

19.15 QUESTIONS FROM PAST PAPERS:

Radioactivity:

Year-2012:

Q.1 Do, α , β and γ -rays comes from the same element? Why are all these three found in many radioactive substances?

Ans. A radioactive element either emits " α " or β -particles, but never both γ -emission generally accompany β -emission and in some cases with α -emission. A radioactive element is a mixture of various nuclides of different relative abundances and different modes of disintegration.

Hence we confined all three emissions in radioactive sample at the same time for example ${}_{88}\text{Ra}^{226}$ is an α -emitter while the ${}_{88}\text{Ra}^{225}$ is β -emitter.

Year 2010:

Q.2(v) Do α , β and γ - rays comes from the same elements why do we find all three in many radioactive substance?

Year 2009:

Q.8(b) What is the Half-Life of radioactive nuclei? State the law of decay and give the relation between the decay constant and the half-life.

Year 2006:

Q.7(c) State and explain the law of radioactive decay with its exponential curve.

Year 2005:

Q.8(c) With the help of a nuclear process prove that a neutron can disintegrate into an electron and a proton. Write down the conservation equations in support of your answer.

Year 2004:

Q.7(c) Define Radioactivity. Derive a relation for the Law of Radioactive Decay.

Year 2003 (P.E):

Q.8(b) Define Radioactivity and state the Law of Radioactive decay. Explain how half-life of the radioactive element can be determined.

Year 2003 (P.M):

Q.8(b) Define radioactivity and explain the law of radioactive decay.

Year 2002 (P.M):

Q.7(b) Describe the changes in parent nucleus as a result of α , β and γ emissions.

Year 2001:

Q.8(c) Define the terms radioactivity and half of a radioactive element and give the law of radioactive decay.

Nuclear Fission and Fusion:

Year 2011, 2013:

Q.2(v) Define Nuclear fission and Nuclear fusion reactions. How can the fission chain reaction be controlled? Name the process which produces energy in the sun and in nuclear reactor.

Year 2008:

Q.8(b) What is Nuclear Fission? Discuss fission chain reaction. How are moderators used to control fission in the nuclear reactors?

Year 2002 (P.E):

Q.8(b) Explain Fission Reaction.

Year 2000:

Q.8(i) Nuclear Fusion.