

Physics ECAT Pre Engineering Chapter 19 Dawn of Modern Physics Physics Online Test

Sr	Questions	Answers Choice
1	0.1 kg mass will be equivalent to the energy	A. 9×10^{15} J B. 5×10^8 J C. 6×10^{16} J D. 9×10^{-16} J
2	Electromagnetic radiation or photons interact with matter in	A. two distinct ways B. three distinct ways C. four distinct ways D. five distinct ways
3	S.I. unit of planks constant is	A. $J \cdot s^{-1}$ B. J.s C. $J \cdot s^{-2}$ D. $J \cdot s^2$
4	The value of threshold frequency for different metals is	A. different B. same C. may be different or may be same D. none of these
5	The intensity of emitted energy (with wavelength) radiated from a black body at different temperatures was initially measured by:	A. Lummer B. Planck C. Pringsheim D. Both (A) and (B) E. Both (A) and (C)
6	The special theory of relativity is based on:	A. Four postulates B. Three postulates C. Two postulates D. One postulate E. None of these
7	Photoelectrons are emitted when ultraviolet light falls on:	A. Casium B. Silver C. Potassium D. Any of these E. None of these
8	If a material object moves with the speed of light 'C' its mass becomes	A. Equal to its rest mass B. Four times of its rest mass C. Double of its rest mass D. Infinite
9	As the light shines on the metal surface, the electrons are ejected	A. slowly B. instantaneously C. either of these D. none of these
10	Photoelectric effect takes place with a photon of:	A. Very high energy B. Very low energy C. Low energy D. High energy E. None of these
11	Wien's constant is measured in:	A. Metre per kelvin B. Metre kelvin C. Kelvin per meter D. Joules E. Dynes
12	The concept of direction and position are purely	A. absolute B. relative C. absolute or relative D. none of these
13	Electromagnetic -radiation means:	A. Photons B. protons C. Electrons D. Mesons E. None of these
14	With the help of 50 K v electron microscope, a resolution of	A. 0.5 to 1 m to possible B. 1 m to 10 m is possible C. 0.5 to 1 nm is possible D. 10 m to 100 m is possible

		U. 1 to 10 nm is possible
15	There is no way to detect:	A. Absolute uniform motion B. Accelerated motion C. State rest D. State of motion E. None of these
16	Strictly speaking, the earth is:	A. An accelerated frame of reference B. A non-inertial frame of reference C. An inertial frame of reference D. ^{A non-accelerated frame of reference} E. Both (A) and (B)
17	The inside cavity of the black body is	A. painted white B. painted silver C. blackened with soot D. painted red
18	The way through which electromagnetic radiations or photons interact with matter depends upon their:	A. Wavelength B. Frequency C. Energy D. Temperature E. All of these
19	The special theory of relatively treats the problems involving:	A. Inertial frames of reference B. Non-inertial frames C. Non-accelerated frame D. Both (A) and (C) E. Both (B) and (C)
20	the symbol to be used in relativity problems denotes:	A. Dilated time B. Proper time C. Life time D. Half time E. None of these
21	Which of the following is not an example of inertial frame	A. a body placed on the surface of earth B. a body placed in a car moving with uniform velocity C. a body placed in a car moving with same acceleration D. none of these
22	Compton derived an expression to find Compton shift by applying to the process, the law of conservation of:	A. Energy only B. Momentum only C. Mass only D. Charge only E. Both (A) and (B)
23	If a body reaches a speed equal to the speed of light, then its mass will become	A. zero B. very small C. infinity D. none of these
24	The Nobel Prize on the explanation of photoelectric effect was awarded to:	A. Max. Planck B. Maxwell C. Bohr D. Rutherford E. None of these
25	Newton's law of motion do not hold in	A. an accelerated frame of reference B. an unaccelerated frame of reference C. both of these D. none of these
26	Which one of the following physical quantities changes with relativistic speed	A. Length B. Mass C. Time D. All of the above
27	According to Einstein, with the great increase in the speed of the body, the relativistic mass of the body	A. Remains constant B. Decreases C. Increases to infinity D. Reduced to zero
28	The analysis of the distribution of wavelengths of the radiation emitted from a hot body set the foundation of new mechanics, known as	A. classical mechanics B. Newtonian mechanics C. quantum mechanics D. statistical mechanics
29	When a positron comes close to an electron they annihilate into	A. one photon B. two photons which travel in the same direction C. two photons which travel in the opposite direction D. two photons which travel in any

