

## Radar Engineering TE Sem VI

1 mark

Q No	Question
1	The radar in which both transmission and reception is done using the same antenna are called: a) Monostatic radar b) Bistatic radar c) Monopole radar d) Dipole radar
2	A _____ determines the target range by measuring the round trip time of a pulsed microwave signal. a) Cross section radar b) Doppler radar c) Pulse radar d) None of the mentioned
3	The duty cycle in a pulses radar transmitter cannot be increased beyond a point because it a) affects the operating frequency b) increase the average power of the transmitter tube c) does not detect peak signals d) None of the above
4	6. The term radar cross section defines the: a) Power radiating ability of the radar b) Scattering ability of the target c) Amount of energy scattered by unwanted objects d) Cross section of radar area through which energy is emitted
5	Higher pulse repetition frequency (P.R.F.) in a radar will a) increase the range of the radar b) make weak signal discernible c) improve the signal-to-noise ratio of the system d) All of the above
6	One method of solving 'blind speed' problem is to a) use a variable PRF b) use digital MTI c) change Doppler frequency d) use short wavelength
7	The Doppler frequency is large if a) the transmitted frequency is small b) the relative velocity of target with respect to radar is large c) the size of the antenna is large d) the relative velocity of target with 6. respect to radar is small

8	<p>Which statement regarding CW Doppler radar is wrong?</p> <p>a) it does not use duplexer  b) it gives continuous transmission  c) it gives accurate measurement of relative velocity  d) it is capable of measuring target range</p>
9	<p>A simple CW radar does not give range information because</p> <p>a) it uses the principle of Doppler shift  b) CW waves do not get reflected from a target  c) the continuous echo cannot be associated with any specific part of the transmitted wave  d) None of the above</p>
10	<p>Radar detection is limited to line-of-sight because</p> <p>a) curvature of the Earth  b) ionosphere  c) long wavelengths are used  d) none of above</p>
11	<p>Which of the following is the biggest disadvantages of CW Doppler radar?</p> <p>a) it does not give the target velocity  b) it does not give the target position  c) A transponder is required at the target  d) it does not give the target range</p>
12	<p>The best antenna system for tracking a target after it has been acquired is</p> <p>a) helical  b) nodding  c) conical  d) monopulse</p>
13	<p>The term RADAR stands for</p> <p>a) radio direction and reflection  b) radio detection and ranging  c) radiowaves despatching and receiving  d) random detection and reradiation</p>
14	<p>Blind speed causes target to appear</p> <p>a) moving uniformly  b) moving irregularly  c) stationary  d) intermittently</p>
15	<p>A `radome' is a _____</p> <p>a) protective cover for the antenna  b) radar housed in a dome  c) dome-shaped radar antenna  d) circular radar</p>

16	<p>Magnetrons are commonly used as radar transmitters because</p> <p>a) high power can be generated and transmitted to aerial directly from oscillator</p> <p>b) it is easily cooled it is a cumbersome device</p> <p>c) all the above</p> <p>d) none of above</p>
17	<p>A radar used for measuring the height of an aircraft from ground surface is known as</p> <p>a) radar altimeter</p> <p>b) radar elevator</p> <p>c) radar speedometer</p> <p>d) radar latitude</p>
18	<p>A high noise figure in a receiver means</p> <p>a) poor minimum detectable signal</p> <p>b) good detectable signal</p> <p>c) receiver bandwidth is reduced</p> <p>d) high power loss</p>
19	<p>The sensitivity of a radar receiver is ultimately set by</p> <p>a) high S/N ratio</p> <p>b) lower limit of signal input</p> <p>c) overall noise temperature</p> <p>d) none of above</p>
20	<p>PPP in a radar system stands for</p> <p>a) plan position image</p> <p>b) pulse position indicator</p> <p>c) plan position indicator</p> <p>d) none of the above</p>

2 mark

21	<p>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 <math>12\text{m}^2</math>, and the minimum detectable signal is -90 dBm, the maximum range of the radar is:</p> <p>a) 4563 m</p> <p>b) 2348 m</p> <p>c) 1256 m</p> <p>d) 8114 m</p>
22	<p>If peak transmitted power in a radar system is increased 16 times, its maximum range will be increased by a factor of</p> <p>a) 2</p> <p>b) 4</p> <p>c) 8</p> <p>d) 16</p>

23	<p>The thermal-noise power generated by a receiver of bandwidth <math>B_n</math> (in hertz) at a temperature <math>T</math> (degrees kelvin) is where <math>k</math> is the Boltzmann's constant</p> <p>a) <math>kTB_n</math>  b) <math>kT^2B_n</math>  c) <math>ckTB_n</math>  d) <math>kT/13n</math></p>
24	<p>If a radar is to have a range of 50 nmi (92.6 km), pulse interval should be _____ microsecond.</p> <p>a) 500  b) 400  c) 250  d) 620</p>
25	<p>If the 'Noise Figure' of receiver A is better than 'Noise Figure' of receiver B, it implies that S/N ratio of</p> <p>a) receiver A is better than that of receiver B  b) receiver A is poorer than that of receiver B  c) receivers A and B depends on their individual bandwidths.  d) None of the above</p>
26	<p>If 1 watt of R.F. power is fed to a directional coupler having 20 dB coupling, the power available at the coupled port is watts.</p> <p>a) 1  b) 10  c) 100  d) 1000</p>
27	<p>The maximum range <math>R</math> of detection of target is proportional to _____ of the transmitted power.</p> <p>A. square root  B. square  C. fourth root  D. one-fourth</p>
28	<p>In case the ratio of the antenna diameter to the wavelength in a radar system is high, this is likely not to result in</p> <p>a) increased capture area  b) good target discrimination  c) difficult target acquisition  d) larger maximum range</p>
29	<p>The gain of a radar transmitting antenna is</p> <p>a) loss than that of radar receiving antenna  b) almost equal to that of radar receiving antenna  c) slightly higher than that of radar receiving antenna  d) much higher than that of radar receiving antenna</p>
30	<p>The minimum receivable signal in a radar receiver whose IF, bandwidth is 1.5 MHz and which has a noise figure 9 dB, will be</p>

	<p>a) <math>4.16 \times 10^{-10}</math> watt  b) <math>4.16 \times 10^{-12}</math> watt  c) <math>4.16 \times 10^{-13}</math> watt  d) <math>4.16 \times 10^{-14}</math> watt</p>
31	<p>When P is the peak transmitted pulse power, the maximum range of the radar is proportional to</p> <p>a) P  b) (P)/2  c) (P) /4  d) (P)/8</p>
32	<p>The maximum range of a radar depends on all of the following EXCEPT</p> <p>a) peak transmitted pulse power  b) direction of movement of target  c) target area  d) capture area of antenna</p>
33	<p>An MTI radar operates at 10 GHz with PRF of 3000 ppps. The lowest blind will be</p> <p>a) 40 km/hr  b) 66 km/hr  c) 81 lcm/hr  d) 162 lcm/hr</p>
34	<p>A ship sailing at a radial speed of 10 m/s towards on HF radar operating at 3 MHz would produce a doppler shift of _____</p> <p>a) 0.1 Hz  B. 1 Hz  C. 0.2 Hz  D. 2 kHz</p>
35	<p>With reference to tracking radars, the problems of pulse to pulse variations in echo amplitudes</p> <p>a) is given by occurs in monopulse tracking technique  b) is overcome in simultaneous lobing technique  c) is overcome in lobe switching technique  d) is overcome in conical scan technique</p>