

PHYUT801 NUCLEAR PHYSICS

Item Text	Option Text 1	Option Text 2	Option Text 3	Option Text 4
The atomic mass unit is defined as	One twelfth the mass of a carbon-12 atom.	The mass of an electron.	The mass of an electron.	The mass of an electron.
If mass of proton = 1.008 amu and mass of neutron = 1.009 amu, then the binding energy per nucleon for Be(4,9) (mass = 9.012 amu) will be:	.0672MeV	.672MeV	6.72MeV	67.2 MeV
Isotopes of an element have nuclei with	the same number of protons, but different numbers of neutrons.	the same number of protons, and the same number of neutrons.	a different number of protons, and a different number of neutrons.	a different number of protons, and the same number of neutrons.
The binding energy per nucleon	increases steadily as we go to heavier elements.	decreases steadily as we go to heavier elements.	is approximately constant throughout the periodic table, except for very light nuclei.	has a maximum near iron in the periodic table.
An alpha particle is also known as	an electron.	a positron.	a helium nucleus.	a photon.
A beta particle is also known as	an electron.	a positron.	a helium nucleus.	a photon.
The existence of the neutrino was postulated in order to explain	alpha decay.	gamma emission.	fission.	beta decay.
When an alpha particle is emitted from an unstable nucleus, the atomic mass number of nucleus	decreases by two.	increases by two	increases by four.	decreases by four.
If 4000 atoms decay with a half-life of 2.3 years, how many atoms are remaining after 4.6 years?	2500	1700	1300	1000
A radioactive sample has a half-life of 5.0 min. What fraction of the sample is left after 20 min?	0.5	0.25	0.125	0.0625

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The nuclei having spherical shape has electric quadrupole moment	Zero	positive	negative	infinite
What happens to the half-life of a radioactive substance as it decays?	It remains constant.	It increases.	It decreases.	It could do any of these.
Giger-Nuttall law in radioactivity relates decay constant and ---- of alpha particle	Range	Energy	Velocity	Mass
The atomic number is not changed by which type of radioactive decay?	Beta decay	Gamma decay	Alpha decay	The atomic number is affected by all forms of radioactive decay
A nuclear fission reaction becoming self-sustaining depends on	number of available electrons	number of available Neutrons	number of available photons	number of available Protons
When two lighter atomic nuclei combine it is called as	Chain reaction	Nuclear fusion	Nuclear decay	Nuclear fission
Which statement is true for all three types of radioactive emission?	They are deflected by electric fields	(b) They ionise gases	(c) They emit light	(d) They are completely absorbed by a thin aluminium sheet
Electron Capture involves:	a neutron being ejected from the nucleus	an electron combining with neutron	an electron combining with proton	an electron being ejected from nucleus.
In Alpha Decay	Z and A are changed	Z decreases by four A decreases by two	Z decreases by two and A decreases by four	both Z and A decreases by four
Isomeric transition involves:	The emission of gamma ray	the conversion of neutron to proton	The conversion of proton to neutron	The emission of alpha followed by gamma