**11-NUCLEI**

**1. Equivalent Energy, Atomic Mass, Nuclear Size and Nuclear Density**

1. Einstein’s mass-energy equivalence, E = mc2 2. 1 amu = Mass of C-12 atom 3. Nuclear radius,  where  4.  5. Average atomic mass of an element = Weighted average of the masses of all isotopes

**2. Binding Energy of a Nucleus**

1. Mass defect,  2. B.E. =  3. B.E./nucleon =  4. Packing fraction = 

**3. Radioactivity**

1. Displacement laws for radioactive transformation are as follows: (i) α – decay:  (ii) -decay:  (iii) decay:  (Excited state) (Ground state) 2. Radioactive decay law (i)  (ii)  where decay constant or disintegration constant 3. Half life  4. , where  5.Mean life:  or  6. Decay rate or activity of a substance:  7. Time required to reduce the radioactive substance  8. Decay constant: 