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GCSE Physics P7

Radioactivity

Assignment Questions

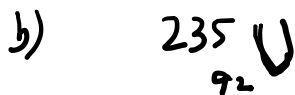
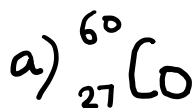
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P7: Radioactivity

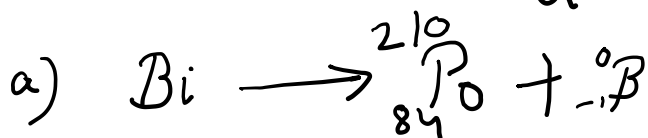
Q1: What is a radioactive substance and radioactive decay ?

Q2: With clear diagrams explain the differences between plum pudding model and Rutherford's scattering experiment.

Q3: What are isotopes? How many protons and neutrons are there in nucleus of following isotopes ?



Q4: Copy and complete the equations of following α and β decay.



Q5: Write the results of Rutherford's scattering experiment. Why nuclear model suggested by Rutherford was accepted?

Q6: ${}^{14}_6\text{C}$ emits a β particle and becomes an isotope of Nitrogen (N).

- How many protons and neutrons are in this isotope of Nitrogen?
- Write symbol of this isotope.

Q7: What is ionisation? Why ionisation radiation is dangerous?

Q8: Write any two uses of radioactive radiation.

Q9: How can workers in ionisation radiation environment can reduce their exposure to the radiations.

Q10: Copy and complete the table about properties of α , β , γ radiation.

	α	β	γ
Identity		electrons	
Stopped by			Thick lead
Range in air		About 1 m	
Relative ionisation	Very strong		

Q 11: A sample of radioactive isotope contains 640 million atoms of isotope.

- a) Calculate how many atoms are present after one half life.
- b) Calculate the number of atoms left after five half- lives.

Q12: Following measurements were made of count from a radioactive source.

Time in hours	0	0.5	1.0	1.5	2.0	2.5
Count rate (minutes)	510	414	337	276	227	188

- a) Plot a graph for count rate against time
- b) Use the graph to find the half- life of the source.