Name of the Student:_____
Max. Marks : 12 Marks **Time : 12 Minutes**

Mark Schemes

Q1.

Question Number	Answer	Additional guidance	Mark
(i)	Atoms may form positive ions by **losing** electrons. (1) The electrons involved in forming positive ions are the **outer** electrons (1)	accept any clear indication that correct word is in gap	(2)

Question Number	Answer	Mark
(ii)	The only correct answer is **C gamma** A is not correct because alpha radiation is not electromagnetic B is not correct because beta minus radiation is not electromagnetic D is not correct because neutron radiation is not electromagnetic	(1)

Question Number	Answer	Mark
(iii)	The only correct answer is **A alpha** B is not correct because beta minus travels further in air than alpha C is not correct because beta plus travels further in air than alpha D is not correct because gamma travels further in air than alpha and beta	(1)

Q2.

	Answer	Acceptable answers	Mark
(i)	A description linking the following: • neutron decays / changes / becomes (1) • (neutron) into proton (1) • (plus an) electron (1)	quark changes (quark changes) from down to up / d to u e^- (do not accept β^-) accept n and p for neutron and proton $n > p + e^-$ scores 3 marks IGNORE references to atomic and mass numbers; unstable nuclei; too many neutrons; gamma emitted	**(3)**
(ii)	An explanation linking **three** of the following: • mass number doesn't change (1) • (because) same number of nucleons / quarks (1) • atomic number goes up by one (1) • (because) there is an extra proton (1)	emitted electron mass is negligible proton and neutron have same mass a neutron has (decayed in)to a proton	**(3)**

Q3.

	Answer	Acceptable answers	Mark
(i)	A 92		**(1)**
(ii)	neutron(s) (1)	allow phonetic spelling nutron, newtron, nuetron	**(1)**