

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 .

Q1.	The velocity factor of a transmission line depends on
Option A:	temperature
Option B:	skin effect
Option C:	relative permittivity of dielectric
Option D:	length
Q2.	The effective dielectric constant $\epsilon_r$ for a microstrip line:
Option A:	Varies with frequency
Option B:	Independent of frequency
Option C:	It is a constant for a certain material
Option D:	Depends on the material used to make microstrip
Q3.	For series stub matching, the parameter used for matching is:
Option A:	Impedance of the transmission line at a point
Option B:	Voltage at a point on the transmission line
Option C:	Admittance at a point on the transmission line
Option D:	Admittance of the load
Q4.	If the normalized admittance at a point on a transmission line to be matched is $1+j1.47$ . Then the normalized susceptance of the stub used for shunt stub matching is:

Option A:	$1\Omega$
Option B:	$1.47\ \Omega$
Option C:	$-1.47\ \Omega$
Option D:	$-1\Omega$
Q5.	If the reflection coefficient of a 2 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
Q6.	A “circulator” is a device that:
Option A:	rotates signal polarity in a waveguide
Option B:	allows a signal to pass in one direction only
Option C:	separates signals among various ports
Option D:	prevents microwaves from being “trapped” in a waveguide
Q7.	A hollow rectangular waveguide cannot propagate TEM waves because:
Option A:	of the existence of only one conductor
Option B:	of the losses caused
Option C:	It is dependent on the type of the material used
Option D:	It is independent on the type of the material used
Q8.	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:	Mode with the lowest cut off wavelength
Q9.	A common application of magnetrons is in
Option A:	Radar
Option B:	Satellites
Option C:	Two-way radio
Option D:	TV sets
Q10.	Phase shifters are used in _____ where the antenna beam can be steered in space by electronically controlled phase shifters.
Option A:	Phased array antennas
Option B:	Dipole array antennas
Option C:	Slot antennas
Option D:	Patch antennas
Q11.	Which one of the following devices can be used for broadband amplification of microwave energy ?
Option A:	Reflex Klystron
Option B:	Two cavity klystron
Option C:	Magnetron
Option D:	Travelling wave tube
Q12.	If the instantaneous RF potentials on the two sides of a magnetron cavity are opposite polarity, the operation is in the

Option A:	$\Pi$ mode
Option B:	2 $\Pi$ mode
Option C:	$\Pi/2$ mode
Option D:	$\Pi/4$ mode
Q13.	On which of the following principle does Klystron operates
Option A:	Amplitude Modulation
Option B:	Frequency Modulation
Option C:	Pulse Modulation
Option D:	Velocity Modulation
Q14.	The two terms used to describe performance of a directional coupler are
Option A:	coupling and directivity
Option B:	gain and coupling
Option C:	gain and directivity
Option D:	gain and isolation
Q15.	Which of the following is the major advantage of Travelling wave tube over Klystron
Option A:	Higher gain
Option B:	Higher frequency
Option C:	Higher Output
Option D:	Higher bandwidth
Q16.	Which one of the following is a transferred electron device?

Option A:	BARITT Diode
Option B:	IMPATT Diode
Option C:	TRAPATT Diode
Option D:	Gunn Diode
Q17.	HEMT(High Electron Mobility Transistor) used in microwave circuit is a _____
Option A:	Source
Option B:	Detector
Option C:	High power amplifier
Option D:	Low noise amplifier
Q18.	Which of the following is the biggest advantage of the TRAPATT diode over IMPATT diode
Option A:	Low Noise
Option B:	High efficiency
Option C:	Ability to operate at high frequencies
Option D:	Lesser sensitivity to harmonics
Q19.	PIN diode is suitable for use as a _____
Option A:	Microwave switch
Option B:	Microwave mixed diode
Option C:	Microwave detector
Option D:	Microwave Rectifier
Q20.	For the measurement of attenuation, method used is _____.

Option A:	Two antenna method
Option B:	Y factor method
Option C:	RF substitution Method
Option D:	Three antenna method
Q21.	The heart of the Frequency Meter is the ----- .
Option A:	Isolator
Option B:	Resonant cavity
Option C:	Phase shifter _____
Option D:	None of these
Q22.	Following technique is not used for antenna gain measurement
Option A:	Standard antenna
Option B:	Two antenna
Option C:	Three antenna
Option D:	Four Antenna
Q23.	_____ is an important consideration for a hybrid integrated circuit.
Option A:	material selection
Option B:	processing units
Option C:	design complexity
Option D:	active sources
Q24.	The resistivity of microwave integrated circuits should be much greater than _____ $\Omega$ -cm for good circuit performance

Option A:	100
Option B:	150
Option C:	1000
Option D:	10000
Q25.	Following materials used in monolithic microwave integrated circuits for bias networks, terminations, and attenuators.
Option A:	Dielectric
Option B:	Resistive
Option C:	Conductor
Option D:	Substrate