

MDCAT Physics Chapter 16 Nuclear Physics MCQ's Test

| Sr | Questions | Answers Choice |
|----|---|---|
| 1 | The binding energy per nucleon is: | A. Greater for heavy nuclei B. Least for heavy nuclei C. Greatest for light nuclei D. Greatest for medium nuclei |
| 2 | The fusion of hydrogen into helium is more likely to take place: | A. At high temperature and high pressure B. At high temperature and low pressure C. At low temperature and low pressure D. At low temperature and high pressure |
| 3 | If the radioactive substance reduces to $\frac{1}{8}$ of its original mass in 40 days then its half-life is: | A. 10days B. 20days C. 40days D. 4days |
| 4 | A radioactive nucleus can emit: | A. Electron B. α particles C. Positron D. Any of these |
| 5 | Nuclear fission experiments show that the neutrons the uranium nuclei into two fragment of about the same size. This process is accompanied by the emission of several: | A. Protons and positrons B. α -partilces C. neutrons D. Protons and α -partilces |
| 6 | The phenomenon of radioactivity is associated with: | A. Fission of nucleus B. Disintegration of neutrons C. Emission of spectral lines D. Spontaneous disintegration of the nuclei of atoms |
| 7 | In 420 days, the activity of a sample of polonium (Po) fell to one-eight of its initial value. The half-life of polonium is : | A. 140days B. 45days C. 87days D. 90days |
| 8 | The particles equal in mass or greater than mass of protons are called: | A. Leptons B. Mesons C. Baryons D. Quarks |
| 9 | The mother and daughter elements with the emission of α - α particles, are called: | A. Isotopes B. Isobars C. Isomers D. Isodiapheres |
| 10 | When the radioactive nucleus emits a beta particle, the proton neutron ration: | A. increases by one B. Remains same C. Decreases by one D. Decreases by four |
| 11 | α , β radiations come out of radioactive substance: | A. Spontaneously B. When it is put in a reactor C. When it is heated D. Under pressure |
| 12 | When a radioactive nucleus emits a beta particle, the proton neutron ratio: | A. Decreases B. Increases C. Remain same D. None of the above |
| 13 | In nuclear fission reaction, when the products are ^{140}X and ^{94}Sr , the number of neutrons emitted is | A. 1 B. 2 C. 5 D. 9 |
| 14 | The rate of decay radioactive substance: | A. Is constant B. Decrease exponentially with time C. Varies inversely with time D. Decrease linearly with time |

| | | |
|----|---|--|
| 15 | In an α -decay: | <p>A. The parent and daughter nuclei have same number of protons</p> <p>B. The daughter nucleus has one proton more than parent nucleus</p> <p>C. The daughter nucleus has two protons less than parent nucleus</p> <p>D. The daughter nucleus has two neutrons more than parent nucleus</p> |
| 16 | Three quarks make up a: | <p>A. Leptons</p> <p>B. Mesons</p> <p>C. Baryons</p> <p>D. Quark</p> |
| 17 | The more readily fissionable isotope of uranium has an atomic mass of: | <p>A. 220</p> <p>B. 230</p> <p>C. 235</p> <p>D. 240</p> |
| 18 | A thorium nucleus is formed when a uranium nucleus emits an α -particles. Atomic number of thorium is : | <p>A. 23</p> <p>B. 60</p> <p>C. 90</p> <p>D. 70</p> |
| 19 | The half-life of a radioactive element which has only $1/32$ of its original mass left after a lapse of 60 days is: | <p>A. 12days</p> <p>B. 10days</p> <p>C. 22days</p> <p>D. 36days</p> |
| 20 | A count rate 240 per minute reduces to 30 counts per min in 1 hour. The half-life of source is: | <p>A. 20min</p> <p>B. 60min</p> <p>C. 80min</p> <p>D. 90min</p> |