ECAT Physics Chapter 21 Nuclear Physics Online Test

Sr	Questions	Answers Choice
1	A particle having the mass of electron and charge of a proton is called a	A. photon B. position C. antiproton D. antineutrino
2	U-238 present in the natural uranium is about:	A. 59% B. 0.007% C. 99% D. 39% E. 19%
3	When radioactive nucleus emits aβ-particle, the proton-neutron ratio	A. decrease B. increase C. same D. none of these
4	γ-rays behave like a particle because they explain the	A. Compton effect B. Photoelectric effect C. Pair-production D. all the above
5	The isotope/s of hydrogen is /are:	A. Protium B. Deuterium C. Tritium D. Both (A) and (B) E. All of these
6	The diameter of an atom is of the order	A. 10⁻¹²⁵m B. 10⁻¹¹m C. 10⁻¹⁰m D. 10⁻⁹m
7	Charge on proton is	A. 1.59 x 10⁻⁹C B. 1.59 x 10⁻⁷C C. -1.59 x 10⁻¹⁹C D. 1.59 x 10⁻¹⁹C
8	If a nucleus emits an alpha particle, its mass number decreases by 4 while charge number decreased by	A. -4 B. 4 C. 2 D. 1
9	The mass of the nucleus is always less than the total man of the protons and neutron that make up the nucleus. The difference of the two masses is called	A. nuclear fission B. nuclear fusion C. man defect D. radioactivity
10	Phenomenon of radioactivity is due to disintegration of	A. nucleus B. neutron C. proton D. molecule
11	The half life of uranium-238 is	A. 6.2 x 10⁹years B. 4.5 x 10⁹days C. 4.5 x 10⁹years D. 1.3 x 10⁶years
12	In his experiment on nuclear reactions, Rutherford bombardedα particles on:	A. Nitrogen B. Hydrogen C. Lead D. Oxygen E. Krypton
13	Nucleus consists of	A. proton and neutron B. protons and electron C. electron and neutron D. protons only
14	How much time, theα-particle more massive than an electron	A. 600 B. 7000 C. 5000 D. 15000
		A. 1000 times

15	The range ofβ-particle in air is greater than that ofα-particle by	B. 100 times C. 15 times D. 10 times
16	Nucleon means:	A. Only electrons B. Only neutrons C. Only protons D. Both (A) and (C) E. Both (B) and (C)
17	The half lie of radium-226 is	A. 238 years B. 4.5 x 10⁹days C. 1620 years D. 332 years
18	Charge on neutron is	A. 1.6 x 10⁻¹⁹C B. zero C. -1.6 x 10⁻¹⁹C D. 1.2 x 10⁻¹⁹C
19	Nuclei that have the same charge number but different mass number are called	A. isotones B. isomers C. isotopes D. isobars
20	The number if neutrons in the nucleus of $_{92}U^{235}$are	A. Infinite B. 92 C. 235 D. 143
21	Neutron was disvovered by:	A. Rutherford in 1920 B. Chadwick in 1922 C. Bohr in 1913 D. Compton in 1927 E. None of these
22	The missing mass which is converted to energy in the formation of nucleus, is called	A. packing fraction B. mass defect C. binding energy D. none of these
23	The counter, which also provides the power to the G.M. tube is called:	A. Thin mica window B. thin glass window C. Airy window D. Wooden window E. None of these
24	The number of all the protons and neutrons in a nucleus is known as	A. atomic number B. mass number C. charge number D. none of these
25	Radioactivity	A. is exhibited more by semiconductors in general B. in exhibited more by the element when they are coupled C. with other radioactive elements by a covalent bond D. is an atomic property of radioactive elements
26	Electrons are	A. positive charged B. negatively charged C. massless D. neutral
27	Radiation detector are used to	A. measure intensity of radiation B. measure energy of radiation C. difference between different types of radiation D. all the above
28	The penetration power ofβ-particle is	A. zero B. less thanα-particle C. equal toα-particle D. greater thanα-particle
29	The nuclei of an element having the same charge number but different mass numbers are	A. Isobars B. Isotopes C. Isomers

	called:	D. Isobaric E. Isothermal
30	During the nuclear changes, the law/s of conservation that hold/s are that of:	A. Charge B. energy C. Momentum D. Mass E. All of these
31	Binding energy per nucleus is	A. greater for heavy nucleus B. least for heavy nucleus C. greatest for light nuclei D. decreases for medium weight niclei
32	Rate of decay is actually described by.	A. Half line B. Decay constant C. Mean life D. Total life E. None of these
33	In 1932 Chadwick discovered	A. proton B. neutron C. photon D. electron
34	Neutron was discovered by	A. Curie B. Roentgen C. Chadwick D. Rutherford
35	Neutrons are	A. positive charge B. negatively charged C. massless D. neutral
36	Neon gas have three isotopes whose atomic numbers are	A. 20, 24 , 23 B. 20, 21 , 22 C. 20, 19 , 21 D. none of these
37	Heavy water is made of one oxygen atom and two atoms of:	A. Protium B. Deuterium C. Tritium D. Any of these E. None of these
38	Neutron was discovered in	A. 1915 B. 1920 C. 1925 D. 1932
39	In radio-active decay, the original element which disintegrate to another element is called	A. element B. daughter element C. parent element D. none of these
40	The total charge of any nucleus is given as	A. Ze² B. Z²e C. Z/e D. Ze
41	Neutron was suggested to be in the nucleus by:	A. Rutherford in 1920 B. Bohar in 1913 C. Dirac in 1928 D. Anderson in 1932 E. None of these
42	For an atom having atomic number 'Z' and atomic weight 'A', the number of neutrons in the nucleous is	A. A - Z B. A C. Z D. A + Z
43	In wilson cloud chamber, the air becomes saturated with:	A. Alcohol vapours B. Water C. Helium gas D. Nitrogen gas E. None of these
44	A pair of quark and antiquark makes a:	A. Meson B. Baryon C. Proton D. Neutron E. None of these
45	Different radioactive material have	A. same half lives B. different half lives C. same mean lives D. same total lives

46	In radioactive decay, the new element which is formed due to the disintegration of original element is called	A. element B. daughter element C. parent element D. none of these
47	When thorium nucleus emits aβ-particle, the daughter nucleus is called:	A. Protactinium B. Actinium C. Uranium D. Radium E. Redon
48	If 'V' is the relativistic speed and 'C' is the speed of light then according to Einstien the factor V/C must always be	A. Equal to 1 B. Less than 1 C. Greater than 1 D. Infinity
49	Hydrogen atom with only one proton in its nucleus, and one electron in its orbit is called	A. deuteron B. deterium C. protium D. tritium
50	When a charged particle passes through matter, it produces ionization, this effect is used in	A. fission reaction B. reactor C. radiation detector D. fusion reaction
51	Radium was discovered by:	A. Becquerel B. Marie curie C. Pierre curie D. Rutherford E. Both (B) and (C)
52	The unit of decay constant is	A. sex B. sec² C. sec⁻¹ D. sec⁻²
53	For an atom having atomic number Z and atomic weight A, the charge on the nucleus is	A. A - Z B. A + Z C. Z D. A
54	Referring to the above figure, we can say that of all the elements, the most stable element is	A. Phosphours B. Iron C. uranium D. Lithium E. Bismuth
55	The rate of decay of radioactive substance	A. is constant B. decrease exponentially with time C. varies inversely as time D. decreases linearly with time
56	The number of isotopes of hydrogen are	A. 2 B. 1 C. 3 D. 4
57	The figure 1.007276μ shows the mass of an:	A. Atom B. Positron C. Electron D. Neutron E. Proton
58	Mass of proton is	A. 1.67 x 10⁻²⁷kg B. 1.67 x 10⁻³¹kg C. 1.66 x 10⁻³⁴kg D. 1.67 x 10⁻¹⁷kg
59	The most abundant isotope of neon is	A. neon-20 B. neon-21 C. neon-22 D. neon-23
60	Hydrogen atom with only one proton and one neutron in its nucleus, and one electron, is called	A. deuterium B. protium C. tritium D. none of these
61	The unit of decay constant is:	A. Second B. Metre C. Hour D. Year E. Second⁻¹
62	The range of particle depends upon the factor	A. charge, mass and energy of particle B. density of medium

