

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

Topic :-Electromagnetic Waves

1.	The wavelength of infra	ared rays is of the order	of			
	a) 5×10^{-7} m	b) 10 ⁻³ m	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 absorl	o electrons		
	c) A heavy element wit	h a high melting point	d) An element having h	igh thermal conductivity		
3.	A charged particle with charge q enters a region of constant, uniform and mutually orthogonal					
	fields E and B with a velocit <mark>y v perpendicular to both E and B, and comes out without any</mark>					
	change in magnitude or dir <mark>ection of v. Then</mark>					
	a) $\mathbf{v} = \mathbf{E} \times \mathbf{B}/B^2$	b) $\mathbf{v} = \mathbf{B} \times \mathbf{E}/B^2$	c) $\mathbf{v} = \mathbf{E} \times \mathbf{B}/\mathrm{E}^2$	d) $\mathbf{v} = \mathbf{B} \times \mathbf{E} / \mathbf{E}^2$		
4.	If v_s , v_x and v_m are the spee <mark>ds of</mark> gamm <mark>a rays</mark> , X-rays and microwaves respectively in vacuum,					
	then					
	a) $v_s > v_x > v_m$	b) $v_s < v_x < v_m$	c) $v_s < v_x < v_m$	$d) v_s = v_x = v_m$		
5.	The small ozone layer of	on to <mark>p of t</mark> he atmospher	e i <mark>s cruc</mark> ial for human su	ırvival because it		
	a) Has ions	b) Reflects radio signal	s c) Absorbs UV rays	d)Reflects IR rays		
6.	Television signals reach us only through the ground waves. The range <i>R</i> related with the					
	transmitter height h is	ansmitter height h is in proportion to				
	a) <i>h</i>	b) $h^{1/2}$	c) $h^{-1/2}$	d) h^{-1}		
-				0		
7.	In a plane electromagn	etic wave propagating i	n space has an electric fi	eld of amplitude 9 \times 10 ³		
7.	In a plane electromagn Vm^{-1} , then the amplitude	etic wave propagating in ude of the magnetic field	n space has an electric fi l is	eld of amplitude 9×10^3		
7.	In a plane electromagn Vm^{-1} , then the amplitude a) $2.7 \times 10^{12} T$	etic wave propagating in ude of the magnetic field b) 9.0 × 10 ⁻³ T	n space has an electric fi l is c) 3.0 × 10 ⁻⁴ T	eld of amplitude 9 $ imes$ 10 ³ d) 3.0 $ imes$ 10 ⁻⁵ T		
7. 8.	In a plane electromagn Vm^{-1} , then the amplitue a) $2.7 \times 10^{12} T$ A capacitor having a ca	etic wave propagating in ude of the magnetic field b) 9.0 $\times 10^{-3}$ T pacity of 2 pF. Electric f	n space has an electric fi l is c) 3.0 $ imes$ 10^{-4} T ield across the capacitor	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value		
7. 8.	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7×10^{12} T A capacitor having a ca of 10^{12} Vs ⁻¹ . The displa	etic wave propagating in ude of the magnetic field b) 9.0×10^{-3} T pacity of 2 pF. Electric f acement current is	In space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor	eld of amplitude 9×10^3 d) 3.0×10^{-5} T r is changing with a value		
7. 8.	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7×10^{12} T A capacitor having a ca of 10^{12} Vs ⁻¹ . The displa a) 2 A	etic wave propagating in ude of the magnetic field b) 9.0×10^{-3} T pacity of 2 pF. Electric f acement current is b) 4 A	n space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A		
7. 8. 9.	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7×10^{12} T A capacitor having a ca of 10^{12} Vs ⁻¹ . The displa a) 2 A If 150 J of energy is inc	etic wave propagating in ude of the magnetic field b) 9.0 × 10^{-3} T pacity of 2 pF. Electric f acement current is b) 4 A ident on area 2 m ² . If Q_1	n space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A c = 15 J, coefficient of al	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A psorption is 0.6, then		
