

- Q)A horizontal antenna is \_\_\_\_\_.--> **horizontally polarized**
- Q)The current distribution in a half-wave dipole is--> **Sinusoidal**
- Q)What is the electrical wavelength of a 500 MHz signal?--> **0.6 meters**
- Q)A device that converts high frequency current into electromagnetic wave.--> **Antenna**
- Q)What antenna radiates equally in all directions?--> **isotropic antenna**
- Q)To increase radiation from transmission line.--> **short circuit at the end of the line**
- Q)dB<sub>i</sub> means \_\_\_\_\_--> **power gain of the antenna in dB relative to isotropic antenna**
- Q)The major lobes of the directive pattern are those in which the radiation is \_\_\_\_\_.--> **Minimum**
- Q)Top loading is used in an antenna in order to increase its \_\_\_\_\_.--> **effective height**
- Q)Gain of a half-wave dipole antenna over isotropic.--> **2.15 dB**
- Q)An isotropic radiator is--> **an antenna whose directive pattern is substantially incredible**
- Q)The point on the antenna where the transmission line is connected is called \_\_\_\_\_.--> **feed point**
- Q)From the circuit point of view an antenna appears to the transmission line as:--> **radiation resistance**
- Q)Radiation from an antenna at other angles than the desired direction.--> **Side lobe**
- Q)Refers to the orientation of the electric field radiated from an antenna.--> **Polarization**
- Q)Ranges of frequencies the antenna will radiate effectively--> **Bandwidth**
- Q)The field around an antenna may be divided into two principal regions called the near field or Fresnel zone and far field or Fraunhofer zone. The boundary between the two regions may be arbitrarily taken at a radius R for an antenna of maximum dimension L, where R and L are related by-->  **$R = 2L^2 / \lambda$**
- Q)E-plane pattern for the Hertzian dipole is--> **Figure of eight**
- Q)The radiation pattern gets changed if the length of the dipole is--> **increases**
- Q)Mostly, the radiation pattern is obtained in--> **far field**
- Q)The directivity in terms of beam area  $\Omega_A$  can be written as:-->  **$4\pi / \Omega_A$**
- Q)28 If G is the gain k is the efficiency factor and D is the directivity of an antenna these are related by-->  **$G = k D$**
- Q)If the (total) beam area  $\Omega_A$  (or beam solid angle) consists of the main beam area  $\Omega_M$  plus the minor-lobe area  $\Omega_m$  (i.e.  $\Omega_A = \Omega_M + \Omega_m$ ) beam efficiency is given by:-->  **$\Omega_M / \Omega_A$**
- Q)Antenna efficiency is computed by using one of the following equations.--> **Efficiency = (radiation resistance / total resistance) x 100%**
- Q)What is antenna bandwidth?--> **The frequency range over which an antenna can be expected to operate satisfactorily**
- Q)\_\_\_\_\_ is the angle between the half-power radiation points--> **Beam width**
- Q)The angular separation between two half-power points in the major lobe of the antennas plane radiation pattern.--> **HPBW**
- Q)The property of an antenna that causes it to receive signal better from one direction than from another.--> **Directivity**
- Q)Resolution of an antenna is \_\_\_\_\_--> **FNBW/2**
- Q)The directivity pattern of an isotropic radiator is--> **a sphere**
- Q)What determines antenna polarization?--> **The direction of the electric field vector**



Q)The directivity D is given in terms of the antenna aperture  $A_e$  by the following relation:-->

$$D = 4\pi A_e / \lambda^2$$

Q)Poynting vector gives--> **Rate of energy flow.**

Q)The directive gain cannot be stated as--> **Independent of angles.**

Q)How will you increase the gain of an antenna?--> **By focusing the radiated energy in one desired direction**

Q)Directivity of antenna is determined by--> **Radiation pattern**

Q)The standard reference antenna for the directive gain is the--> **Isotropic antenna**

Q)The gain of an antenna :--> **is independent of wavelength**

Q)Which of the following improves antenna directivity?--> **Parasitic element**

Q)\_\_\_\_\_ of an antenna is a measure of how the antenna concentrates its radiated power in a given direction.--> **Gain**

