Contents

List of laws of radioactivity

- No external influence
- Emission of single radiation entity at a time

Affect of external factors in radioactivity

Null

Types of process expressed as radioactivity

Spontaneous

Possibility of emission of two distinct entities of radiation at the same time

Null

Alpha particle in radioactivity

Helium nucleus

Beta particle in radioactivity

Electrons of nuclear origin

Change in atomic number on emitting alpha particle

Decreases by 2

Change in mass number on emitting alpha particle

Decreases by 4

Change in atomic number on emitting beta particle

Increases by 1

Change in mass number on emitting beta particle

Remains same

Change in atomic number on emitting gamma particle

Remains same

Change in mass number on emitting gamma particle

Remains same

General expression of reaction in release of alpha radiation

$$ {}_{Z}X^{A} \longrightarrow {}_{Z-2}Y^{A-4} + {}_{2}He_{4} $$

Specific example in reaction in release of alpha radiation

$_{92}U^{238} \longrightarrow {}_{90}Th^{234} + {}_{2}He^{4}$

Atomic number of uranium

92

Mass number of uranium

238

Atomic number of thorium

90

Mass number of thorium

234

General expression of reaction in release of beta radiation

$$_{Z}X^{A} \longrightarrow {}_{Z+1}Y^{A} + \beta$$

Specific example in reaction in release of beta radiation

$$_{6}C^{14} \longrightarrow {}_{7}N^{14} + \beta$$

General expression of reaction in release of gamma radiation

$$_{Z}X^{A} \longrightarrow {}_{Z}X^{A} + \gamma$$

Specific example in reaction in release of gamma radiation

$$_{38}Sr^{87} \longrightarrow {}_{38}Sr^{87} + \gamma$$

Atomic number of strontium

38

Mass number of strontium

87