MDCAT Physics Chapter 13 Nuclear Physics of Solids Online Test

Sr	Questions	Answers Choice
1	The half-life of a radioactive element which has only 1//32 of its original mass left after a lapse of 60 days is:	A. 12days B. 10days C. 22days D. 36days
2	Beta particles have penetration of about:	A. 100 times more than that of the gamma particles B. 100 times less than that of an alpha ray C. 100 times more than that of an alpha ray D. 10 times more than that of an alpha particle
3	When a radioactive nucleus remits a beta particle, the proton neutron ratio:	A. Decreases B. Increases C. Remain same D. None of the above
4	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
5	Which row is correct for fission and for fusion?	A. Produces larger nuclei B. Produces larger nuclei C. Produces smaller nuclei D. Produces smaller nuclei
6	Three quarks make up a:	A. Leptons B. Mesons C. Baryons D. Quark
7	A radioactive nucleus can emit:	A. Electron B. □ particles C. Positron D. Any of these
8	A thorium nucleus is formed when a uranium nucleus emits an □ −particles. Atomic number of thorium is :	A. 23 B. 60 C. 90 D. 70
9	The particles equal in mass or greater than mass of protons are called:	A. Leptons B. Mesons C. Baryons D. Quarks
10	When a radioactive nucleus emits a □ −paritcles, the mass number of the atom:	A. Increases by one B. Decreases by one C. Remains the same D. Decreases by four
11	A radioactive substance has a half-life of 4 months. Three-fourths of the substance will decay in:	A. 5months B. 6months C. 8months D. 7months
12	The number of electrons in a nucleus X of atomic number Z and mass number A is:	A. A B. W C. Z D. Y
13	Beta particles have less ionizing power than that of alpha particles because:	A. Their smaller energy B. Their smaller mass C. Their smaller density D. Their smaller charge
14	The more readily fissionable isotope of uranium has an atomic mass of:	A. 220 B. 230 C. 235 D. 240

15	The example of nuclear fusion is:	A. Formation of barium and krypton from uranium B. Formation of plutonium -235 from uranium -235 C. Formation of helium from hydrogen D. Formation of water from hydrogen and oxygen
16	For atomic nucleus, the binding energy per nucleon with increase in mass number:	A. Increases continuously B. Remains same C. Decrease continuously D. First increases and then decreases with increase in mass number
17	The rate of decay radioactive substance:	A. Is constant B. Decrease exponentially with time C. Varies inversely with time D. Decrease linearly with time
18	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
19	During a negative β-decayv	A. An atomic electron is ejected B. A neutron in the nucleus decays emitting an electron C. An electron which already present within the nucleus is ejected D. A part of binding energy of nuclei is converted into electron
20	In an □ −decay:	A. The parent and daughter nuclei have same number of protons B. The daughter nucleus has one proton more than parent nucleus C. The daughter nucleus has two protons less than parent nucleus D. The daughter nucleus has two neutrons more than parent nucleus
21	□, □ □□□ radiations come out of radioactive substance:	A. Spontaneously B. When it is put in a reactor C. When it is heated D. Under pressure
22	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
23	The most penetrating radiations out of the following is that of	A. □-rays B. β-rays C. α-particles D. X-rays
24	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
25	If the radioactive substance reduces to □ □□ PHYSICS of its original mass in 40 days then its half-life is:	A. 10days B. 20days C. 40days D. 4days
26	Because of large mass when □ −paricle enters the atom or molecule it:	A. Moves in zigzag path B. Moves along straight line C. Moves along circular path D. None of these
27	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
28	Which of the following have maximum ionization power?	A. □ −rays B. □ −rays C. □ −rays D. Same for all
		A. 20min

29	A count rate 240 per minute reduces to 30 counts per min in 1 hour. The half-life of source is:	A. 20min B. 60min C. 80min D. 90min
30	The activity of a radioactive sample is 1.6 curie and half-life is 2.5 days. Its activity after 10 days will be:	A. 0.8 Curie B. 0.1Curie C. 0.4 Curie D. 0.16 Curie
31	During a negative β-decay	A. An atomic electron is ejected B. A neutron in the nucleus decays emitting an electron C. An electron which already present within the nucleus is ejected D. A part of binding energy of nuclei is converted into electron
32	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. □ −partilces C. neutrons D. Protons and □ −partilces
33	A radioactive isotope □□□ □ decays consecutively to □□□ □ the particles emitted are:	A. One □ and one □ B. Two □ and one □ C. e □ and two □ D. Two □ and two □
34	In nuclear fission reaction, when the products are 140X and 94Sr, the number of neutrons emitted is	A. 1 B. 2 C. 5 D. 9
35	The half-life of a certain element is 3.5 days at STP. If the temperature is doubled and pressure is reduced to half then half-life of the same element will be:	A. 1.75 days B. 3.5 days C. 7 days D. 14 days
36	The mother and daughter elements with the emission of □ − □□□□, are called:	A. Isotopes B. Isobars C. Isomers D. Isodiapheres
37	Half-life of radon gas is:	A. 1620 years B. 3.8 days C. 7 days D. 11 days
38	The uranium Nucleus □□□ □ undergoes successive decays, emitting respectively □ − □□□,□ − □□□ □□□ − □□□□. What is the atomic number and atomic mass of the resulting nucleus:	A. 90, 238 B. 91, 234 C. 92, 236 D. 92, 238
39	Due to emission of □+ − □□□□:	A. Mass of the nucleus increases B. Mass of the nucleus decreases C. Charge on the nucleus increases D. Charge number decreases