Q)The polarization loss factor F for perfect match is:--> **1**

Q)If  $A_{em}$  is maximum effective area and  $A_p$  is physical area of an antenna then Aperture efficiency is-->  **$A_{em} / A_p$**

Q)For low and medium frequency antennas which are mounted vertically from the earth's surface, the effective length is referred to as \_\_\_\_\_.--> **Effective height**

Q)An antenna with unity gain--> **Isotropic**

Q)What is the theoretical gain of a Hertzian dipole?--> **2.15 dB**

Q)The polarization loss factor (F) for total mismatch is:--> **0**

Q)Increasing the electrical length of an antenna means--> **add an inductor series**

Q)The wavelength of sound wave is--> **Inversely proportional to frequency**

Q)The wavelength of 1MHz radio wave is--> **300m**

Q)The current distribution in a half wave dipole is--> **Sinusoidal**

Q)For wire antennas,--> **The maximum effective area is greater than physical area**

Q)Which is not a modern antenna--> **Reflector antenna**

Q)The current distribution in a very short dipole is--> **Triangular**

Q)The far field is indicated by--> **-**

Q)For loss less antenna, the input impedance is--> **equal to radiation resistance**

Q)The radial electric energy must be \_\_\_\_ radial magnetic energy--> **greater than**

Q)For infinitesimal dipole the current distribution is assumed to be--> **constant**

Q)Radiation resistance of half wave dipole is--> **73Ω**

Q)Radiation resistance of quarter wave monopole is--> **36.5Ω**

Q)In a dipole antenna, the current is maximum in a plane--> **Normal to the axis**

Q)Effective length of a dipole is always \_\_\_\_ the actual length--> **Less than**

Q)A dipole antenna fed at the extreme left and will produce a beam which will be--> **Parallel to the dipole**

Q)A center fed full wave antenna is said to be--> **Voltage fed**

Q)A straight dipole radiator fed in the center will cause maximum radiation--> **At its extreme ends**

Q)The reactance of infinitesimal dipole is--> **capacitive**

Q)In free space, the wave impedance is--> **equal to intrinsic impedance**

Q)The maximum directivity of the half wave dipole is--> **1.643**

Q)The maximum effective area of half wave dipole is approximately is equal to-->  **$0.13\lambda^2$**



- Q)The dual quantity of  $\mu$  is-->  $\epsilon$
- Q)The directional pattern of a horizontal half wave center fed dipole is--> **Figure of eight**
- Q)The dual quantity of  $H_A$  is-->  $-E_F$
- Q)A center fed half wave antenna is said to be--> **Current fed**
- Q)The distance at which far and near fields are equal is  $(\lambda/2\pi)$  is termed--> **Radian sphere**
- Q)The short dipole has a capacitive reactance where as an electrically small dipole has--> **Inductive reactance**
- Q)The dual quantity of  $E_A$  is-->  $H_F$
- Q)The power pattern of infinitesimal dipole is-->  **$\sin^2\theta$**
- Q)The  $H_\theta$  component of hertzian dipole is--> **zero**
- Q)The  $E_\phi$  component of hertzian dipole is--> **Zero**
- Q)The directional pattern of a short dipole in the horizontal plane is--> **Circle**
- Q)Most commonly used antenna is--> **half wavelength dipole**
- Q)For half wave length dipole, the current maximum occur at--> **the input terminals**
- Q)The total input impedance of half wave length dipole is-->  **$73 + j42.5$**
- Q)The relation between path difference and phase angle is--> **Phase angle =  $2\pi \times$  path difference**
- Q)The loss resistance of single turn loop is--> **Greater than radiation resistance**
- Q)The radiation resistance of loop can be increased by--> **Increasing number of turns**
- Q)Directivity is defined as ratio of--> **maximum radiation intensity to average radiation intensity**
- Q)The current throughout loop antenna may be assumed--> **In phase**
- Q)The directivity of small loop is--> **Same as that of an infinitesimal electric dipole**
- Q)A small loop can be considered as a--> **small magnetic dipole**
- Q)The radiation pattern of an antenna array is--> **vector sum of the individual ones**
- Q)Array factor is does not depends on--> **directional characteristics of radiating elements**
- Q)The pattern multiplication is equal to--> **field due to single element \* array factor**
- Q)The directivity of loop antenna is a function of--> **Circumference of the loop**
- Q)The directivity of the loop is--> **1.5**
- Q)The pattern of the small loop is same as--> **short dipole**
- Q)It is formed when two or more antenna elements are combined to form a single antenna.--> **antenna array**
- Q)In addition to the main maximum, getting multiple maximas, are called--> **grating lobes**
- Q)The maximum radiation is directed towards the axis of loop forming--> **an End fire antenna**
- Q)To avoid maxima in grating lobes, the separation between the elements should not be equal to--> **multiples of  $\lambda$**
- Q)Arrays are used to improve--> **gain**
- Q)An ungrounded antenna near the ground--> **acts as a single antenna of twice the height**
- Q)The grating lobe are minimized when the space between the elements should be less than\_\_-->  **$\lambda$**
- Q)To have the maximum of the array factor of a uniform linear array directed broad side to the axis of array, it is necessary to have all elements--> **same phase excitation and amplitude excitation**
- Q)The length of the resonant antenna is increased, the number of lobes must be--> **increased**



