

## University of Mumbai Online Examination 2020

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: ECT 704 and Course Name: Microwave and Radar engineering

Time: 1hour

Max. Marks: 50

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

Q1.	If a radar is to have a range of 50 nmi (92.6 km), pulse interval should be microsecond.
Option A:	500
Option B:	600
Option C:	250
Option D:	620
Q2.	Scattering matrix for a reciprocal network is:
Option A:	Symmetric
Option B:	Unitary
Option C:	Skew symmetric
Option D:	Asummetric matrix
Q3.	Higher pulse repetition frequency (P.R.F.) in a radar will
Option A:	increase the range of the radar
Option B:	make week signal discernible
Option C:	improve the signal-to-noise ratio of the system

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Option D:	All of the above
Q4.	Quarter wave transformer should be connected to ----- load as a impedance matching circuit
Option A:	inductive load
Option B:	Capacitive load
Option C:	complex load
Option D:	Real load
Q5.	If PRF of a radar is 1200 and pulse width 1.2 $\mu$ s, the duty cycle of the output tube is ts/s.
Option A:	1000
Option B:	1440
Option C:	1201.2
Option D:	1198.8
Q6.	Short and open stub circuit are:
Option A:	Purely inductive or capacitive
Option B:	purely resistive
Option C:	complex impedance
Option D:	negative resistive circuit
Q7.	The average power of a pulsed radar transmitter is given by
Option A:	the product of peak power of the pulse and the duty cycle
Option B:	peak power divided by the number of pulses repeated in one second
Option C:	peak power divided by the duty cycle

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Option D:	All of the above
Q8.	The average power of a pulsed radar transmitter is given by
Option A:	the product of peak power of the pulse and the duty cycle
Option B:	peak power divided by the number of pulses repeated in one second
Option C:	peak power divided by the duty cycle
Option D:	All of the above
Q9.	The minimum range of detection by a pulse radar depends on
Option A:	pulse width
Option B:	average transmitter power
Option C:	beam width of the antenna
Option D:	All of the above
Q10.	Practical limitation of single stub impedance matching circuit is:
Option A:	Varying the length 'l' of the stub
Option B:	Varying the location 'd' of the stub
Option C:	losses occurs
Option D:	complexity
Q11.	A duplexer is a
Option A:	signal side band filter

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Option B:	transmit-receive switch
Option C:	balanced mixer
Option D:	IF-log amplifier
Q12.	Consider following pairs: a) PIN diode : Amplitude modulator b) PIN diode : Phase shifter c)PIN diode : Limiter. Which of the pairs given above are correct?
Option A:	Only a
Option B:	Only b
Option C:	Only c
Option D:	All a, b, and c
Q13.	'LASER' is used in communication at
Option A:	microwave frequencies
Option B:	millimeter wave length
Option C:	light frequencies
Option D:	all the above
Q14.	Parametric amplifiers are used in long range radar because _____
Option A:	Low strength
Option B:	High noise amplification
Option C:	Low power
Option D:	Low noise amplification
Q15.	A 'radome' is a
Option A:	protective cover for the antenna

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Option B:	radar housed in a dome
Option C:	dome-shaped radar antenna
Option D:	circular radar
Q16.	Consider following pairs: a) Non-linear reactance type: Varactor b) Negative resistance type : Tunnel diode. Which of the pairs given above are correct?
Option A:	Only a
Option B:	Only b
Option C:	Both a and b
Option D:	No one
Q17.	The sensitivity of a radar receiver is ultimately set by
Option A:	high S/N ratio
Option B:	lower limit of signal input
Option C:	overall noise temperature
Option D:	low Noise Factor
Q18.	MESFET stands for
Option A:	Metal Semiconductor Field Effect Transistor
Option B:	Minimum Semiconductor Field Effect Transistor
Option C:	Maximum Semiconductor Field Effect Transistor
Option D:	Minimum Silicon Field Effect Transistor
Q19.	The quarter wave transformer has load impedance of $100\Omega$ and input impedance of $50\Omega$ , the characteristic impedance of the quarter transformer is:

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Option A:	5 K $\Omega$
Option B:	25 $\Omega$
Option C:	70.70 $\Omega$
Option D:	150 $\Omega$
Q20.	In parametric amplifier used in microwave communication system, the gain is mainly restricted by
Option A:	Ambient Temperature
Option B:	Pump Frequency
Option C:	Pump Bandwidth
Option D:	Pump Energy
Q21.	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
Option D:	TE, TM
Q22.	TRAPATT stands for
Option A:	Trapped Plasma Avalanche Triggered Transit
Option B:	Transistor Plasma Avalanche Triggered Transit
Option C:	Trapped Plasma Available Triggered Transit
Option D:	Transistor Plasma Avalanche Triggered Tree
Q23.	A hollow rectangular waveguide cannot propagate TEM waves because:

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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 of absence of magnetic field
Option D:	It is dependent on the type of the material used
Q24.	In magnetron, a method commonly employed to avoid mode jumping is known as _____
Option A:	Amplification
Option B:	Attenuation
Option C:	Strapping
Option D:	Modulation
Q25.	CFA stands for _____
Option A:	Cross field amplifier
Option B:	Cavity face amplifier
Option C:	Cavity field amplifier
Option D:	Cross face amplifier