

- 7 (a) State the experimental observations that show radioactive decay is

(i) spontaneous,

..... [1]

(ii) random.

..... [1]

- (b) On Fig. 7.1, complete the charge and mass of α -particles, β -particles and γ -radiation. Give example speeds of α -particles and γ -radiation emitted by a laboratory source.

	α -particle	β -particle	γ -radiation
charge			0
mass	4u		
speed		up to $0.99c$	

Fig. 7.1

[3]

- (c) Explain the process by which α -particles lose energy when they pass through air.

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..... [2]