		D. two photons which travel in any direction
30	Davison and Germer performed experiment to verify	A. de-Broglie hypothesis B. theory of relativity C. Newton's law of gravitation D. Mass-energy relation
31	The energy of photon 'E' is propoorted to	A. The magnetic field H B. The electric field E C. Both the electric and magnetic field H and E D. Frequency
32	According to the electromagnetic wave theory of light, increasing the intensity of incident light should increase the	A. number of photoelectrons B. size of the photoelectrons C. charge on photoelectrons D. K.E of photoelectrons
33	If the radius of first orbit of hydrogen atom is 0.53 \AA the radius of second orbit will be	A. 2.120 \AA B. 0.212 \AA C. 21.2 \AA D. 0.14 \AA
34	There is certain frequency below which no electrons are emitted from the metal surface, this frequency is known as	A. maximum frequency B. minimum frequency C. threshold frequency D. all of these
35	A non-inertial frame of reference is one, in which	A. law of inertial is valid B. all laws of physics are the same in all frames C. $a \neq 0$ D. $a = 0$
36	Which of the following phenomenon proves the particle nature of light	A. interference B. diffraction C. photoelectric effect D. none of these
37	According to the special theory of relativity	A. mass and energy are same entities B. mass and energy are same entities but interconvertible C. mass and energy are different entities but interconvertible D. mass and energy are different entities but non-interconvertible
38	When a positron comes close to an electron they annihilate into photons such that	A. each photon has energy 0.51 MeV B. each photon has energy 1.02 MeV C. each photon has energy 0.25 MeV D. none of these
39	Photocell is a device which converts	A. chemical energy into electrical energy B. electrical energy into light energy C. heat energy into electrical energy D. light energy into electrical energy
40	In photoelectric effect the energy of ejected electrons depend on	A. The frequency B. The intensity C. Both frequency and intensity D. None of these
41	Current, voltage, resistance measuring circuit is connected with the galvanometer with the help of switch, known as	A. ON switch B. off switch C. function switch D. none of these
42	The length contraction happens only	A. Opposite to the direction of motion B. along the direction of motion C. perpendicular to the direction of motion D. In any direction
43	A bar 1.0 m in length and located along x-axis moves with a speed of $0.75 c$ with respect to a stationary observer. The length of the bar as measured by the stationary observer is	A. 1.66 m B. 1.0 m C. 0.66 m

