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	Rec	y No	COLLEGE LID					
	RCE	5 140						
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY SIYTU SEMESTED B TECH DECDEE EV AMINATION(D&S) MAY 2010								
			STATH SERVESTER B. TECH DEGREE LATERING (1997), 1111 2015					
			Course Name: Antenna & Wave Propagation					
	Max Marks: 100 Duration: 3 Hor							
	PART A							
			Answer any two full questions, each carries 15 marks	Marks				
	1	a)	Define beam solid angle and directivity of an antenna	9				
		b)	Draw the equivalent circuit of a receiver antenna	6				
	2	a)	Derive expression for far field pattern of a half wave dipole antenna and find position of Nulls and BWFN.	10				
		b)	Explain any one method of gain measurement of an antenna	5				
	3	a	A transmitter antenna transmits 10watt power at 100Mhz with efficiency 80%.					
			The gain of the transmitter antenna is 3. The receiver antenna is at a distance 5km	8				
			from transmitter which is identical to transmitter. The effective length of receiver					
			antenna is $0.3\lambda$ . Calculate					
			a) The power density at the receiver antenna					
			b) Electric field intensity at the receiver antenna.					
			c) The power received by the receiver antenna.					
			d) The voltage induced at the input terminal of the antenna					
		h	Explain the concept of retarded potential	7				
		U						
•	4		Plot the radiation pattern of a 4 element linear broadside array with isotropic point	15				
			sources with spacing $d = \frac{\lambda}{4}$ . Find BWFN of the array,					
	5	a)	With necessary equations explain the principle of beam steering	10				
		b)	Explain binomial array	5				
	6	a)	Explain the working of a rhombic antenna	10				
		b)	Explain the principle of pattern multiplication	5				

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7	Explain rectangular micro strip patch antenna and explain its design steps.		20
8	Derive expression for effective refractive index, critical frequency, maximum	m 35	
	usable frequency and skip distance (assuming flat earth's surface) for sky wa	ve	20
	propagation		
9	a) Explain normal mode and axial mode helical antenna		(10)
	b) Derive expression for line of sight distance for space wave propagat	tion	(10)
	assuming effective radius of earth,		
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	position of Mails and BWEN.		
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	Exclusion the concept of retarded potential		
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2	sources with spacing $d = \frac{3}{4}$ Find HWFM of the array.		
	With measury equations, explain the principle of heats storting		
	Explain Unioraial array		
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	Explain the mineiple of pattern multiplication		
	Page 2 of 2		