7. 8. 9.	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7×10^{12} T A capacitor having a ca of 10^{12} Vs ⁻¹ . The displa a) 2 A If 150 J of energy is inc amount of energy trans	etic wave propagating in ude of the magnetic field b) 9.0 × 10 ⁻³ T pacity of 2 pF. Electric f acement current is b) 4 A ident on area 2 m ² . If Q_{1} smitted is	In space has an electric final is c) 3.0×10^{-4} T ield across the capacitor c) 6 A r = 15 J, coefficient of all	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A psorption is 0.6, then		
7. 8. 9.	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7×10^{12} T A capacitor having a ca of 10^{12} Vs ⁻¹ . The displa a) 2 A If 150 J of energy is inc amount of energy trans a) 50 J	etic wave propagating in ude of the magnetic field b) 9.0 $\times 10^{-3}$ T pacity of 2 pF. Electric f acement current is b) 4 A ident on area 2 m ² . If $Q_{\rm f}$ smitted is b) 45 J	n space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A c = 15 J, coefficient of all c) 40 J	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A psorption is 0.6, then d) 30 J		
 7. 8. 9. 10. 	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7 × 10 ¹² T A capacitor having a ca of 10 ¹² Vs ⁻¹ . The displa a) 2 A If 150 J of energy is inc amount of energy trans a) 50 J Radiations of intensity	etic wave propagating in ude of the magnetic field b) 9.0 × 10 ⁻³ T pacity of 2 pF. Electric for acement current is b) 4 A ident on area 2 m ² . If Q_{f} smitted is b) 45 J 0.5 Wm ⁻² are striking a 1	n space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A r = 15 J, coefficient of al c) 40 J metal plate. The pressur	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A osorption is 0.6, then d) 30 J re on the plate is		
 7. 8. 9. 10. 	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7 × 10 ¹² T A capacitor having a ca of 10 ¹² Vs ⁻¹ . The displa a) 2 A If 150 J of energy is inc amount of energy trans a) 50 J Radiations of intensity a) 0.166 × 10 ⁻⁸ Nm ⁻²	etic wave propagating in ude of the magnetic field b) 9.0 × 10 ⁻³ T pacity of 2 pF. Electric for acement current is b) 4 A ident on area 2 m ² . If Q_{1} smitted is b) 45 J 0.5 Wm ⁻² are striking a model b) 0.332×10^{-8} Nm ⁻²	n space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A c = 15 J, coefficient of al c) 40 J metal plate. The pressur c) 0.111×10^{-8} Nm ⁻²	eld of amplitude 9×10^{3} d) 3.0×10^{-5} T is changing with a value d) 10 A osorption is 0.6, then d) 30 J re on the plate is d) 0.083×10^{-8} Nm ⁻²		
 7. 8. 9. 10. 11. 	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7 × 10 ¹² T A capacitor having a ca of $10^{12} Vs^{-1}$. The displa- a) 2 A If 150 J of energy is include amount of energy transform a) 50 J Radiations of intensity a) 0.166 × 10 ⁻⁸ Nm ⁻² A charged particles osc	etic wave propagating in ude of the magnetic field b) 9.0 × 10 ⁻³ T pacity of 2 pF. Electric f acement current is b) 4 A ident on area 2 m ² . If Q_{i} smitted is b) 45 J 0.5 Wm ⁻² are striking a m b) 0.332×10^{-8} Nm ⁻² cillates about its mean equivalent	n space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A c = 15 J, coefficient of al c) 40 J metal plate. The pressur c) 0.111×10^{-8} Nm ⁻² quilibrium position with	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A osorption is 0.6, then d) 30 J re on the plate is d) 0.083×10^{-8} Nm ⁻² a frequency of 10^9 Hz.		
