

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

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

Q1.	Microwave frequencies are used for satellite communications because they do not suffer-
Option A:	Refraction by ionosphere
Option B:	Attenuation in space
Option C:	Phase distortion
Option D:	Fading
Q2.	To get an admittance chart from an impedance chart -
Option A:	Smith chart has to be rotated by 90°
Option B:	Smith chart has to be rotated by 180°
Option C:	Admittance chart cannot be obtained from the impedance chart anyway
Option D:	Smith chart has to be rotated by 45°
Q3.	The phase velocity of waves propagation in hollow metal waveguide is-
Option A:	Greater than velocity of light in free space
Option B:	Less than velocity of light in free space
Option C:	Equal to velocity of light in free space
Option D:	Equal to group velocity
Q4.	Isolation of a directional coupler is a measure of the -
Option A:	Power delivered to the uncoupled port
Option B:	Power delivered to the coupled port
Option C:	Power delivered to the second port
Option D:	Power delivered to the all ports
Q5.	Microwave tubes are grouped into two categories depending on the type of-
Option A:	Electron beam field interaction
Option B:	Amplification method
Option C:	Power gain achieved
Option D:	Construction methods
Q6.	A major disadvantage of klystron amplifier is-
Option A:	Low power gain
Option B:	Low bandwidth

Option C:	High source power
Option D:	Design complexity
Q7.	In a TWT the amplitude of resultant wave travelling down the helix-
Option A:	increases exponentially
Option B:	increases linearly
Option C:	decreases exponentially
Option D:	is almost constant
Q8.	The negative resistance in Gunn diode is due to -
Option A:	high reverse bias
Option B:	electron transfer to a less mobile energy level
Option C:	tunneling across the junction
Option D:	electron domain formation at the junction
Q9.	PIN diode is suitable for the application as -
Option A:	Negative resistance diode
Option B:	Microwave mixer diode
Option C:	Microwave detector
Option D:	Microwave switch
Q10.	To prevent an IMPATT diode from burning, a constant bias source is used to maintain _____ a safe limit.
Option A:	average current
Option B:	average voltage
Option C:	average bias voltage
Option D:	average resistance
Q11.	Frequency meter measure frequency of microwave signal on test bench, when meter adjusted to _____
Option A:	same frequency
Option B:	odd or even multiple of microwave frequency
Option C:	harmonic frequency
Option D:	resonance frequency
Q12.	To provide a match between the Microwave signal transmission and the detector mount, Which device is used for matching?
Option A:	Isolator
Option B:	Slotted section
Option C:	Tunable waveguide detector
Option D:	Short circuit termination
Q13.	Speed of monolithic ICs are _____ compared to hybrid ICs
Option A:	High
Option B:	Low

Option C:	Marginally same
Option D:	Medium
Q14.	Normalized impedance of $0.3+j0.4$ lies in the -
Option A:	Vertical axis of smith chart
Option B:	Lower half of the impedance smith chart
Option C:	Horizontal line of the chart
Option D:	Upper half of the impedance smith chart
Q15.	A measure of the level of coupling between a resonator and a feed is given by-
Option A:	voltage coefficient
Option B:	power transfer coefficient
Option C:	coupling coefficient
Option D:	reflection coefficient
Q16.	In π mode operation of magnetron , the spokes due to phase focusing effect rotate at an angular velocity corresponding to -
Option A:	One pole / cycle
Option B:	Two pole / cycle
Option C:	Four pole / cycle
Option D:	Six pole / cycle
Q17.	In a three cavity klystron amplifier, the oscillations are excited in -
Option A:	input cavity
Option B:	output cavity
Option C:	intermediate cavity
Option D:	In the electron beam
Q18.	The junction resistance and capacitance of the intrinsic region in a PIN diode are connected _____ in the equivalent circuit of a PIN diode.
Option A:	Series
Option B:	Parallel
Option C:	Connected across package capacitance
Option D:	series-parallel combination
Q19.	MOSFETs can provide a power of several hundred watts when the devices are packaged in -
Option A:	Series
Option B:	Diagonal
Option C:	Parallel
Option D:	Series-parallel combination
Q20.	Cavity perturbation method is employed for highly sensitive and accurate measurement of -
Option A:	Impedance

Option B:	Dielectric constant
Option C:	VSWR
Option D:	Microwave Power
Q21.	If the reflection coefficient of a two port network is 0.25 then the return network loss in the network is -
Option A:	12.05 dB
Option B:	0.15 dB
Option C:	20 dB
Option D:	10 dB
Q22.	A rectangular waveguide has dimensions $1\text{ cm} \times 0.5\text{ cm}$. Its cut off frequency is -
Option A:	5 GHz
Option B:	10 GHz
Option C:	15 GHz
Option D:	20 GHz
Q23.	A Klystron is a cavity acting as buncher and catcher is used as microwave tube for-
Option A:	Guiding waves
Option B:	Velocity modulation
Option C:	Frequency modulation
Option D:	impedance matching
Q24.	Advantage of using GaAs in MESFET as compared to use of silicon is -
Option A:	GaAs are cost effective
Option B:	they have higher mobility
Option C:	they have high resistance for flow of current in the reverse direction
Option D:	cheap availability
Q25.	The dielectric material used in MMIC should not have one of the following features -
Option A:	low RF dielectric loss
Option B:	high RF dielectric loss
Option C:	high voltage withstanding capability
Option D:	good reproducibility