

Chapter :- **Electromagnetic Waves**

Assignment 1

Class 12

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| **Class : XIIth Subject : PHYSICS**  **Date : DPP No. : 1** |

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| **Topic :-Electromagnetic Waves** |

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| 1. | In an electromagnetic wave, the electric and magnetizing fields are and . The maximum energy flow is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 2. | X-ray are not used for radar purpose, because they are not | | | | | | | |
|  | a) | Reflected by target | | | b) | Partly absorbed by target | | |
|  | c) | Electromagnetic waves | | | d) | Completely absorbed by target | | |
| 3. | If an electromagnetic wave is propagation in a medium with permittivity and permittivity , then is the | | | | | | | |
|  | a) | Intrinsic impedance of the medium | | | b) | Square of the refractive index of the medium | | |
|  | c) | Refractive index of the medium | | | d) | Energy density of the medium | | |
| 4. | An earth orbiting satellite has solar energy collecting panel with total area . If solar radiations are perpendicular and completely absorbed, the average force associated with the radiation pressure is  (Solar constant) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 5. | For EM wave prorogating along -axis, what is maximum value of magnetic field? | | | | | | | |
|  | a) | 10-7 T | b) | 10-8 T | c) | 10-9 T | d) | 10-6 T |
| 6. | A parallel plate capacitor is charged to. Due to a radioactive source, the plate loss charge at the rate of The magnitude of displacement current is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 7. | If are the electric permittivity and magnetic permeability of free space and are the corresponding quantities in the medium, the index of refraction of the medium in terms of above parameter is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 8. | According to Maxwell’s hypothesis, a changing electric field gives rise to | | | | | | | |
|  | a) | An emf | b) | Electric current | c) | Magnetic field | d) | Pressure radiant |
| 9. | Electric fields induced by changing magnetic fields are | | | | | | | |
|  | a) | Conservation | | | b) | Non-conservation | | |
|  | c) | May be conservative or non-conservation depending on the conditions | | | d) | Nothing can be said | | |
| 10. | The electric field of a plane electromagnetic wave varies with time of amplitude 2 Vm-1 propagating along -axis. The average energy density of the magnetic field is | | | | | | | |
|  | a) |  | b) | 8.86 10-12 | c) | 17.72 10-12 | d) | 4.43 10-12 |
| 11. | The sun delivers of electromagnetic flux to the earth’s surface. The total power that in incident on a roof of dimensions 10m square will be | | | | | | | |
|  | a) | W | b) | W | c) | W | d) | W |
| 12. | Infrared radiation is detected by | | | | | | | |
|  | a) | Spectrometer | b) | Pyrometer | c) | Nanometer | d) | Photometer |
| 13. | Ground waves have wavelength | | | | | | | |
|  | a) | Less than 200 m | b) | Equal to 200 m | c) | More than 200 m | d) | All of these |
| 14. | A plane Electromagnetic Waves travelling along the -direction has a wavelength of 3 mm. The variation in the electric field occurs in the -direction with an amplitude 66 Vm-1. The equations for the electric and magnetic fields as a function of and are respectively | | | | | | | |
|  | a) |  | | | | | | |
|  | b) |  | | | | | | |
|  | c) |  | | | | | | |
|  | d) |  | | | | | | |
| 15. | The frequency 1057 MHz of radiation arising from two close energy levels in hydrogen belongs to | | | | | | | |
|  | a) | Radio waves | b) | Infrared waves | c) | Micro waves | d) |  |
| 16. | Maxwell in his famous equation of electromagnetism introduced the concept | | | | | | | |
|  | a) | AC current | b) | DC current | c) | Displacement current | d) | Impedance |
| 17. | In a plane electromagnetic wave electric field varies with time having an amplitude . The frequency of wave is Hz. The wave is propagation along -axis. What is the average energy density of magnetic field? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 18. | An Electromagnetic Wave of frequency v = 3.0 MHz passes from vacuum into a dielectric medium with permittivity Them | | | | | | | |
|  | a) | Wavelength is doubled and the frequency remains unchanged | | | | | | |
|  | b) | Wavelength is doubled and frequency becomes half | | | | | | |
|  | c) | Wavelength is halved and frequency remains unchanged | | | | | | |
|  | d) | Wavelength and frequency both become unchanged | | | | | | |
| 19. | The amplitude of electric field in a parallel beam of light of intensity is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 20. | Assume that a lamp radiates power uniformly in all directions. What is the magnitude of electric field strength at a distance from the lamp? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |