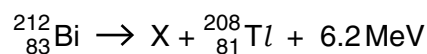


- 7 The equation represents the spontaneous radioactive decay of a nucleus of bismuth-212.



- (a) (i) Explain the meaning of *spontaneous* radioactive decay.

.....  
.....[1]

- (ii) State the constituent particles of X.

.....[1]

- (b) (i) the conservation of mass-energy to explain the release of 6.2 MeV of energy in this reaction.

.....  
.....  
.....[2]

- (ii) Calculate the energy, in joules, released in this reaction.

energy = ..... J [1]