

Chapter :- **Electromagnetic Waves**

Assignment 2

Class 12

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

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| **Topic :-Electromagnetic Waves** |

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| 1. | The wavelength of infrared rays is of the order of | | | | | | | |
|  | a) |  | b) |  | c) | Diverge more | d) | None of these |
| 2. | Molybdenum is used as a target element for the production of X-rays because it is | | | | | | | |
|  | a) | Light and can easily defect electrons | | | b) | Light and can absorb electrons | | |
|  | c) | A heavy element with a high melting point | | | d) | An element having high thermal conductivity | | |
| 3. | A charged particle with charge enters a region of constant, uniform and mutually orthogonal fields **E** and **B** with a velocity **v** perpendicular to both **E** and **B**, and comes out without any change in magnitude or direction of **v.** Then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 4. | If and are the speeds of gamma rays, X-rays and microwaves respectively in vacuum, then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 5. | The small ozone layer on top of the atmosphere is crucial for human survival because it | | | | | | | |
|  | a) | Has ions | b) | Reflects radio signals | c) | Absorbs UV rays | d) | Reflects IR rays |
| 6. | Television signals reach us only through the ground waves. The range related with the transmitter height is in proportion to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 7. | In a plane electromagnetic wave propagating in space has an electric field of amplitude , then the amplitude of the magnetic field is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 8. | A capacitor having a capacity of 2 pF. Electric field across the capacitor is changing with a value of . The displacement current is | | | | | | | |
|  | a) | 2 A | b) | 4 A | c) | 6 A | d) | 10 A |
| 9. | If 150 J of energy is incident on area 2 m2. If coefficient of absorption is 0.6, then amount of energy transmitted is | | | | | | | |
|  | a) | 50 J | b) | 45 J | c) | 40 J | d) | 30 J |
| 10. | Radiations of intensity 0.5 Wm-2 are striking a metal plate. The pressure on the plate is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 11. | A charged particles oscillates about its mean equilibrium position with a frequency of 109 Hz. Frequency of the Electromagnetic Waves produced by the oscillator is | | | | | | | |
|  | a) | 10 Hz | b) | 105 Hz | c) | 109 Hz | d) | 1010 Hz |
| 12. | The unit of expression are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 13. | A layer of ionosphere does not reflect waves with frequencies greater than 10 MHz; then maximum electron density in this layer is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 14. | A point source of Electromagnetic radiation has an average power output of 1500 W. The maximum value of electric field at a distance of 3 m from this source in Vm-1‑ is | | | | | | | |
|  | a) | 500 | b) | 100 | c) |  | d) |  |
| 15. | A. The wavelength of microwaves is greater than that of UV-rays.  B. The wavelength of IR rays is lesser than that of UV-rays.  C. The wavelength of microwaves is lesser than that of IR-rays.  D. Gamma rays have shortest wavelength in the Electromagnetic Spectrum.  Of the above statements | | | | | | | |
|  | a) | A and B are true | | | b) | B and C are true | | |
|  | c) | C and D are true | | | d) | A and D are true | | |
| 16. | If is permeability of free space and is permittivity of free space, the speed of light in vacuum is given by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 17. | A plane electromagnetic wave of intensity 10 strikes a small mirror of area , held perpendicular to the approaching wave. The radiation force on the mirror will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 18. | A plane Electromagnetic Waves travels in free space along -axis. At a particular point in space, the electric field along -axis is 9.3 Vm-1. The magnetic induction is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 19. | Clouds are contained in a layer from the earth’s surface, which is called | | | | | | | |
|  | a) | Troposphere | b) | Stratosphere | c) | Mesosphere | d) | Ionosphere |
| 20. | The correct sequence of the increasing wavelength of the given radiation sources is | | | | | | | |
|  | a) | Radioactive sources, X-ray tube, crystal oscillator, sodium vapour lamp | | | b) | Radioactive source, X-ray tube, sodium vapour lamp, crystal oscillator | | |
|  | c) | X-ray tube, radioactive source, crystal oscillator, sodium vapour lamp | | | d) | X-ray tube, crystal oscillator, radioactive source, sodium vapour lamp | | |