ECAT Pre General Science Physics Chapter 21 Nuclear Physics Online Test

Sr	Questions	Answers Choice
1	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
2	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
3	A pair of quark and antiquark makes a:	A. Meson B. Baryon C. Proton D. Neutron E. None of these
4	Nucleon means:	A. Only electrons B. Only neutrons C. Only protons D. Both (A) and (C) E. Both (B) and (C)
5	When radioactive nucleus emits aβ-particle, the proton-neutron ratio	A. decrease B. increase C. same D. none of these
6	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
7	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
8	Alfa particles are	A. hydrogen nuclei B. helium nuclei C. electrons D. photons
9	Mass of proton is of order of	A. 10⁻³¹gm B. 10⁻²⁷kg C. 10⁻²⁴gm D. 10⁺²⁷kg
10	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
11	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
12	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
13	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
14	Charge on neutron is	A. 1.6 x 10⁻¹⁹C B. zero C. -1.6 x 10⁻¹⁹C D. 1.2 x 10⁻¹⁹C
		A. -4

15	If a nucleus emits an alpha particle, its mass number decreases by 4 while charge number decreased by	B. 4 C. 2 D. 1
16	Neutrons are	A. positive charge B. negatively charged C. massless D. neutral
17	Structure of the nucleus was explained by	A. J.J Thomson B. Bohr C. Millikan D. Rutherford
18	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
19	For Protium, the mass defect is:	A. Infinite B. Zero C. Very large D. A few grams E. None of these
20	The number of isotopes of hydrogen are	A. 2 B. 1 C. 3 D. 4
21	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
22	Radioactivity was discovered by	A. Rutherford B. Henri Becqureal C. Maxwell D. James Chadwick
23	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
24	Curie is a unit of	A. reluctance B. resistivity C. binding energy D. radioactivity
25	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
26	Beta particles are	A. hydrogen nuclei B. helium nuclei C. electrons D. photons
27	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
28	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
29	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
30	The half life of radioactive substances depends upon	A. amount of substance B. energy of substance C. state of substance D. temperature of substance
31	The diameter of an atom is of the order	A. 10⁻¹²⁵m B. 10⁻¹¹m C. 10⁻¹⁰m D. 10⁻⁹m
		A. Thin mica window

32	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
33	Three quarks make:	A. An electron B. A meson C. A baryon D. A photon E. None of these
34	U-238 present in the natural uranium is about:	A. 59% B. 0.007% C. 99% D. 39% E. 19%
35	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
36	Radium was discovered by:	A. Becquerel B. Marie curie C. Pierre curie D. Rutherford E. Both (B) and (C)
37	The total charge of any nucleus is given as	A. Ze² B. Z²e C. Z/e D. Ze
38	Proton was discovered by Rutherford in	A. 1915 B. 1906 C. 1910 D. 1920
39	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
40	Neutron was discovered in	A. 1915 B. 1920 C. 1925 D. 1932
41	The penetration power ofβ-particle is	A. zero B. less thanα-particle C. equal toα-particle D. greater thanα-particle
42	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
43	The chemical properties of an element depends upon the number of	A. electron B. position C. photons D. neutrons
44	Fraction of the decaying atoms per unit time is called	A. decay atom B. decay element C. decay constant D. decay
45	Phenomenon of radioactivity is due to disintegration of	A. nucleus B. neutron C. proton D. molecule
46	The half lie of radium-226 is	A. 238 years B. 4.5 x 10⁹days C. 1620 years D. 332 years

47	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
48	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
49	A mass spectrograph sort out	A. molecules B. atoms C. elements D. isotopes
50	The chemical properties of all the isotopes of an elements are	A. same B. different C. slightly different D. none of these
51	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
52	When a nucleus emits an alpha particles, its charge number decreases by	A. 3 B. 2 C. 6 D. 5
53	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
54	A curie represents a very strong source of	A. α-particle B. β-particle C. γ-particle D. none of these
55	Marie curie and Pierre curie discovered:	A. Uranium B. Polonium C. Radium D. Both (A) and (C) E. Plutonium
56	How much time, theα-particle more massive than an electron	A. 600 B. 7000 C. 5000 D. 15000
57	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.
58	When a nucleus emits an alpha particle, it atomic mass decreased by	A. 2 B. 1 C. 4 D. 3
59	Gamma rays consist of steam of	A. electron B. proton C. photons D. all of these
60	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
61	The nucleus/nuclei of hydrogen is/are:	A. Proton B. Deuteron C. Triton D. All of these E. None of these

