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Sardar Patel University

B.Sc. (semester-V) CBCS Examination Nov.– 2019

20/11/2019, Wednesday

10:00 am to 1:00 pm

Electronics & Communication

US05CELC05: Antenna and its application

Maximum Marks: 70

Note: Figure to the right indicates full marks.

Q-1   Choose the correct Answer.   [10]

1.   Radiation pattern is a _____ quantity.

       a) three   b) two   c) one   d) none

2.   A dipole antenna is also called as _____.

       a) yagi antenna   b) Hertzian antenna   c) lens antenna   d) patch antenna

3.   A _____compares a level of signal power versus a level of noise power and is most often

       expressed as a measurement of decibels (dB).

       a) phase margin   b) contrast to noise   c) signal-to-noise   d) none
                                                    ratio

4.   The Radiation pattern of end-fire array is _____

       a) uni-directional   b) bidirectional   c) multidirectional d) ohmi-directional

5.   In the end-fire array , the radiation is along _____.

       a) y- direction   b) x- direction   c) both a and b   d) none

6.   Linear array is the system of _____ spaced element.

       a) zero   b) equally   c) unequally   d) none

7.   The Radiation pattern of broadside array is _____

       a) bidirectional   b) uni-directional   c) multidirectional d) none

8.   What is the nature of radiation pattern for an isotropic antenna?

       a) hyperbolic   b) spherical   c) elliptical   d) none

9.   _____ is the frequency range of helical antenna .

       a) 10MHz to 10MHz   b) 10MHz to 30MHz   c) 30MHz to 3GHz   d) Above 3GHz

10.   Yagi-uda antenna consists of _____.

       a) folded dipole   b) reflector   c) Director   d) all of above

①

(P.T.O)

Q-2		Answer in short.(Any ten)	[20]
	1.	By using Biot-Savart law explain induction field.	
	2.	What is dipole antenna?	
	3.	Draw the diagram for Hertzian dipole.	
	4.	Explain antenna aperture.	
	5.	Explain directivity and gain of antenna.	
	6.	Explain slot impedance.	
	7.	Define broad side array.	
	8.	Give the application of short antenna.	
	9.	Why signal to noise ratio is required?	
	10.	Explain dipole and monopole of antennas.	
	11	Explain patch antennas.	
	12.	Explain wire antennas.	

Q-3	Obtain the far field due to sinusoidal current distribution.	[10]

OR

Q-3	Derive the complete expression for power radiated by a current element.	[10]

Q-4	(a)	Explain in brief radiation intensity and beam efficiency of antenna.	[05]
	(b)	Explain Directivity and resolution of antenna.	[05]

OR

Q-4	(a)	Explain effective height of antenna in detail.	[05]
	(b)	Write a short note on antenna terminal impedance.	[05]

Q-5	Explain general pattern of two isotropic radiators in detail.	[10]

OR

Q-5	(a)	Write a note on: Broadside array.	[05]
	(b)	Write a note on: Super directive array.	[05]

Q-6	With necessary diagram explain slot antennas in detail.	[10]

OR

Q-6	Draw and explain lens antenna in detail.	[10]

—X—

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