MDCAT Physics Chapter 12 Atomic spectra Induction Online Test

Sr	Questions	Answers Choice
1	If an electron is accelerated such that its K.E is 4 times of its rest mass energythen thetotal relativistic energy of electrons is about	A. 5 × 10–12 J B. 4 × 10–13 J C. 3 × 10–13 J D. 6 × 10–12 J
2	A proton, accelerated through a p.d V has a certain de Broglie wavelength. In order to have the same de Broglie wavelength, an □ −particles must be accelerated through a potential difference:	A. 4V B. 8V C. V/4 D. V/8
3	Choose incorrect about properties of photon	A. Rest mass of photon is zero B. A photon is never at rest C. Photon is not deflected by electric field not by magnetic field D. The velocity of photon is different in different media
4	The minimum energy required to remove an electron is called:	A. Stopping potential B. Work function C. Kinetic energy D. None of these
5	Ultraviolet radiation of 6.2 eV falls on an aluminium surface having work function ⌀ = □. □ □□. The kinetic energy of the fastest electron emitted is:	A. 4 eV B. 2 eV C. 2.2 eV D. 1.2 eV
6	Which of the following is not true?	A. The Lyman series is a continuous spectrum B. The Ballmer series is a line spectrum in the visible region C. The Paschen series is a line spectrum in the infrared region D. The spectral series formula can be derived from Rutherford's model of the hydrogen atom 18. The photoelectric effect is the ejection of
7	Continuous spectrum of X-rays id due to an effect known as	A. Photoelectric effect B. Compton effect C. Heisenberg effect D. Bremsstrahlung
8	A proton and an □ − □□□□□□□□ are accelerated through same voltage, the ratio of their de- Broglie wavelength will be:	A. 1:2 B. √2: 1 C. 2√2: 1 D. 2:1
9	The ratio of the longest and shortest wavelength of the Lyman series is approximately:	A. 4/3 B. 9/4 C. 9/5 D. 16/7
10	Temperature of black body radiating at 270c is increased to 327oc, then emittedenergywill increase by	A. 2 times B. 12 times C. 16 times D. 4 times
11	The hydrogen atoms are excited to the stationary state designated by the principal quantum number n=4, the number of maximum spectral lines are observe:	A. 2 B. 3 C. 4 D. 6
12	In photo electric cell, the photo electric current	A. Decreases with increase in frequency of light B. Depends on intensity and frequency of light C. Does not depend upon the frequency of light and but depends upon intensity of light D. Increases with increase in frequency of light
		A. Cause of ionization in air when

13	For X-rays which of the following is not correct:	they pass through it B. Can be deflected by electric and magnetic fields C. Can be used to detect flaws in metal casting D. Travel with the speed of light
14	Work function of all metals varies from 2 eV to 4eV. It is 4.2 eV for Aluminum and2eV for Sodium. If these two metals are illuminated by same light, the thresholdfrequency ofAluminum is	A. Less than Sodium B. Equal to that of Sodium C. Grater than Sodium D. Can't be decided
15	When an electron in an atom goes from a lower to higher its:	A. K.E. increases, P.E. decreases B. K.E. increases C. P.E increases D. K.E. decrease, P.E. increases
16	Threshold wavelength for metal having work function □ is □. What is the threshold wavelength for metal having work function 2 □□:	A. /□ B. 2 C. 4 D. □/□
17	Figure represents a graph of kinetic energy (K) of the photoelectrons (in eV) and frequency (v) for a metal used as cathode in photoelectric experiment. The work function of metal is:	A. 1 eV B. 2 eV C. 1.5 eV D. 3 eV
18	Which one is the correct express of de-Broglie equation for the length of atoms of mass m at temp? T(k=Boltzmann's constant):	A.
19	electrons from the surface of a metal when:	A. It is heated to a high temperature B. Radiation of suitable wavelength falls on it C. Electrons of suitable velocity strike it D. It is placed in a strong electric field
20	Intensity of light from a point source at the edge of unit sphere will be:	A. □ B. □ C. P(4π) D. 4□
21	A photo cell receives light from a source at 50 cm away and produces 40mAcurrent inthe circuit. When the same source at is at distance 1 m from photo cell,current in the circuit will be	A. 20 mA B. 80mA C. 60 mA D. 10 mA
22	de-Broglie wavelength associated with an electron moving at a speed of 1x106 ms-1 is	A. 4x10-10 ms-1 B. 5x10-10 m C. 6x10-10 m D. 7x10-10 m
23	The momentum of the moving photon is:	A. Zero B. *h* C. □ D. *h*□
24	According to Bohr's theory, a line in the Ballmer series arises when the electron jumps from any of the higher orbits to the orbit with quantum number:	A. 1 B. 2 C. 3 D. 4
25	Light of frequency 4f0 is incident on the metal of the threshold frequency f0. The maximum kinetic energy of the emitted photoelectrons is	A. 3h f0 B. 3/2h f0 C. 2h f0 D. 1/2h f0
26	Maximum speed of electrons in X-rays tube which is producing X-rays photons of frequency f is	
27	As the intensity of incident light increases:	A. Photoelectric current increases B. Photoelectric current decreases C. Kinetic energy of emitted photoelectrons increases D. Kinetic energy of emitted photoelectrons decreases
28	Light of frequency 2 times the threshold frequency is incident on the metalsurface. Ifthe frequency is by quartered and intensity is doubled, the photoelectric becomes	A. Quadrupled B. Zero C. Doubled D. Halved
29	In which region of the electromagnetic spectrum does the Lyman series of hydrogen atom lie?	A. Infrared B. Visible C. Ultraviolet D. X-rays
30	What is the momentum of a photon of light of wavelength 500 nm in kgm/s:	A. 1.32 × 10−21 B. 1.32 × 10−23