		D. 2.66 m
44	de-Broglies hypthesis was experimentally verified by	A. Maxwell B. Compton C. Einstein D. Davison and Germer
45	The year when A.H. compton was awarded Nobel Prize is:	A. 1923 B. 1927 C. 1931 D. 1935 E. None of these
46	When a platinum wire is heated, it appears dull red at about	A. 500°C B. 900°C C. 1100°C D. 1300°C
47	Max Planck received the Nobel Prize for his discovery of energy quants in:	A. 1718 AD B. 1918 AH C. 1818 AD D. 1918 AD E. None of these
48	The photon of radio-waves has energy of about	A. 1 Me V B. 1 Ke v C. 10^{-10} e v D. 10^{10} e v
49	When the atomic particle are moving with velocities approaching that of light:	A. Newton's laws become valid B. Relativistic effects become prominent C. Both(A) and (B) are valid D. Neither (A)nor (B) E. There mass becomes zero.
50	Victor de-Brogile received the Nobel prize in physics in	A. 1925 B. 1929 C. 1932 D. 1935
51	The value of the plank's constant 'h' is given by	A. 1.6×10^{-19} J B. 1.67×10^{-27} Kg C. 6.63×10^{34} Js D. 6.63×10^{-34} Js
52	The special theory of relativity is based on the	A. one postulate B. two postulates C. three postulates D. four postulates
53	Albert Einstein got the Nobel prize in physics for his explanation of photoelectric effect in	A. 1916 B. 1919 C. 1921 D. 1923
54	The ratio of energy E to the corresponding frequency (f) of the radiation (emitted or absorbed) is called:	A. Wien's constant B. Stefen's constnat C. Planck's constant D. Boltzmann's constant E. None of these
55	As compared to the distance measured by an observer on Earth, the distance from Earth to a star measured by an observer in a moving spaceship would seem:	A. Smaller B. Lenger C. Same D. Much larger E. None of these
56	The special theory of relativity treats problems invoving	A. inertial frame of references B. accelerating frame of references C. both of these D. none of these
57	In the compton's effect, it is found that the wavelength of incident x-rays is	A. greater than the wavelength of scattered x-rays B. equal to the wavelength of scattered x-rays C. less than the wavelength of scattered x-rays D. any one of these
58	The Stephen-Boltzmann law for the black body radiation is given by	A. $E = T^2$ B. $E = -T^2$ C. $E = T^4$ D. $E = -T^4$
59	According to Einstein, with the great increase in the speed of the body the relativistic length of the body:	A. Remains constant B. Decreases C. Increases

	of the body	C. increases D. Reduces to zero
60	Max plank founded a mathematical model resulting in an equation that describes the shape of observed black body radiation curves exactly, in	A. 1890 B. 1895 C. 1900 D. 1905
61	In process of annihilation of matter, the two photons produced move in opposite direction to converse	A. momentum B. charge C. energy D. mass
62	In order to produce pair production, a photon must have a energy	A. 0.511 Me v B. 0.256 Me v C. 1.02 Me v D. 0.956 Me v
63	At the temperature, a body emits radiation which is principally	A. of long wavelengths in the visible region B. of long wavelengths in the invisible infrared region C. of short wavelength in invisible ultraviolet region D. none of these
64	The general theory of relativity treats problems involving	A. inertial frame of references B. accelerating frame of references C. both of these D. none of these
65	The threshold frequency of sodium is 6×10^6 MHz. The cut-off wavelength for this metal will be	A. 500 m B. 500 nm C. 500 km D. 500 cm E. None of these
66	The idea of quantization of energy was proposed by:	A. Einstein B. Max. Planck C. Maxwell D. Bohr E. Rutherford
67	Due to relative motion of observer and the frame of reference of events, time always:	A. Dilates itself B. Contracts itself C. Stretches itself D. Both (A) and (C) E. None of these
68	If you are moving at relativistic speed between two points that are a fixed distance apart, then the distance between the two points appers	A. larger B. shorter C. equal D. none of these
69	the dilation of time applies to the timing processes which are:	A. Physical B. Chemical C. Biological D. All of these E. None of these
70	If A represents linear momentum and c, the velocity of light, then unit of pc in international system of units is:	A. Newton B. Joule C. Joule-Sec D. Joule-s ⁻¹ E. Watt
71	According to the Max plank, energy is redialed or absorbed in	A. discrete packets B. continuous waves C. either of them D. none of these
72	When platinum wire is heated, then at the temperature of 500 °C, it becomes:	A. Yellow B. Orange red C. Dull red D. White E. Cherry red
73	When low energy photon interact with a metal, which of the following effect is likely to be taken place	A. pair production B. photoelectric C. Compton effect D. None of these
74	A particle having mass and charge equal to that of an electron is called:	A. Proton B. Positron C. Pion D. Pi-meson E. Both (C) and (D)
		A. Joule

