

University of Mumbai

Examination 2020

Program: Electronics & Telecommunication Engineering

Curriculum Scheme: Rev2016

Examination: Second Year Semester VI

Course Code: ECCDLO 6022 and Course Name: Radar Engineering

Time: 1 hour

Max. Marks: 50

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

Q1.	When a power P is transmitted by an antenna with a gain G and a distance R between the transmitting and receiving antennas, amount of energy incident on the receiving antenna is given by the expression
Option A:	$PG/4\pi R^2$
Option B:	$P/4\pi R^2$
Option C:	$4\pi PR^2/G$
Option D:	PG/R
Q2.	A _____ determines the target range by measuring the round trip time of a pulsed microwave signal.
Option A:	Cross section radar
Option B:	Doppler radar
Option C:	Pulse radar
Option D:	FMCW radar
Q3.	A duplexer is a
Option A:	signal side band filter
Option B:	transmit-receive switch
Option C:	balanced mixer
Option D:	IF-log amplifier
Q4.	A simple CW radar does not give range information because
Option A:	it uses the principle of Doppler shift
Option B:	continuous echo cannot be associated with any specific part of the transmitted wave
Option C:	CW waves do not reflect from a target
Option D:	None of the above
Q5.	If the transmitted waveform is a train of rectangular pulses of width 2 microseconds, the pulse repetition period is 1 millisecond and the peak power is 10 kilowatts, the average power is
Option A:	2
Option B:	20
Option C:	200
Option D:	2000
Q6.	MST Radar is used for
Option A:	Weather Forecasting

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Option B:	Remote sensing
Option C:	Fire controlling
Option D:	House keeping
Q7.	Higher pulse repetition frequency (P.R.F.) in a radar will
Option A:	increase the range of the radar
Option B:	make weak signal discernible
Option C:	improves the signal-to-noise ratio of the system
Option D:	Increase the frequency of the radar
Q8.	Which of the following systems use a collection of radio transmitting stations to guide an aircraft to a particular runway?
Option A:	ILS
Option B:	GPS
Option C:	VOR
Option D:	RADAR
Q9.	How many ILS systems does an airport require?
Option A:	0
Option B:	1
Option C:	Depends upon aircraft size
Option D:	Depends upon density of traffic on the airspace
Q10.	If the ratio of the antenna diameter to the wavelength in a radar system is high this will result in (indicate the false statement)
Option A:	large maximum range
Option B:	good target discrimination
Option C:	difficult target acquisition
Option D:	increased capture area
Q11.	The IF bandwidth of a radar receiver is inversely proportional to the
Option A:	pulse width
Option B:	pulse repetition frequency
Option C:	pulse interval
Option D:	square root of the peak transmitted power
Q12.	After a target has been acquired, the best scanning system for tracking is
Option A:	Nodding
Option B:	Spiral
Option C:	Conical
Option D:	Helical
Q13.	The A scope displays
Option A:	the target position and range
Option B:	the target range, but not position
Option C:	the target position, but not range

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Option D:	neither range nor position, but not only velocity
Q14.	RADAR stands for
Option A:	Radiation Detection and Ranging
Option B:	Radio Detection and Ranging
Option C:	Radio Detection and reception
Option D:	Radiation detection and reception
Q15.	The klystron tube used in a klystron amplifier is a _____ type beam amplifier.
Option A:	Linear beam
Option B:	Crossed field
Option C:	Parallel field
Option D:	None of the mentioned
Q16.	In a magnetron, the output frequency is determined by the
Option A:	Acceleration of the electron beam
Option B:	Amount of DC voltage applied
Option C:	Dimensions of the resonant cavities
Option D:	Length of the cathode
Q17.	The term radar cross section defines the
Option A:	Scattering ability of the target
Option B:	Power radiating ability of the radar
Option C:	Amount of energy scattered by unwanted objects
Option D:	Cross section of radar area through which energy is emitted
Q18.	Pulse radar operating at 10GHz frequency has an antenna with a gain of 28 dB and a transmitted power of 2kW. If it is desired to detect a target of cross section 12m ² , and the minimum detectable signal is -90 dBm, the maximum range of the radar is:
Option A:	8114 m
Option B:	2348 m
Option C:	1256 m
Option D:	4563 m
Q19.	If peak transmitted power in a radar system is increased 16 times, its maximum range will be increased by a factor of
Option A:	2
Option B:	4
Option C:	8
Option D:	16
Q20.	In a radar transmitter, the function of modulator is to
Option A:	allow the use of same antenna for transmission and reception
Option B:	switch the tube OFF and ON as required

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Option C:	control pulse repetition frequency (PRF)
Option D:	increase maximum range of the radar
Q21.	The resolution of a pulsed radar can be improved by
Option A:	increasing pulse width
Option B:	decreasing pulse width
Option C:	increasing the pulse amplitude
Option D:	decreasing the pulse repetition frequency
Q22.	The A-scope of a radar displays
Option A:	no 'grass'
Option B:	target position and range
Option C:	target range but not position
Option D:	target position but not range
Q23.	PPI in RADAR system stands for
Option A:	plan position image
Option B:	pulse position indicator
Option C:	plan position indicator
Option D:	none of the above
Q24.	A CW-FM radar can measure
Option A:	only relative velocity
Option B:	only range
Option C:	relative velocity and range
Option D:	relative velocity, range and size of target
Q25.	A radar used for measuring the height of an aircraft is known as
Option A:	radar altimeter
Option B:	radar elevator
Option C:	radar speedometer
Option D:	radar latitude