

MDCAT Physics Chapter 12 Atomic spectra MCQ's Test

| Sr | Questions | Answers Choice |
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| 1 | Maximum speed of electrons in X-rays tube which is producing X-rays photons of frequency f is | |
| 2 | 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 |
| 3 | 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 |
| 4 | A proton, accelerated through a p.d V has a certain de Broglie wavelength. In order to have the same de Broglie wavelength, an $\ \ \Box$ -particles must be accelerated through a potential difference: | A. 4V B. 8V C. V/4 D. V/8 |
| 5 | 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 |
| 6 | 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 C. 1.32 × 10-25 D. 1.32 × 10-27 |
| 7 | 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 |
| 8 | 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 |
| 9 | Intensity of light from a point source at the edge of unit sphere will be: | A. □ B. □ C. P(4π) D. 4□ |
| 10 | The Balmer series is found in the spectrum of: | A. Hydrogen B. Nitrogen C. Oxygen D. All |
| 11 | Ultraviolet radiation of 6.2 eV falls on an aluminium surface having work function \varnothing = \Box . \Box \Box . The kinetic energy of the fastest electron emitted is: | A. 4 eV B. 2 eV C. 2.2 eV D. 1.2 eV |
| 12 | 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. |
| 13 | 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 |
| 14 | 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 |
| | | |

| 15 | Threshold wavelength for metal having work function \square is \square . What is the threshold wavelength for metal having work function 2 \square : | B. 2 C. 4 D. □/□ |
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| 16 | 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 |
| 17 | Light of frequency 2 times the threshold frequency is incident on the metalsurface. If the frequency is by quartered and intensity is doubled, the photoelectric becomes | A. Quadrupled B. Zero C. Doubled D. Halved |
| 18 | For X-rays which of the following is not correct: | A. Cause of ionization in air when 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 |
| 19 | 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 |
| 20 | 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 |