Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: ECC603 and Course Name: Antenna and Radio Wave Propagation

Time: 1 hour Max. Marks: 50

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

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| Q1. | The ratio of the power radiated by the antenna to the total input power is |
| Option A: | antenna efficiency |
| Option B: | reflection coefficient |
| Option C: | standing wave ratio |
| Option D: | radiation resistance |
|  |  |
| Q2. | A popular half - wave antenna is the |
| Option A: | Broad side |
| Option B: | End-fire |
| Option C: | Collinear |
| Option D: | Dipole |
|  |  |
| Q3. | The troposphere is |
| Option A: | Part of the earth |
| Option B: | Part of ionosphere |
| Option C: | Part of atmosphere at about 90km above the earth |
| Option D: | Part of atmosphere at 16km above the earth |
|  |  |
| Q4. | In broadside array, all the elements in the array should have similar \_\_\_\_\_\_ excitation along with similar amplitude excitation for maximum radiation. |
| Option A: | phase |
| Option B: | frequency |
| Option C: | voltage |
| Option D: | current |
|  |  |
| Q5. | The far field is indicated by the presence of |
| Option A: | r term |
| Option B: | 1/r term |
| Option C: | 1/r2 term |
| Option D: | 1/r3 term |
|  |  |
| Q6. | Which antenna is used for direction finding |
| Option A: | Loop antenna |
| Option B: | Folded dipole |
| Option C: | Yagi- Uda antenna |
| Option D: | Horn Antenna |
|  |  |
| Q7. | According to the geometry, how many sterdians are present in a full sphere? |
| Option A: | π/2 |
| Option B: | π |
| Option C: | 2π |
| Option D: | 4π |
|  |  |
| Q8. | How do the elements of an active region behave? |
| Option A: | inductive |
| Option B: | resistive |
| Option C: | capacitive |
| Option D: | partially inductive |
|  |  |
| Q9. | Radiation resistance of quarter wave monopole is |
| Option A: | 73Ω |
| Option B: | 292Ω |
| Option C: | 657Ω |
| Option D: | 36.5Ω |
|  |  |
| Q10. | A\_\_\_\_\_\_\_ is characterized by a main beam with 3 dB beamwidth and sidelobes at different levels |
| Option A: | Radiation Pattern |
| Option B: | Bandwidth |
| Option C: | VSWR |
| Option D: | Polarization |
|  |  |
| Q11. | The absorption of radio waves by the atmosphere depends on |
| Option A: | their frequency |
| Option B: | their distance from the transmitter |
| Option C: | the polarization of the waves |
| Option D: | the polarization of the atmosphere |
|  |  |
| Q12. | In a four element Yagi-Uda antenna |
| Option A: | There is one driven element, one director and two reflectors |
| Option B: | There is one driven element, two directors and one reflector |
| Option C: | There are two driven elements, one director and two reflectors |
| Option D: | All the 4 elements are driven element |
|  |  |
| Q13. | For square corner reflector the flaring angle is……………………. |
| Option A: | 30 degrees |
| Option B: | 60 degrees |
| Option C: | 90 degrees |
| Option D: | 180 degrees |
|  |  |
| Q14. | How are the infinitesimal dipoles represented in terms of antenna length and signal wavelength? |
| Option A: | l ≤ (λ /50) |
| Option B: | (λ/50 ) < l ≤ (λ /10) |
| Option C: | l = λ/2 |
| Option D: | l = λ/4 |
|  |  |
| Q15. | The solid area through which all the power radiated by the antenna is: |
| Option A: | Beam area |
| Option B: | Effective area |
| Option C: | Aperture area |
| Option D: | Beam efficiency |
|  |  |
| Q16. | Parasitic element that is typically about 5 percent longer than the half-wave dipole-driven element is called \_\_\_\_\_\_\_ |
| Option A: | Array element |
| Option B: | Director element |
| Option C: | Reflector element |
| Option D: | Driven element |
|  |  |
| Q17. | Horn is treated as a/an \_\_\_\_\_\_\_\_\_\_\_\_\_ antenna |
| Option A: | linear |
| Option B: | planar |
| Option C: | aperture |
| Option D: | array |
|  |  |
| Q18. | When microwave signals follow the curvature of the earth, this is known as |
| Option A: | the Faraday effect |
| Option B: | ducting |
| Option C: | tropospheric scatter |
| Option D: | ionospheric reflection |
|  |  |
| Q19. | A dipole carries r.m.s. current of about 300A across the radiation resistance 2 Ω. What would be the power radiated by an antenna? |
| Option A: | 90 kW |
| Option B: | 135 kW |
| Option C: | 180 kW |
| Option D: | 200 kW |
|  |  |
| Q20. | In an electrically large loop, an overall length of the loop is equal to \_\_\_\_\_\_ |
| Option A: | λ/2 |
| Option B: | λ |
| Option C: | λ/5 |
| Option D: | λ/10 |
|  |  |
| Q21. | Why is the boom of the yagi antenna connected to a metal mast and electrical ground? |
| Option A: | Better signal directivity |
| Option B: | Increased bandwidth |
| Option C: | Lightning protection |
| Option D: | To avoid short circuiting |
|  |  |
| Q22. | Which of the following antennas produce a vertical radiation pattern? |
| Option A: | Dipole antenna |
| Option B: | Yagi antenna |
| Option C: | Marconi antenna |
| Option D: | Hertz antenna |
|  |  |
| Q23. | If J & M are active at the same time, which principle theorem is used for field estimation? |
| Option A: | Reciprocity |
| Option B: | Superposition |
| Option C: | Causality |
| Option D: | Relativity |
|  |  |
| Q24. | If the length of elements of an array is greater than λ/2, which will be the operating region of an array? |
| Option A: | transmission line region |
| Option B: | active region |
| Option C: | reflective region |
| Option D: | reactive region |
|  |  |
| Q25. | What is the ratio of the electric field strength of a radiated wave to the magnetic field strength called? |
| Option A: | Impedance of space |
| Option B: | Dielectric constant |
| Option C: | Permittivity |
| Option D: | Permeability |