

## P7 Radioactivity revision questions **ANSWERS**

1	Which type of radiation is a wave and not a particle ?	Gamma
2	Which is the most ionising radiation ?	Alpha
3	Which radiation can be blocked by the skin ?	Alpha
4	Why do radioactive nuclei decay ?	They are unstable
5	Two reasons radioactive materials are harmful	They kills cells/ cause cancer ( mutate DNA)
6	If a radioactive source starts with a count rate of 400 counts. What will it be after 3 half lives ?	50 ( halve 3 times)
7	How is Carbon 14 different to Carbon 12 ?	It has 2 extra neutrons ( different mass no)
8	Write a nuclear equation to show the beta decay of Carbon 14	${}^{14}_6\text{C} \rightarrow {}^{14}_7\text{N} + {}^0_{-1}\text{e}$
9	What happened to most of the alpha particles in the scattering experiment ?	They passed through the thin gold foil
10	How is the nuclear model different to the plum pudding model ?	Tiny dense + charged nucleus, mostly space
11	Why is contamination usually more dangerous than irradiation ?	Higher doses, radioactive source closer or inside
12	Why might a doctor deliberately expose a patient to radioactivity ?	To kill cancer cells, use a tracer to see/diagnose
13	What kind of radioactive source would a doctor inject into a patient to take an image of inside of their body. Explain.	Gamma, only gamma will penetrate outside the body to be detected / imaged
14	Give two sources of background radiation	Nuclear fallout, medical Rocks, Radon, food,
15	Is background radiation safe ?	No – no level of radiation is without risk
16	Which is harder to start off Nuclear fission or nuclear fusion ? Explain.	Fusion , requires lots of energy to heat to high temp and to contain the plasma
17	Which F can lead to a chain reaction ?	Fission
18	In a nuclear reactor, how can a chain reaction be controlled ?	Using boron control rods to absorb neutrons
19	What stops nuclei fusing normally ?	Repulsion between positive charges (protons)
20	Why is fusion possible in the sun ?	Massive gravity keeps core hot and dense