- Q)To radiate maximum towards  $\theta = 0^\circ$ , the progressive phase ( $\psi$ ) is ,(where d is spacing between the elements)--> **equal kd**
- Q)The broadside array is used only for single frequency transmission because--> **have a narrow bandwidth**
- Q)The broad side array is--> **linear and resonant**
- Q)The maximum radiation is along the  $\theta = 90^\circ$  forming--> **broad side antenna**
- Q)The end-fire array is--> **linear and non-resonant**
- Q)The broadside array is used for--> **only for single frequency transmission**
- Q)The beam width of binomial array when compared to uniform linear array is--> **Less**
- Q)The directivity of Hansen-Woodyard end-fire array is \_\_\_\_times the directivity of end-fire array--> **1.789**
- Q)The side lobe level of Binomial array is--> **0**
- Q)To radiate maximum towards  $\theta = 180^\circ$ , the progressive phase ( $\psi$ ) is ,(where d is spacing between the elements)--> **equal kd**
- Q)The directivity of Hansen woodyard end fire array is \_\_\_\_times greater than the ordinary end-fire array.--> **2.5 dB**
- Q)For broad side array, the excitation phase should be-->  **$0^\circ$**
- Q)Binomial array is--> **Non uniform linear array**
- Q)In binomial array, the space between the elements for no minor lobes--> **Less than  $\lambda/2$**
- Q)Super directive arrays are called--> **super gain**
- Q)In scanning array, the maximum radiation at an angle of  $\theta_0$ , where  $\theta_0$  is in between-->  **$0$  q  $0$**
- 180**
- Q)The side lobe less broad side arrays are called--> **Binomial array**
- Q)which one having more HPBW(half power beam width)--> **Binomial**
- Q)which one having more sidelobes--> **Uniform**
- Q)An element in an array directly not connected to the transmitter is called--> **Parasitic element**
- Q)The parasitic element shorter than driven element is called--> **director**
- Q)The advantage of folded dipole is--> **wide band in frequency**
- Q)Super directivity of an array can be obtained by--> **reducing the spacing**
- Q)Super directivity obtained by reducing the spacing and increasing the number of elements results in--> **high reactive power and Q**
- Q)The length of reflector of yagi - uda antenna is-->  **$0.49 \lambda$**
- Q)The radiation pattern of folded dipole is same as--> **half wave dipole**
- Q)The input impedance of folded dipole is--> **higher**
- Q)The directivity of folded dipole is--> **bi-directional**
- Q)The director behaves likes--> **Convex lens**
- Q)An element in an array directly connected to the transmitter is called--> **Driven element**
- Q)Which one of the following is not apply to the Yagi Uda antenna--> **high gain**