62	The most abundant isotope of neon is	A. neon-20 B. neon-21 C. neon-22 D. neon-23
63	When thorium nucleus emits aβ-particle, the daughter nucleus is called:	A. Protactinium B. Actinium C. Uranium D. Radium E. Redon
64	There is present in paraffin a large amount of:	A. Nitrogen B. Hydrogen C. Carbon D. Baryllium E. Lithium
65	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
66	An alpha particle has a charge of	A. +2e B. -2e C. -e D. +3e
67	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
68	A particle having the mass of electron and charge of a proton is called a	A. photon B. position C. antiproton D. antineutrino
69	The range ofβ-particle in air is greater than that ofα-particle by	A. 1000 times B. 100 times C. 15 times D. 10 times
70	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
71	Examples of moderators used in a fission reactor is/are:	A. Water B. Heavy water C. Carbon D. Hydrocarbon E. All of these
72	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
73	In wilson cloud chamber, the air becomes saturated with:	A. Alcohol vapours B. Water C. Helium gas D. Nitrogen gas E. None of these
74	Different radioactive material have	A. same half lives B. different half lives C. same mean lives D. same total lives
75	The number of protons inside a nucleus is called	A. mass number B. atomic weight C. atomic number D. none of these
76	β-particles are easily deflected by collisions than heavy	A. α-particles B. β-particles C. γ-particles D. none of these
		A. isotones B. isomers

77	Nuclei that have the same charge number but different mass number are called	C. isotopes D. isobars
78	In 1932 Chadwick discovered	A. proton B. neutron C. photon D. electron
79	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
80	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
81	Neutron was discovered by	A. Curie B. Roentgen C. Chadwick D. Rutherford
82	Which of the following material has longer half life	A. radium B. polonium C. radium D. uranium
83	The nuclei of an element having the same charge number but different mass numbers are called:	A. Isobars B. Isotopes C. Isomers D. Isobaric E. Isothermal
84	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
85	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
86	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
87	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
88	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
89	The figure 1.007276μ shows the mass of an:	A. Atom B. Positron C. Electron D. Neutron E. Proton
90	γ-rays are	A. electrostatic waves B. electromagnetic waves C. heavy particles D. longitudinal waves
91	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
92	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
		A. Increases by one

93	When certain nucleus emits anα particle, its mass number:	B. Decreases by one C. Remain same D. Decreases by four E. None of these
94	Which of the following material has smaller has life	A. uranium B. polonium C. radium D. radian
95	In his experiment on nuclear reactions, Rutherford bombardedα particles on:	A. Nitrogen B. Hydrogen C. Lead D. Oxygen E. Krypton
96	The unit of decay constant is:	A. Second B. Metre C. Hour D. Year E. Second⁻¹
97	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
98	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
99	Radioactivity is	A. self disruptive activity B. spontaneous activity C. exhibited by all elements under proper conditions D. both 'a' and 'b'
100	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
101	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
102	The unit of decay constant is	A. sex B. sec² C. sec⁻¹ D. sec⁻²
103	How many isotopes of helium are present?	A. 1 B. 2 C. 3 D. 4
104	Nucleus consists of	A. proton and neutron B. protons and electron C. electron and neutron D. protons only
105	The chemical behaviour of an atom is determined by	A. binding energy B. atomic number C. mass number D. number of isotopes
106	The isotope/s of hydrogen is /are:	A. Protium B. Deuterium C. Tritium D. Both (A) and (B) E. All of these
107	Neutron was disvovered by:	A. Rutherford in 1920 B. Chadwick in 1922 C. Bohr in 1913 D. Compton in 1927 E. None of these
108	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
		A. Compton effect B. Photoelectric effect

109	γ-rays behave like a particle because they explain the	C. Pair-production D. all the above
110	The number if neutrons in the nucleus of $_{92}U^{235}$ are	A. Infinite B. 92 C. 235 D. 143
111	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
112	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
113	Which of these is not a radiation detector	A. Wilson cloud chamber B. cyclotron acceleration C. Geiger Miller counter D. solid state detector
114	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
115	Radioactivity was discovered by:	A. Becquerel B. Marie curie C. Pierre curie D. All of them E. None of these
116	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
117	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
118	Rate of decay is actually described by.	A. Half line B. Decay constant C. Mean life D. Total life E. None of these
119	The emission of radiations take place in elements, having charge number greater than	A. 109 B. 82 C. 69 D. 52
120	Which are not the elementary particles?	A. Photons B. Leptons C. Hadrons D. Quarks E. None of these
121	Electrons are	A. positive charged B. negatively charged C. massless D. neutral