RADAR AND NAVIGATIONAL AIDS

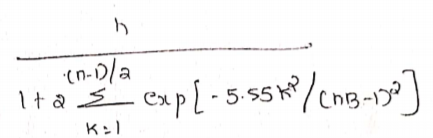
UNIT 1 – Short Answers/MCQ

FILL IN THE BLANKS

1. Radar X-band is 8-12 GHZ.

2. Echo is Reflected signal

3. Power density at range R is measured in terms of Watts per square meter.

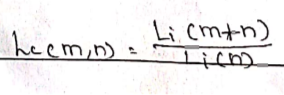
4. Beam shape loss is given by the equation \_ .

5. Example for complex target is air craft,missiles,ships,buildings,terrain.

6. Radar Ku-band is 12-18 GHZ.

7. Duplexer isolates Receiver from transmitter.

8. The most common form of cathode-ray tube display is the plan position indicator, or PPI which maps in polar coordinates

9. Collapsing loss is given by the equation  .

10. Example for simple target is sphere,cylinder,flat plate,rod ,cone.

CHOOSE THE CORRECT ANSWER

1,  When a power Pt is transmitted by an antenna, amount of energy incident on the target is given by the expression:  
a) Pt×G/4πR2  
b) Pt/4πR2  
c) Pt×4 πR2/G  
d) None of the mentioned

2. A \_\_\_\_\_\_\_\_ determines the target range by measuring the round trip time of a pulsed microwave signal.  
a) Pulse radar  
b) Doppler radar  
c) Cross section radar  
d) None of the mentioned

3. 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

4. The term radar cross section defines the:  
a) Scattering ability of the target  
b) Power radiating ability of the radar  
c) Amount of energy scattered by unwanted objects  
d) Cross section of radar area through which energy is emitted

5. **The Doppler frequency is large if**  
[A. the transmitted frequency is small](javascript:void(0);)  
[B. the relative velocity of target with respect to radar is large](javascript:void(0);)  
[C. the size of the antenna is large](javascript:void(0);)  
[D. the relative velocity of target with 6. respect to radar is small](javascript:void(0);)

**6. Radar range primarily depends upon**  
[A. peak transmitted power](javascript:void(0);)  
[B. average transmitted power](javascript:void(0);)  
[C. independent of transmitted power](javascript:void(0);)  
[D. distance between ends](javascript:void(0);)

**7.In a radar transmitter, the function of modulator is to**  
[A. allow the use of same antenna for transmission and reception](javascript:void(0);)  
[B.switch the tube OFF and ON as required](javascript:void(0);)  
[C. control pulse repetition frequency (PRF)](javascript:void(0);)  
[D. increase maximum range of the radar](javascript:void(0);)

8**. The resolution of a pulsed radar can be improved by**  
[A. increasing pulse width](javascript:void(0);)  
[B. decreasing pulse width](javascript:void(0);)  
[C. increasing the pulse amplitude](javascript:void(0);)  
[D. decreasing the pulse repetition frequency](javascript:void(0);)

**9. Higher pulse repetition frequency (P.R.F.) in a radar will**  
[A. increase the range of the radar](javascript:void(0);)  
[B. make week signal discernible](javascript:void(0);)  
[C. improve the signal-to-noise ratio of the system](javascript:void(0);)  
[D. All of the above](javascript:void(0);)

**10.The minimum range of detection by a pulse radar depends on**  
[A. pulse width](javascript:void(0);)  
[B. average transmitter power](javascript:void(0);)  
[C. beamwidth of the antenna](javascript:void(0);)  
[D. All of the above](javascript:void(0);)

**11.A `radome' is a**  
[A. protective cover for the antenna](javascript:void(0);)  
[B. radar housed in a dome](javascript:void(0);)  
[C. dome-shaped radar antenna](javascript:void(0);)  
[D. circular radar](javascript:void(0);)

**12.'Second time around' echoes are caused by**  
[A. second time reflection from target](javascript:void(0);)  
[B. echoes returring from targets beyond the cathode ray tube range](javascript:void(0);)  
[C. echoes that arrive after transmission of the next pulse](javascript:void(0);)  
[D. None of the above](javascript:void(0);)

**13.A simple CW radar does not give range information because**  
[A. it uses the principle of Doppler shift](javascript:void(0);)  
[B. continuous echo cannot be associated with any specific part of the transmitted wave](javascript:void(0);)  
[C. CW waves do not reflect from a target](javascript:void(0);)  
[D. None of the above](javascript:void(0);)

**14.The best system for tracking a target after it has been acquired is**  
[A. helical](javascript:void(0);)  
[B. nodding](javascript:void(0);)  
[C. conical](javascript:void(0);)  
[D. monopulse](javascript:void(0);)

**15.In radar reception, the term ratrace' is used in connected with**  
[A. modulator](javascript:void(0);)  
[B. duplexer](javascript:void(0);)  
[C. pulse characteristics](javascript:void(0);)  
[D. receiver bandwidth](javascript:void(0);)

**16.One method of solving 'blind speed' problem is to**  
[A. use a variable PRF](javascript:void(0);)  
[B. use digital MTI](javascript:void(0);)  
[C. change Doppler frequency](javascript:void(0);)  
[D. use short wavelength](javascript:void(0);)

**17.Radar transmits pulsed electromagnetic energy because**  
[A. it is easy to measure the direction of the target](javascript:void(0);)  
[B. it provides a very ready measurement of range](javascript:void(0);)  
[C. it is very easy to identify the targets](javascript:void(0);)  
[D. None of the above](javascript:void(0);)

MATCH THE FOLLOWING

1. Resolution of a radar-------🡪  [distinguish between two closelyspaced targets](javascript:void(0);).
2. Line-of-sight ----------------🡪[curvature of the Earth](javascript:void(0);)
3. height of an aircraft -------🡪 [radar altimeter](javascript:void(0);)
4. detector in a radar---------🡪IMPATT DIODE
5. fast communication--------🡪  [High S/N ratio](javascript:void(0);)