75	The unit of work function is:	B. Electron volt C. That of threshold frequency D. Both (A) and (B) E. None of these
76	The energy of a photon is represented by	A. $\frac{h}{c}v^2$ B. $\frac{h}{T}$ C. $hc\lambda^2$ D. hf/c^2
77	An inertial frame of reference is a frame of reference which is	A. at rest B. moving with uniform velocity C. either at rest or moving with uniform velocity D. none of these
78	When a platinum wire is heated, it appears yellow at	A. 1600°C B. 900°C C. 1100°C D. 1300°C
79	Momentum is a parameter associated with	A. wave motion B. particle motion C. neither wave nor particle motion D. none of these
80	An inertial frame is that frame in which	A. $a > 0$ B. $a = 0$ C. $a < 0$ D. none of these
81	Position and momentum of a particle cannot both be measured simultaneously with perfect accuracy. This is the statement of	A. photoelectric effect B. pair production C. Compton effect D. uncertainty principle
82	The mass 'm' of a body moving at 0.8 c (whose rest mass is m_0) becomes	A. 2 m_0 B. 1.67 m_0 C. 0.67 m_0 D. 2.67 m_0
83	The energy of the 4th orbit in hydrogen atom is	A. 2.5 eV B. - 3.5 eV C. -0.85 eV D. -13.6 eV
84	A photon is considered to have	A. Momentum B. Energy C. Wavelength D. All of the above
85	The speed of a pendulum is measured to be 3.0 s in the inertial reference frame of the pendulum. What is its period measured by an observer moving at a speed of 0.95 c with respect to the pendulum	A. 2.9 s B. 3.0 s C. 6.6 s D. 9.6 s
86	According to the special theory of relativity, time is	A. absolute quantity B. not absolute quantity C. constant quantity D. none of these
87	According to the special theory of relativity, a moving clock	A. runs faster B. runs slower C. neither runs faster nor slower D. all of these
88	A high temperature, the proportion of shorter wavelengths radiation, emitted by the body	A. decreases B. first increases then decreases C. increases D. any one of them
89	The mass of an object will be doubled at speed	A. $1.6 \times 10^8 \text{ ms}^{-1}$ B. $2.6 \times 10^8 \text{ ms}^{-1}$ C. $2.6 \times 10^7 \text{ ms}^{-1}$ D. $2.6 \times 10^9 \text{ ms}^{-1}$
90	When monochromatic light is allowed to fall on cathode, it begins to emit electrons, these electrons are called	A. thermoionic electrons B. free electrons C. photoelectrons D. slow electrons
91	G.P. Thomson observed experimentally that electrons and neutrons possess	A. particle-like properties B. wave-like properties C. neither particle nor wave like properties

		D. none of these
92	When a platinum wire is heated, it appears white at	<p>A. 1600°C</p> <p>B. 900°C</p> <p>C. 1100°C</p> <p>D. 1300°C</p>
93	The whole shape of the black body spectrum for all wavelengths was explained by the formula proposed by	<p>A. Max plank</p> <p>B. Newton</p> <p>C. Einstein</p> <p>D. J.J. Thomson</p>
94	Position was discovered by Carl Anderson in	<p>A. 1920</p> <p>B. 1925</p> <p>C. 1928</p> <p>D. 1932</p>
95	The positron was discovered by:	<p>A. In cosmic radiation</p> <p>B. In 1932</p> <p>C. By Carl Anderson</p> <p>D. All above</p> <p>E. By direc</p>
96	Pair production is the phenomenon in which	<p>A. matter is converted into energy</p> <p>B. energy is converted into matter</p> <p>C. light is converted into electrical energy</p> <p>D. electrical energy is converted into light</p>
97	The nature of radiations emitted by a hot body depends upon its:	<p>A. Metarial</p> <p>B. Temperature</p> <p>C. colour</p> <p>D. Volume</p> <p>E. Length</p>
98	An electron is accelerated through a potential difference of 50v. its de-Brogile wavelength is	<p>A. 1.66×10^{-29} m</p> <p>B. 1.74×10^{-10} cm</p> <p>C. 17.4×10^{-6} m</p> <p>D. 1.74×10^{-10} m</p>
99	Absolute motion cannot be detected	<p>A. in its own frame of references</p> <p>B. in a different frame of references</p> <p>C. both in its frame and different frame of references</p> <p>D. none of these</p>
100	When platinum wire is heated, it appears cherry red at	<p>A. 1600°C</p> <p>B. 900°C</p> <p>C. 1100°C</p> <p>D. 1300°C</p>
101	The value of the Stephen's constant for black body radiations is given by	<p>A. $5.6 \times 10^{8} \text{ Wm}^{-2} \text{ K}^{-4}$</p> <p>B. $5.67 \times 10^{-8} \text{ Wm}^{-2} \text{ K}^{-4}$</p> <p>C. $2.9 \times 10^{-3} \text{ mK}$</p> <p>D. $2.9 \times 10^{3} \text{ mK}$</p>
102	The emission of electrons from a metal surface when exposed to light of suitable frequency is called the	<p>A. pair production</p> <p>B. Compton effect</p> <p>C. photoelectric effect</p> <p>D. relativity</p>
103	The Einstein's changes in length, mass and time are not observed in common life because	<p>A. We dont observer then seriously</p> <p>B. The masses are too large</p> <p>C. Their speed is too small than the speed of right</p> <p>D. All of the above</p>
104	Compton was awarded Nobel prize in physics in	<p>A. 1921</p> <p>B. 1923</p> <p>C. 1925</p>

