8P	8R		SP			
Code	No: 136AF JAWAHARLA B. T	L NEHRU TE Sech III Year II ANTENNAS	CHNOLOGICA Semester Exam AND WAVE PR	L UNIVERSIT inations, May - OPAGATION	Y HYDERAB 2019	R16 AD
 一 Time	: 3 hours	(Electronics a	nd Communicatio	on Engineering)	Max. Ma	arks: 75
Note:	This question p Part A is comp consists of 5 U	paper contains ty pulsory which c nits. Answer an	vo parts A and B. arries 25 marks. y one full questio	Answer all ques n from each unit	tions in Part A . Each questio	. Part B n carries
and the second s	10 marks and r	nay have a, b, c	as sub questions.		1234 ¹¹¹¹	
June Summer	Sent Summer	free and a second	DADO A		1	June Summer
	Second 1 No.	and a second	PARI - A	1 a *	(25	Marks)
				-		
1.a)	Define Beam and	rea and how doe	s it related with I	Directivity of the	antenna.	[2] ed at a
b)	Find the gain o	r a parabolic all	enna with a 0 me	ters diameter dis	i and dipole le	[3]
() () () () () () () () () () () () () (I let the applice	tions of horn an	tennas	مستعد المستحر	·	[2]
() ()	List the applica	d dipole used in	an antenna desig	red for TV recen	tion?	[2]
(u)	What are the ac	lyantages of mic	rostrin antennas?		citori,	[2]
e)	What is offect f	Fooding of norab	alic reflector ante	nna?		[2]
1)	Differentiate I	incomend Dinom	al orrove	inita:		[2]
g)	Differentiate L	linear and Dinon	nai allays.	ting of 16 jectror	ic point source	[4]
n)	Find the HPD v	v of a uniform in	$s = 00^0$	ung of to isotrop	ne point source	[2]
	Spacing A/4 and	r phase unterend	0 = -90.	aria lovar		[2]
	Define optimu	m usable freque	ncy of an ionospi	ieric rayer.		[2]
J)	what is multi-	nop propagation	· · · · · · · · · · · · · · · · · · ·		n sees R	[3]
			PART - B			
					(50	Marks)
2.a)	Define the half	-power beam wi	dth and directivit	y of an antenna.	And derive the	relation
Suma terment	between them.	· · ·				20
,	The far field of	t an antenna alo	ng the (θ, ϕ) direc	tion is given by	$E_{\theta}(\theta, \varphi) = E_0 c$	os ⁻ θ and
A second	$E_{\varphi}(\theta, \varphi) = 0.$ Ca	liculate the maxi	mum directivity	of the antenna.	in a second	[5+5]
			OR	a		
3.	Derive the field	a components an	d radiation resist	ance of a half wa	ve dipole.	[10]
4.a)	Explain the Ra	diation character	ristics of a pyram	idal horn antenna	with neat diag	grams.
b)	Design an End	-fire circularly p	olarized helix ha	ving HPBW of 4	5 ⁰ and a circun	nference
	of 60cm at a fi	requency of 500	MHz. Determine	the turns neede	d, directivity a	nd axial
and the second	ratio		an ann an		a, a	[5+5]
	a deste a sector a	9	OR			Lo jog i
5 a)	Explain the im-	nedance transfor	mation character	istics of a folded	dinole	
b)	Sketch and exn	lain the construct	ction, operation o	f a helical antenn	po. c . la.	[5+5]
0)	Success and such					[]
and an and a second			e ¹⁹⁶⁶ 1		attas, annas 1. ja	100 x0 000
Survey Comments	Seal manual	2	in the second se	in the second	×*****	, <u> </u>
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	Summer Summer	int i construction				
	No. and		' 00			
	· .					
			active corn	er reflector W	ith the help of	image
6 0)	Explain the char	acteristics of	an active com	ci temeetor		
0.a)	LAplant					[5+5]
	principie.	notrical feature	es of parabolic re	flectors.		[2.2]
b)	Illustrate the geom	licitical teatar.	OR OR	and the second s		and the second sec
· ········	provide the second seco	· · · ·	Finatongular	microstrip ante	enna	in a second s
< 7 a)	Draw the radiatio	n characteristi	CS OI rectangular	ton used at 6GI	H ₇ What will be	its gain
(, , , , , , , , , , , , , , , , , , ,	Calculate the FN	BW of a 2.5 m	n parabolic reflec	tor used at our		[6+4]
D)	Calculate the 1					11
	in deciders.					· · · ·
		·	many factor of a	linear broadsi	de array of n 19	sotropic
8.a)	Derive the expr	ession for an	ray racion of u			
0.4)	elements			11 . 1	of a broadside ar	ray of 5
• `	Find the array fa	ctor and plot t	he normalized ra	diation patient	Of a bibauside a	[5+5]
	Find the array to	af anacing h	12	the fi	· · · · · · · · · · · · · · · · · · ·	
x £.	isotropic radiator	rs of spacing n	OR OR			2002 2010
		theorem ²¹		nt of the gain	of a horn anten	na with
(e 0	Explain the 3-a	ntenna metho	a or measureme	an of the Ball		
<i>J.aj</i>	necessary relatio	ons.				[5+5]
	List different col	urces of errors	in antenna meas	urements.		[]
b)	List different so					1.1
			f dry wave prop	agation. Bring	out the various p	problems
10.a	Discuss the sali	ent features o	I SKY Wave prop	uguilou.	And a second second	
10.0)	accoriated with	this mode of p	propagation.	2007 - Anna 1		[5+5]
and the second sec	associated met	on D-laver a	ind sporadic-E la	yer.	1. mar 2	[2] [2]
b) Write short note	es on D-layer a	OP			
en al anti-	and a second sec		UN	and Cle	in distance	
11 -	Eind the relation	n between Max	ximum usable fre	equency and Sk	ip distance.	veen two
11.a) Fille the relation	novimum usah	le frequency for	a high frequen	cy radio mik ben	'slat of
h	1 Calculate the fl	IUAIIII HOULD				
U) Calculate and	1	Okm on the su	irface of earth	. Consider the I	height of
U	points at a dis	stance of 250	Okm on the su	rface of earth	. Consider the f	[5+5]
U	points at a dis ionosphere is 2	stance of 250 00km and the	0km on the su critical frequency	rface of earth y is 5MHz.	. Consider the f	[5+5]
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