	What is the momentum of a photon of light of wavelength 500 nm in kg/m/s.	C. 1.32 × 10−25 D. 1.32 × 10−27
31	Monochromatic light of wavelength 300 nm is incident normally on a surface of area 4 cm2. If the intensity of light is 150 mW/m2; the rate at which photon strike the surface:	A. 2.53 × 1019 B. 7.5 × 1019 C. 9.1 × 1013 D. 2.53 × 1013
32	The potential difference applied to an X-rays tube is increased. As a result, in the emitted radiation	A. The intensity increases B. The minimum wavelength decrease C. The intensity remains unchanged D. Both B & C
33	Light of frequency 1.5 times the threshold frequency is incident on a photo sensitive material. If the frequency is halved and intensity is doubled the photo electric current becomes	A. Four times B. Half C. Double D. Zero
34	The maximum energy of the electrons released in a photo cell is independent of:	A. Frequency of incident light B. Intensity of incident light C. Nature of cathode rays D. None of these
35	In electron microscope, we use high speed electrons because them	A. Penetration power is higher B. Wavelength is smaller C. Frequency is smaller D. K.E is smaller
36	The frequency and work function of an incident photon are n and□□. If f0 is the threshold frequency, then necessary condition for the emission of photo electron is:	A. < □0 B. □ ≥ □0 C. f = □0/2 D. None of these
37	What will be the number of photons emitted per second by 25 W source of monochromatic light of wavelength 600 nm:	A. 7.5 × 1017 B. 7.5 × 1019 C. 5.5 × 1019 D. 5.5 × 1017
38	The threshold frequency depends on the nature on:	A. Natural frequency B. Photosensitive anode C. Photosensitive cathode D. Photon
39	The Balmer series is found in the spectrum of:	A. Hydrogen B. Nitrogen C. Oxygen D. All
40	When ultraviolet rays are incident in metal plate, then photoelectric effect does not occur. It occurs by the incidence of:	A. x-rays B. Infrared rays C. Radio wave D. Greenhouse effect
41	An electron in the n=1 orbit hydrogen atom is bound by 13.6 eV. If a hydrogen atom is in the n=3 state, how much energy is required to ionize it:	A. 13.6 eV B. 4.53 eV C. 3.4 eV D. 1.51eV
42	The de-Broglie wavelength of the particle of mass m and energy E is:	B. *h* C. □ = *h*√2□□ D. □ = 1
43	Which of the following statement is true about soft X-rays?	A. They have large wavelength B. They have high energy C. They have low energy D. Both A and C
44	Of electron of 50 keV strike a heavy target. Then radiation emitted by target will be	A. Visible light B. Radio waves C. Ultraviolet D. None of these
45	An electron and a proton are accelerated through the same potential. If their masses are me and mp respectively, then the ratio of their de-Broglie wavelength is:	A. 1 B. mp/me C. me/mp
46	To find longest wavelength radiation in Ballmer series, the value of n used is:	A. 2 B. 3 C. 4 D. ∞
47	How many photons per second does a one-watt bulb emit if its efficiency is 10% and the wavelength of light is 500 nm:	A. 2.53 × 1017 B. 2.53 × 1019 C. 7.5 × 1019 D. 7.5 × 1017

48	In photoelectric effect experiment, stopping potential depend upon	A. Intensity of light B. Frequency of light C. Photoelectric current D. Both A and B
49	Light elements do not emit X-rays because	A. Electrons in it have high binding energy B. These materials are non- material C. There is a small difference in their energy shells D. Electrons in it require very large energy to remove from these materials
50	The shortest wavelength of X-rays emitted from an X-rays tube depends on the:	A. Current in the tube B. Voltage applied to the tube C. Nature of gas in the tube D. Nature of material of tube