105	According to the de-Broglie relation, an object of large mass and ordinary speed has	A. very small wavelength B. very large wavelength C. very small frequency D. all of these
106	Converse of pair production is known as	A. Compton effect B. annihilation of matter C. photoelectric effect D. none of these
107	Compton studied the scattering of x-rays by loosely bound electrons from:	A. NaCl crystal B. Graphite crystal C. Zirconia D. Copper crystal E. None of these
108	The stopping voltage for a certain metal is 100 volts, then the work function for the cathode plate is	A. 100 J B. 1.6×10^{-17} J C. 100 eV D. 1.6×10^{-17} eV
109	Practically the quantity v/c is always:	A. less than one B. Equal to one C. Greater than one D. all of these E. None of these
110	Compton shift refers to:	A. Photon B. Meson C. Proton D. Positron E. Both (B) and (D)
111	From the theory of relativity, momentum p of the photon is related to energy as	A. $p = h\nu/c$ B. $p = hf/c$ C. $p = f(h\nu/c)$ D. $p = cf/h$
112	Max plank received the Nobel Prize in physics for his discovery of energy quanta in	A. 1900 B. 1906 C. 1912 D. 1918
113	The energy of a photon in a beam of infrared radiation of wavelength 1240 nm is	A. 100 eV B. 10^6 eV C. 10^3 eV D. 1.0 eV
114	Intensity of light determines the:	A. Energy of each photon B. Number of photons C. Speed of photons D. Size of photons E. None of these
115	When a platinum wire is heated, it appears orange red at	A. 500°C B. 900°C C. 1100°C D. 1300°C
116	The photoelectric effect, the maximum energy of photoelectrons depends on the	A. particular metal surface B. frequency of incident light C. both of them D. none of them
117	The existence of positron was predicted by Dirac in	A. 1920 B. 1925 C. 1930 D. 1928
118	A particle of mass 5.0 mg moves with a speed of 8.0 m/s. Its de-Broglie wavelength is	A. 1.66 m B. 1.66×10^{-10} m C. 1.66×10^{-29} cm D. 1.66×10^{-29} m
119	When a high energy photon interacts with a metal, which of the following effect is most likely to be taken place	A. pair production B. photoelectric effect C. Compton effect D. None of these

120	A black body is	A. an ideal absorber B. an ideal radiator C. both of them D. none of them
121	The location and speed anywhere on earth can now be determined using relativistic effects by NAVISTAR to an accuracy of	A. 2 cm/s B. 20 cm/s C. 200 cm/s D. 2000 cm/s
122	The concept of direction is purely:	A. Absolute B. Relative C. Relative to stars always D. Relative to the sun always E. None of these
123	Wave nature of particle was proposed by	A. Einstein B. Plank C. De-Brogile D. Max well