# MDCAT Physics Chapter 12 Atomic spectra Induction Online Test

| Sr | Questions | Answers Choice |
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| 1 | Ultraviolet radiation of 6.2 eV falls on an aluminium surface having work function ⌀ = □. □ □□.<br>The kinetic energy of the fastest electron emitted is: | A. 4 eV<br>B. 2 eV<br>C. 2.2 eV<br>D. 1.2 eV |
| 2 | The threshold frequency depends on the nature on: | A. Natural frequency<br>B. Photosensitive anode<br>C. Photosensitive cathode<br>D. Photon |
| 3 | 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<br>B. □ ≥ □0<br>C. f = □0/2<br>D. None of these |
| 4 | The momentum of the moving photon is: | A. Zero<br>B. I<br>C. □<br>D. I□ |
| 5 | 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<br>B. mp/me<br>C. me/mp |
| 6 | Light elements do not emit X-rays because | A. Electrons in it have high binding energy<br>B. These materials are non- material<br>C. There is a small difference in their energy shells<br>D. Electrons in it require very large energy to remove from these materials |
| 7 | Of electron of 50 keV strike a heavy target. Then radiation emitted by target will be | A. Visible light<br>B. Radio waves<br>C. Ultraviolet<br>D. None of these |
| 8 | Continuous spectrum of X-rays id due to an effect known as | A. Photoelectric effect<br>B. Compton effect<br>C. Heisenberg effect<br>D. Bremsstrahlung |
| 9 | Which of the following statement is true about soft X-rays? | A. They have large wavelength<br>B. They have high energy<br>C. They have low energy<br>D. Both A and C |
| 10 | 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<br>B. Half<br>C. Double<br>D. Zero |
| 11 | The maximum energy of the electrons released in a photo cell is independent of: | A. Frequency of incident light<br>B. Intensity of incident light<br>C. Nature of cathode rays<br>D. None of these |
| 12 | The minimum energy required to remove an electron is called: | A. Stopping potential<br>B. Work function<br>C. Kinetic energy<br>D. None of these |
| 13 | electrons from the surface of a metal when: | A. It is heated to a high temperature<br>B. Radiation of suitable wavelength falls on it<br>C. Electrons of suitable velocity strike it<br>D. It is placed in a strong electric field |
| | | A. The Lyman series is a continuous spectrum<br>B. The Ballmer series is a line spectrum in the visible region |

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| 14 | Which of the following is not true? | C. The Paschen series is a line spectrum in the infrared region<br>D. The spectral series formula can be derived from Rutherford's model of the hydrogen atom 18. The photoelectric effect is the ejection of |
| 15 | 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<br>B. 4.53 eV<br>C. 3.4 eV<br>D. 1.51eV |
| 16 | The potential difference applied to an X-rays tube is increased. As a result, in the emitted radiation | A. The intensity increases<br>B. The minimum wavelength decrease<br>C. The intensity remains unchanged<br>D. Both B & C |
| 17 | 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<br>B. 3/2h f0<br>C. 2h f0<br>D. 1/2h f0 |
| 18 | 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<br>B. 2 eV<br>C. 1.5 eV<br>D. 3 eV |
| 19 | The ratio of the longest and shortest wavelength of the Lyman series is approximately: | A. 4/3<br>B. 9/4<br>C. 9/5<br>D. 16/7 |
| 20 | 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<br>B. 2<br>C. 3<br>D. 4 |