Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester V

Course Code: ETC504 and Course Name: RF Modelling and Antennas

Time: 1 hour Max. Marks: 50

==============================================================================

Note to the students:- All the Questions are compulsory and carry equal marks .

|  |  |
| --- | --- |
| Q1.  | The Schottky diodes generally used at higher frequencies for |
| Option A: | mixer |
| Option B: | mixer and detector  |
| Option C: | detector |
| Option D:  | switch |
|  |  |
| Q2. | In the low pass filter design |
| Option A: | both inductor and capacitor are connected in series |
| Option B: | capacitor is connected in series and inductor is connected in shunt |
| Option C: | inductor is connected in series and capacitor is connected in shunt |
| Option D: | both inductor and capacitor are connected in shunt |
|  |  |
| Q3. | The directivity of isotropic radiator is: |
| Option A: | 0 |
| Option B: | 1 |
| Option C: | More than 1 |
| Option D: | infinite |
|  |  |
| Q4. | The current distribution in half wave dipole is |
| Option A: | sinusoidal |
| Option B: | constant |
| Option C: | triangular |
| Option D: | parabolic |
|  |  |
| Q5. | At high frequencies, inductors behave as-------------- resistors and ---------------capacitors besides their natural inductance. |
| Option A: | Series, parallel |
| Option B: | Series, series |
| Option C: | Parallel, series |
| Option D:  | Parallel, parallel |
|  |  |
| Q6. | The radiation intensity is |
| Option A: | The power radiated from an antenna per unit solid angle |
| Option B: | The power radiated from an antenna per square meter |
| Option C: | The power radiated from an antenna per meter |
| Option D:  | The power radiated from an antenna per square centimetre |
|  |  |
| Q7.  | The composite filter is a |
| Option A: | a combination ofconstant-k and m-derived filter |
| Option B: | constant-k filter |
| Option C: | m-derived filter |
| Option D:  | n-derived filter |
|  |  |
| Q8.  | Antenna for direction finding is |
| Option A: | log periodic antenna |
| Option B: | dipole antenna |
| Option C: | horn antenna |
| Option D:  | loop antenna |
|  |  |
| Q9. | According to the Friis formula the received power is inversely proportional to the |
| Option A: | Gain of transmitter antenna |
| Option B: | Square of the distance between transmitter and receiver |
| Option C: | Power of transmitter antenna |
| Option D:  | Effective aperture of the antenna |
|  |  |
| Q10.  | The modes of operation in helical antenna |
| Option A: | axial modes |
| Option B: | normal modes |
| Option C: | normal and axial mode |
| Option D:  | resonant modes |
|  |  |
| Q11.  | The total number of capacitors and inductors used in filter design indicates |
| Option A: | Ripple factor |
| Option B: | Shape factor |
| Option C: | Order of the filter |
| Option D:  | Range of the filter |
|  |  |
| Q12.  | The directivity is a measure that describes only the directional properties of the antenna and it is controlled only by |
| Option A: | radiation pattern |
| Option B: | radiation intensity |
| Option C: | radiation density |
| Option D: | radiation resistance |
|  |  |
| Q13. | Antenna is a \_\_\_\_\_\_\_\_\_\_ element   |
| Option A: | Active |
| Option B: | Passive |
| Option C: | Resistive |
| Option D:  | Capacitive |
|  |  |
| Q14.  | The array of antenna is used to |
| Option A: | decrease directivity |
| Option B: | increase directivity |
| Option C: | increase impedance |
| Option D:  | decrease impedance |
|  |  |
| Q15. | Gain of a half-wave dipole antenna over isotropic. |
| Option A: | 2.15 dB |
| Option B: | 1.76 dB |
| Option C: | 1 dB |
| Option D:  | 0 dB |
|  |  |
| Q16.  | Dipole antennas are an example for: |
| Option A: | Wire antennas |
| Option B: | Aperture antennas |
| Option C: | Array antennas |
| Option D:  | Microstrip antennas |
|  |  |
| Q17. | Helical antenna provides |
| Option A: | Horizontal polarization |
| Option B: | Vertical Polarization |
| Option C: | Circular polarization |
| Option D: | Linear Polarization |
|  |  |
| Q18. | The length of an Unit element used in Kurodas identities is |
| Option A: | 1 metre |
| Option B: | λ/8 |
| Option C: | λ/2 |
| Option D:  | λ |
|  |  |
| Q19.  | If the length of aperture in a pyramidal horn antenna is 10cm and δ for the design is 0.25. Then, the flaring angle of the pyramidal horn is: |
| Option A: | 30⁰ |
| Option B: | 25.4⁰ |
| Option C: | 45⁰ |
| Option D:  | 60⁰ |
|  |  |
| Q20. | The members of the antenna family which are made of wires of certain value in terms of operating wavelength are called: |
| Option A: | Loop antennas |
| Option B: | Wire antennas |
| Option C: | Dipole antenna |
| Option D: | Slot antennas |
|  |  |
| Q21. | A filter which passes without attenuation all frequencies up to the cut-off frequency fc and attenuates all other frequencies greater than fc is called? |
| Option A: | high pass filter |
| Option B: | low pass filter |
| Option C: | band elimination filter |
| Option D:  | band pass filter |
|  |  |
| Q22.  | Linear polarization can be obtained only if the wave consists of   |
| Option A: | Ex |
| Option B: | Ey |
| Option C: | Both Ex & Ey & in phase |
| Option D:  | Both Ex & Ey & out of phase |
|  |  |
| Q23. | Which conversion mechanism is performed by parabolic reflector antenna? |
| Option A: | Spherical to Spherical |
| Option B: | Spherical to plane wave |
| Option C: | Plane to plane |
| Option D:  | Plane to spherical wave |
|  |  |
| Q24.  | It is possible to overcome the drawback of m-derived filter by connecting number of sections in addition to prototype & m-derived sections with terminating |
| Option A: | One-fourth sections |
| Option B: | Half sections |
| Option C: | Square of three-fourth sections |
| Option D:  | Full sections |
|  |  |
| Q25. | An antenna has a field pattern E (θ) =cos θ. cos 2θ. The first null beam width of the antenna is: |
| Option A: | 450 |
| Option B: | 900 |
| Option C: | 1800 |
| Option D:  | 1200 |