		C. ionization potential of the atoms D. all the above
63	The chemical behaviour of an atom is determined by	A. binding energy B. atomic number C. mass number D. number of isotopes
64	For an atom having atomic number Z and atomic weight A, the number of electron in an atoms	A. A - Z B. A + Z C. Z D. A
65	Alfa , beta and gamma rays are emitted from a radio-active substance	A. spontaneously B. when it is heated C. when it is exposed to light D. When it interacts with the other particle
66	Radioactivity was discovered by:	A. Becquerel B. Marie curie C. Pierre curie D. All of them E. None of these
67	Which are not the elementary particles?	A. Photons B. Leptons C. Hadrons D. Quarks E. None of these
68	1 amu is equal to.	A. 1.66 x 10⁻²⁴kg B. 1.66 x 10⁻¹⁹kg C. 1.66 x 10⁻²⁴kg D. 1.66 x 10⁻²⁷kg
69	According to Rutherford atomic model, the positive charge in an atom	A. is concentrated at its centre B. is in the form of positive electron at same distance from its centre C. is spread uniformly through its volume D. none of these
70	Referring to the above figure, the binding energy per nucleon increases upto mass number equal to:	A. 50 B. 100 C. 150 D. 200 E. 250
71	The nucleus/nuclei of hydrogen is/are:	A. Proton B. Deuteron C. Triton D. All of these E. None of these
72	After alpha decay the atomic number of the atom	A. increase by four B. decreases by two C. increases by two D. decrease by four
73	The energy acquired by a mass of 1g moving with the speed of light is	A. 3 x 10⁸J B. 9 x 10¹³J C. 3 x 10¹³J D. 9 x 10¹⁶J
74	The number of protons inside a nucleus is called	A. mass number B. atomic weight C. atomic number D. none of these
75	The distance travelled byα-particle in a medium before coming to rest, is called	A. range ofγ-particle B. range of neutrons C. range of particle D. none of these
76	Which of these is not a radiation detector	A. Wilson cloud chamber B. cyclotron acceleration C. Geiger Miller counter D. solid state detector
77	For Protium, the mass defect is:	A. Infinite B. Zero C. Very large D. A few grams E. None of these

78	Three quarks make:	A. An electron B. A meson C. A baryon D. A photon E. None of these
79	A curie represents a very strong source of	A. α-particle B. β-particle C. γ-particle D. none of these
80	When a nucleus emits an alpha particle, it atomic mass decreased by	A. 2 B. 1 C. 4 D. 3
81	Curie is a unit of	A. reluctance B. resistivity C. binding energy D. radioactivity
82	How many isotopes of helium are present?	A. 1 B. 2 C. 3 D. 4
83	β-particles are easily deflected by collisions than heavy	A. α-particles B. β-particles C. γ-particles D. none of these
84	Rutherford performed an experiment on nuclear reactions in:	A. 1718 A.D B. 1818 A.D C. 1918 A.D D. 2001 A.D. E. 1701 A.D.
85	The nucleus left after the emission of some radiation is called:	A. Parent nucleus B. Daughter necleus C. Mother necleus D. Any of these E. None of these
86	Marie curie and Pierre curie discovered:	A. Uranium B. Polonium C. Radium D. Both (A) and (C) E. Plutonium
87	1 amu is equal to	A. 1.66 x 10⁻²⁴kg B. 1.66 x 10⁻¹⁹kg C. 1.66 x 10⁻³⁴kg D. 1.66 x 10⁻²⁷kg
88	The chemical properties of all the isotopes of an elements are	A. same B. different C. slightly different D. none of these
89	The half life of radioactive substances depends upon	A. amount of substance B. energy of substance C. state of substance D. temperature of substance
90	The reciprocal of decay constant λ of a radioactive material is:	A. Frequency B. Half life C. Year D. Mean life E. None of these
91	The rate of decay of a radioactive substance	A. decrease exponentially with time B. decreases linearly with time C. increases linearly with time D. increases exponentially with time
[illegible]	[illegible]	A. Water B. Heavy water