 7. 8. 9. 10. 11. 	In a plane electromagn Vm^{-1} , then the amplitu a) 2.7×10^{12} T A capacitor having a ca of 10^{12} Vs ⁻¹ . The displation a) 2 A If 150 J of energy is include amount of energy transform a) 50 J Radiations of intensity a) 0.166×10^{-8} Nm ⁻² A charged particles osc Frequency of the Electro	etic wave propagating in ude of the magnetic field b) 9.0×10^{-3} T pacity of 2 pF. Electric for acement current is b) 4 A ident on area 2 m ² . If Q_{1} smitted is b) 45 J 0.5 Wm ⁻² are striking a model b) 0.332×10^{-8} Nm ⁻² cillates about its mean expro- comagnetic Waves prod	In space has an electric fi l is c) 3.0×10^{-4} T ield across the capacitor c) 6 A c = 15 J, coefficient of al c) 40 J metal plate. The pressur c) 0.111×10^{-8} Nm ⁻² quilibrium position with luced by the oscillator is	eld of amplitude 9×10^3 d) 3.0×10^{-5} T is changing with a value d) 10 A osorption is 0.6, then d) 30 J re on the plate is d) 0.083×10^{-8} Nm ⁻² a frequency of 10^9 Hz.		

12.	The unit of expression $\mu_0 \epsilon_0$ are					
	a) ${\rm m}{\rm s}^{-1}$	b) $m^2 s^{-2}$	c) s^2m^{-2}	d) sm ^{-1}		
13.	.3. A layer of ionosphere does not reflect waves with frequencies greater than 10 MHz; then					
	maximum electron density in this layer is					
	a) 1.23 $\times 10^{11} \mathrm{m}^{-3}$	b) 1.23 $\times 10^{10} \text{ m}^{-3}$	c) 12.3 $\times 10^{10} \mathrm{m}^{-3}$	d) 1.23 $\times 10^{12} \mathrm{m}^{-3}$		
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) $\frac{500}{1000}$	d) $\frac{250}{2}$		
4 5			3	3		
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 statemen	ls	h) R and C and true			
	a) A and D are true		d) A and D are true			
16	If μ_{a} is normaphility of	free space and so is per	uj A anu D are u ue mittivity of free space th	a speed of light in		
10.	μ_0 is permeability of nee space and ϵ_0 is permittivity of nee space, the speed of light in vacuum is given by					
	vacuulli is giveli by					
	a) $\sqrt{\mu_0 \varepsilon_0}$	b) $\frac{\mu_0}{\mu_0}$	c) 1	d) $\frac{\varepsilon_0}{2}$		
	- 1	$\sqrt{\varepsilon_0}$	$\sqrt{\mu_0 \varepsilon_0}$	$\sqrt{\mu_0}$		
17.	. A plane electromagnetic wa <mark>ve of</mark> intens <mark>ity 10</mark> Wm ⁻² strikes a small mirror of area 20 cm ² , hel					
	perpendicular to the appro <mark>aching wave. Th</mark> e radiation force on the mirror will be					
	a) 6.6×10^{-11} N	b) 1.33 × 10 ⁻¹¹ N	c) 1.33 × 10 ⁻¹⁰ N	d) 6.6×10^{-10} N		
18.	3. A plane Electromagnetic Waves travels in free space along <i>x</i> -axis. At a particular point in space					
	the electric field along <i>y</i> -axis is 9.3 Vm ⁻¹ . The magnetic induction is					
	a) $3.1 \times 10^{-6} T$	b) $3 \times 10^{-5} T$	c) $3 \times 10^{-6} T$	d) 9.3 × $10^{-6} T$		
19.	19. Clouds are contained in a layer from the earth's surface, which is called					
	a) Troposphere	b) Stratosphere	c) Mesosphere	d)lonosphere		
20.	The correct sequence of	of the increasing wavele	ngth of the given radiati	on sources is		
	a) Radioactive sources	, X-ray tube, crystal	b) Kadioactive source, X-ray tube, sodium			
	oscillator, sodium vapour lamp		vapour lamp, crystal oscillator			
	cj x-ray tube, radioacti	ive source, crystal	u J X-ray tube, crystal o	scillator, radioactive		
	oscillator, sodium vapour lamp		source, sodium vapour lamp			