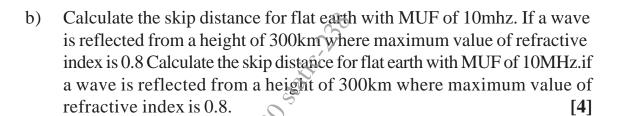
Total No.	of Questions :6]	36	SEAT No. :
P55	T.E./Income	/A/DD (0	[Total No. of Pages : 2
	T.E/Insem.		
T.E. (E&TC)			
304190: ANTENNA & WAVE PROPAGATION			
	(2012 Pattern) (	Semester -	II)
Time: 1	Hourl		[Max. Marks : 30
	ons to the candidates:		-
1) Answer any one Question out of Q1 or Q2, Q3 or Q4, Q5 or Q6.			
2)	Neat diagrams must be drawn wherev		<u></u>
<i>3</i> )	Figures to the right indicate full mar	ks.	
<i>4</i> )	Assume Suitable data, if necessary.		. 6
	6.		
<i>Q1</i> ) a)	State the Maxwell's equation for	static & time	varying EM fields satisfying
~ /	different laws of Electromagneti		[4]
	×	0, 2.	
b)	Derive the expression for at	tenuation c	onstant, phase constant,
	propagation constant for a good	d conductor.	[6]
	OF	63/1	
<b><i>02</i></b> ) a)	Explain linear, circular and ellipt	ical polarizati	ion. [6]
~ /			
b)	) In a non-magnetic medium with intrinsic impedance 99 ohms and E-4		
	$\sin(2\pi^* 10^7 t - 0.8x) a_z$ v/m. Fir	nd;	[4]
	i) Time average power carrie		[4]
	ii) The total power crossing 1	00 cm <sup>2</sup> of p	lane $3x+y=10$ .
(12)	F -1.1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	1	
<b>Q3</b> ) a)	Explain in detail with neat sketcl	nes,	[6]
	i) Ground wave propagation.		
	ii) Sky wave propagation		
		6	, w
	<ul><li>ii) The total power crossing 1</li><li>Explain in detail with neat sketch</li><li>i) Ground wave propagation</li><li>ii) Sky wave propagation</li></ul>	· · ·	
		8.	P.T.O.



OR

- Q4) a) Explain in detail the characteristics of the different ionized regions of ionosphere.[5]
  - b) Explain the effect of earth's magnetic field on Ionospheric propagation.

[5]

Q5) a) Define & explain following Antenna parameters

[6]

- i) Antenna Aperture
- ii) Effective Length
- iii) Efficiency of antenna
- b) An antenna has loss resistance 10 ohms, power gain of 20 and directivity 22. Calculate its radiation resistance. [4]

)R

**Q6**) a) Define & explain following Antenna parameters

[6]

- i) Directivity
- ii) Radiation Resistance
- iii) Directive Gain
- b) The radiation intensity of an antenna is given by

$$U(\theta,\Phi) = (\cos\theta)^4 (\sin 2\Phi)^2 \quad \text{for } 0 \le \theta \le \frac{\pi}{2} \quad \text{and } 0 \le \Phi \le 2\pi$$

(i.e. upper half space only). Find power radiated and directivity. [4]