

Chapter :- **Dual nature of radiation and matter**

Assignment 2

Class 12

|  |
| --- |
| **Class : XIIth Subject : PHYSICS**  **Date : DPP No. : 2** |

|  |
| --- |
| **Topic :- Dual nature of radiation and matter** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | The uncertainty in the position of a particle is equal to the de-Broglie wavelength. The uncertainty in its momentum will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 2. | The work functions for sodium and copper are and Which of them is suitable for a photocell with light | | | | | | | |
|  | a) | Copper | b) | Sodium | c) | Both | d) | Neither of them |
| 3. | The curve between current and potential difference for a photo cell will be | | | | | | | |
|  | a) | *i*  *V* | b) | *i*  *V* | c) | *V*  *i* | d) | *V*  *i* |
| 4. | What will be the number of photons emitted per second by a 10 W sodium vapour lamp assuming that 90% of the consumed energy is converted into light? Wavelength of sodium light is 590 nm, J-s. | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 5. | For the Bohr’s second orbit of circumference , the de-Broglie wavelength of revolving electron will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 6. | The work function of a metal is | | | | | | | |
|  | a) | The energy for the electron to enter into the metal | | | | | | |
|  | b) | The energy for producing -ray | | | | | | |
|  | c) | The energy is required for an electron to come out from metal surface | | | | | | |
|  | d) | None of these | | | | | | |
| 7. | If the uncertainty in the position of proton is m, then the minimum uncertainty in its speed will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 8. | The work function for metals and are respectively and According to Einstein’s equation, the metals which will emit photo electrons for a radiation of wavelength is/are | | | | | | | |
|  | a) | None of these | b) | only | c) | and only | d) | All the three metals |
| 9. | Among the following four spectral regions, the photons has the highest energy in | | | | | | | |
|  | a) | Infrared | b) | Violet | c) | Red | d) | Blue |
| 10. | Kinetic energy of emitted cathode rays is dependent on | | | | | | | |
|  | a) | Only voltage | | | b) | Only work function | | |
|  | c) | Both (a) and (b) | | | d) | It does not depend upon any physical quantity | | |
| 11. | An electron is accelerated under a potential difference of 182 V. The maximum velocity of electron will be  (Charge of an electron is C and its mass is kg) | | | | | | | |
|  | a) | m/s | b) | m/s | c) | m/s | d) | m/s |
| 12. | If the voltage of -rays tube is doubled, the intensity of -rays will become | | | | | | | |
|  | a) | Half | b) | Unchanged | c) | Double | d) | Four times |
| 13. | Bragg’s law for -rays is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 14. | An electron of charge coulomb passes through a potential difference of Its energy in will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 15. | When cathode-rays strike a metal target of high melting point with a very high velocity, then which of the following are produced | | | | | | | |
|  | a) | -rays | b) | -rays | c) | Ultraviolet rays | d) | -waves |
| 16. | A photon of energy is incident on a metal surface of threshold frequency then the maximum kinetic energy of photoelectrons emitted is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 17. | The kinetic energy of an electron is Calculate the de-Broglie wavelength associated with it | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 18. | Order of ratio of proton, -particle and electron is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 19. | In the following diagrams if then  *V*2  Potential difference  *V*  *i*  (Photoelectric current)  *V*1  *λ*2  *λ*1 | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 20. | Ultraviolet radiations of 6.2 eV falls on an aluminium surface. KE of fastest electron emitted is (work function = 4.2 eV) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |