Y**.

**(1)**

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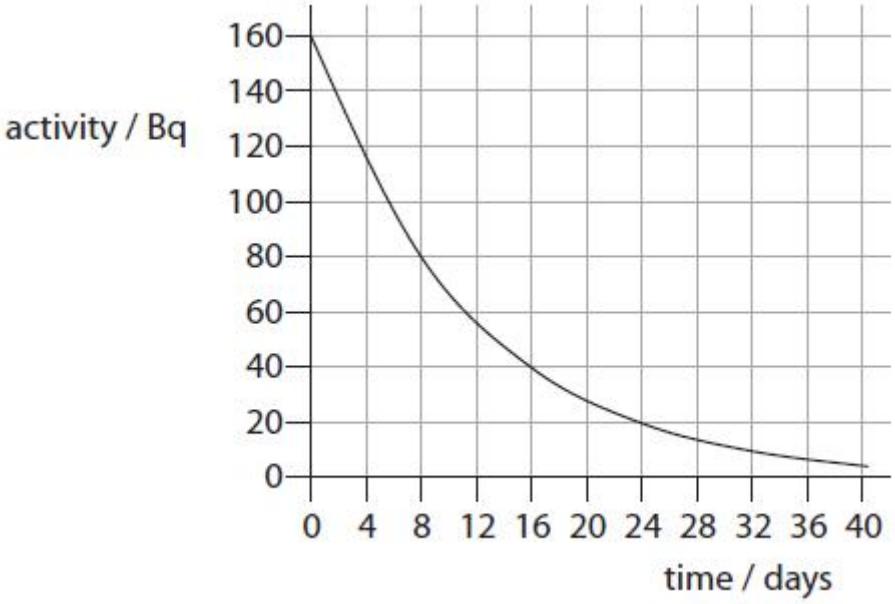
(b) Iodine-131 is a radioactive isotope of iodine.

The graph shows how the activity of a sample of iodine-131 decreases with time.




(i) Use the graph to calculate the half-life of iodine-131.

**(2)**

half-life = ..... days

(ii) Another sample of iodine-131 has an activity of 800 Bq.
Calculate how long it will take before its activity decreases to 200 Bq.

**(2)**

time = ..... days

*(c) There are plans to build more nuclear power stations to supply electricity to the National Grid.

Discuss the advantages and disadvantages of using nuclear power to generate electricity.

**(6)**

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**(Total for Question = 12 marks)**

**Q2.**

Figure 7 shows a safety sign on the door of a laboratory where radioactive materials are used.


**Figure 7**

(i) State **one** way that radioactivity can be dangerous to humans.

**(1)**

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(ii) State **one** piece of equipment that can be used to measure radioactivity.

**(1)**

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(iii) Alpha ($\alpha$) radiation and ultraviolet (UV) radiation are ionising radiations.
Give **two** other ionising radiations.

**(2)**

1 .....

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2 .....

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**(Total for question = 4 marks)**

**Q3.**

Every hospital radiographer who works with radiation wears a radiation badge.
The badge is used to monitor the amount of radiation the radiographer absorbs each month.

(i) Explain why it is important to monitor the amount of radiation a radiographer absorbs each month.

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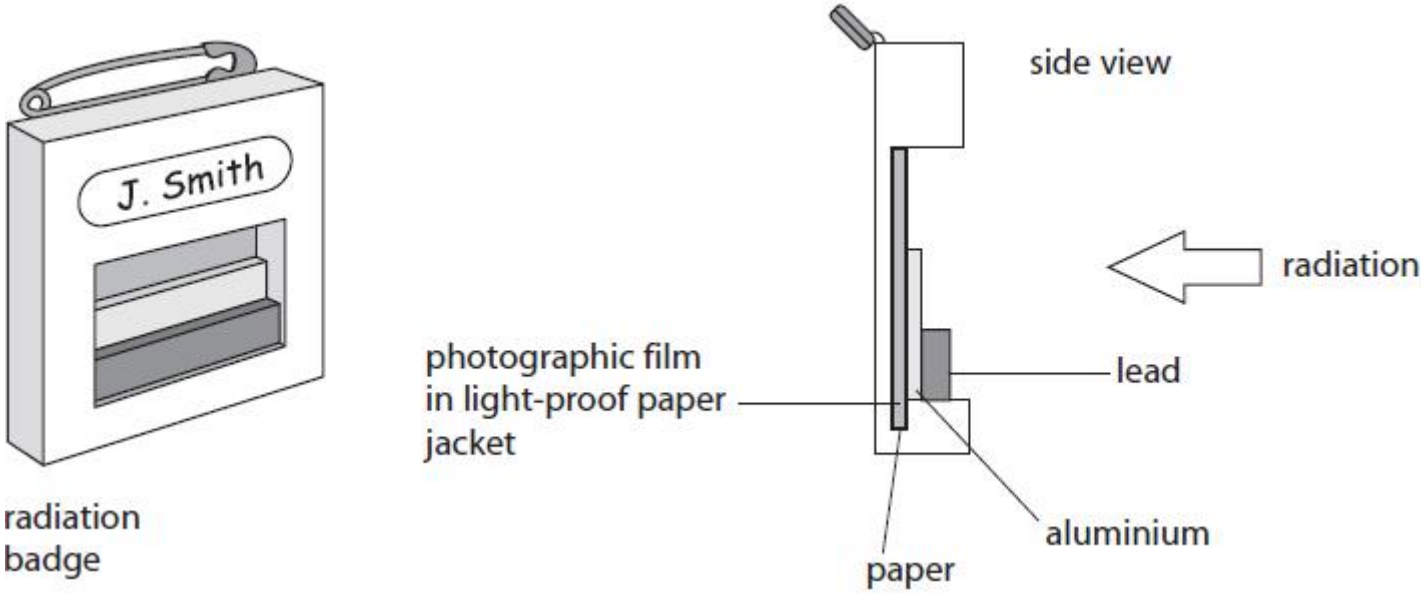
(ii) Radiographers are restricted to a smaller annual dose of radiation nowadays compared to 50 years ago.
Complete the sentence by putting a cross (☒) in the box next to your answer.

This is because nowadays,

**(1)**

- ☒ **A** the radioactive sources have decayed
- ☒ **B** we can measure radiation more accurately
- ☒ **C** we have a better understanding of the risks from radiation
- ☒ **D** we have more effective ways of shielding against radiation

*(iii) The radiation badge contains a photographic film which is sensitive to radiation.




The radiation badge is sent to a laboratory after a month and the film is checked.
Explain how the badge shows the amount of different types of radiation that the radiographer has been exposed to.

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