92	Examples of moderators used in a fission reactor is/are:	C. Carbon D. Hydrocarbon E. All of these
93	The nucleous of uranium -235 differs from a nucleous of a uranium -238 in that the later contains	A. 3 more neutrons B. 3 more electrons C. 3 more protons D. 3 more ions
94	The energy is found from Einstein's mass energy relation is called	A. binding energy of electron B. binding energy of proton C. binding energy of neutron D. binding energy of nucleus
95	Structure of the nucleus was explained by	A. J.J Thomson B. Bohr C. Millikan D. Rutherford
96	Fraction of the decaying atoms per unit time is called	A. decay atom B. decay element C. decay constant D. decay
97	A mass spectrograph sort out	A. molecules B. atoms C. elements D. isotopes
98	γ-rays are	A. electrostatic waves B. electromagnetic waves C. heavy particles D. longitudinal waves
99	When certain nucleus emits aβ-particles, is mass number:	A. Remain same B. Increases by one C. Decreases by one D. Decreases by four E. None of these
100	Maric Curie and Pieree Curie discovered two new radioactive elements, which are called	A. polonium uranium B. uranium and radium C. polonium and radium D. none of these
101	Pair production take place when energy ofγ-rays photon is	A. equal to 1.02 Mev- B. greater than 1.02 Mev C. less than 1.02 Mev D. none of these
102	The chemical properties of an element depends upon the number of	A. electron B. position C. photons D. neutrons
103	Mass of neutron is	A. 1.67 x 10⁻³¹kg B. 1.67 x 10⁻²⁷kg C. 9.1 x 10⁻³¹kg D. 1.67 x 10⁻19kg
104	When a nucleus emits an alpha particles, its charge number decreases by	A. 3 B. 2 C. 6 D. 5
105	Mass of proton is of order of	A. 10⁻³¹gm B. 10⁻²⁷kg C. 10⁻²⁴gm D. 10⁺²⁷kg
106	Proton was discovered by Rutherford in	A. 1915 B. 1906 C. 1910 D. 1920
107	Gamma rays consist of steam of	A. electron B. proton C. photons D. all of these
108	Alfa particles are	A. hydrogen nuclei B. helium nuclei C. electrons D. photons
109	The amount of energy equivalent to 1 a.m.u is	A. 9.315 Mev B. 93.15 Mev C. 931.5 Mev D. 2.22 Mev

110	There is present in paraffin a large amount of:	A. Nitrogen B. Hydrogen C. Carbon D. Baryllium E. Lithium
111	Radioactivity was discovered by	A. Rutherford B. Henri Becqureal C. Maxwell D. James Chadwick
112	Nucleus of a hydrogen atom may contain:	A. One neutron only B. Two protons and one neutron C. Two protons and two neutrons D. Aany of above E. One proton only
113	The time required for a radioactive material to decrease in active by one half is called	A. half time B. half life C. disintegration time D. mean life
114	Which of the following material has smaller has life	A. uranium B. polonium C. radium D. radian
115	A mass difference of 0.0012 u is equivalent to and energy of:	A. 0.5 Me V B. 1.13 MeV C. 5.13 MeV D. 1.13 keV E. 1.13 eV
116	Radioactivity is	A. self disruptive activity B. spontaneous activity C. exhibited by all elements under proper conditions D. both 'a' and 'b'
117	The emission of radiations take place in elements, having charge number greater than	A. 109 B. 82 C. 69 D. 52
118	When certain nucleus emits anα particle, its mass number:	A. Increases by one B. Decreases by one C. Remain same D. Decreases by four E. None of these
119	Beta particles are	A. hydrogen nuclei B. helium nuclei C. electrons D. photons
120	An alpha particle has a charge of	A. +2e B. -2e C. -e D. +3e
121	Which of the following material has longer half life	A. radium B. polonium C. radium D. uranium