Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Final Year Semester VII

Course Code: ECC701 and Course Name: Microwave Engineering

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 main advantage of using microwaves for communications is |
| Option A: | Large bandwidth |
| Option B: | Small bandwidth |
| Option C: | Low power |
| Option D: | High power |
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| Q2. | The device used to get the measurement of S parameters of n- port micro wave network is: |
| Option A: | CRO |
| Option B: | Network analyzer |
| Option C: | Circulator |
| Option D: | Attenuator |
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| Q3. | A space between two cavities in two cavity klystron is \_\_\_\_\_\_\_ |
| Option A: | Drift space |
| Option B: | Free space |
| Option C: | Running Space |
| Option D: | Normal Space |
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| Q4. | Dominant mode is defined as: |
| Option A: | Mode with the lowest cut off frequency |
| Option B: | Mode with the highest cut off frequency |
| Option C: | Any TEM mode is called a dominant mode |
| Option D: | TM mode |
|  |  |
| Q5. | The biggest advantage of the TRAPATT diode over the IMPATT diode is its |
| Option A: | lower noise |
| Option B: | higher efficiency |
| Option C: | ability to operator at higher frequencies |
| Option D: | lesser sensitivity to harmonics |
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| Q6. | Which microwave tube is used in laboratories for generating the Microwave frequencies of low power range |
| Option A: | Two Cavity Klystron |
| Option B: | Reflex Klystron |
| Option C: | Magnetron |
| Option D: | TWT |
|  |  |
| Q7. | A parametric amplifier sometimes uses a circulator to |
| Option A: | allow the antenna to be used simultaneously for transmission and reception |
| Option B: | separate the signal and idler frequencies |
| Option C: | permit more efficient pumping |
| Option D: | prevent noise feedback |
|  |  |
| Q8. | A cavity magnetron employs DC magnetic field to ensure that |
| Option A: | The oscillations are pulsed |
| Option B: | The electrons will orbit around the cathode |
| Option C: | Anode current in the absence of oscillations is prevented |
| Option D: | Stability |
|  |  |
| Q9. | The range of the standing wave ratio is |
| Option A: | 0 < S < 1 |
| Option B: | -1 < S < 1 |
| Option C: | 1 < S < ∞ |
| Option D: | 0 < S < ∞ |
|  |  |
| Q10. | To fabricate a low frequency circuit using the hybrid microwave IC methodology, the material with \_\_\_\_\_\_\_ is preferred |
| Option A: | high dielectric constant |
| Option B: | low dielectric constant |
| Option C: | high resistivity |
| Option D: | low resistivity |
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| Q11. | \_\_\_\_\_\_\_\_ is a single cavity klystron tube that operates as on oscillator by using a reflector electrode after the cavity |
| Option A: | Backward wave oscillator |
| Option B: | Reflex klystron |
| Option C: | Travelling wave tube |
| Option D: | Magnetrons |
|  |  |
| Q12. | A line has Z0 = 300 Ω. If ZL = 150 Ω, reflection coefficient is |
| Option A: | 0.5 |
| Option B: | 0.3333 |
| Option C: | -0.3333 |
| Option D: | -0.5 |
|  |  |
| Q13. | A backward – wave oscillator is based on the |
| Option A: | Rising sun magnetron |
| Option B: | Coaxial Magnetron |
| Option C: | Crossed field amplifier |
| Option D: | Travelling wave tube |
|  |  |
| Q14. | A CFA has |
| Option A: | Variable number of cavities |
| Option B: | Even number of cavities |
| Option C: | No cavities |
| Option D: | Odd Number of cavities |
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| Q15. | Scattering matrix for a reciprocal network is: |
| Option A: | Symmetric |
| Option B: | Unitary |
| Option C: | Skew Symmetric |
| Option D: | Identity matrix |
|  |  |
| Q16. | A PIN diode is |
| Option A: | a metal semiconductor point-contact diode |
| Option B: | a microwave mixer diode |
| Option C: | often used as a microwave detector |
| Option D: | suitable for use as a microwave switch |
|  |  |
| Q17. | Which of the following can be used for higher than 3 GHz frequency |
| Option A: | Waveguides |
| Option B: | Strip line |
| Option C: | Microstrip line |
| Option D: | Slot Line |
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| Q18. | Which of the following has got highest Dielectric constant |
| Option A: | Silicon |
| Option B: | GaAs |
| Option C: | Sapphir |
| Option D: | InP |
|  |  |
| Q19. | The modes of propagation supported by a rectangular wave guide is: |
| Option A: | TM, TEM, TE modes |
| Option B: | TM, TE modes |
| Option C: | TM, TEM modes |
| Option D: | TE, TEM modes |
|  |  |
| Q20. | Varactor diodes are operated in \_\_\_\_\_\_\_\_\_ region to achieve maximum efficiency possible |
| Option A: | Cutoff region |
| Option B: | Saturation region |
| Option C: | Reverse saturation region |
| Option D: | Active region |
|  |  |
| Q21. | A microwave junction is supposed to be matched at all ports in the S matrix |
| Option A: | All the diagonal elements are equal but not zero |
| Option B: | All the diagonal elements are zero |
| Option C: | All the diagonal elements are Complex |
| Option D: | Is Hermitian |
|  |  |
| Q22. | Which one of the following is transferred electron device |
| Option A: | BARITT diode |
| Option B: | IMPATT diode |
| Option C: | Gunn Diode |
| Option D: | Step recovery diode |
|  |  |
| Q23. | Attenuator is used in travelling wave tube is to : |
| Option A: | Help bunching |
| Option B: | Prevent oscillations |
| Option C: | Prevent saturation |
| Option D: | Increase gain |
|  |  |
| Q24. | For the capacitors used in MMICs, the insulating dielectric films used are: |
| Option A: | GaAs |
| Option B: | Titanium |
| Option C: | Air |
| Option D: | SiO2 |
|  |  |
| Q25. | In a waveguide the energy is propagated by |
| Option A: | Voltage variations |
| Option B: | Current variations |
| Option C: | Varying magnetic fields |
| Option D: | Varying magnetic and electric fields |