HOME ASSIGNMENT (radar) 2017-18

1 What is acronym of RADAR?

2 What is clutter?

3 What is the function of a synchronizer?

4 What is the significance of SNR and Noise figure?

5 Write an RF Amp. of a radar transmitter and Frequency range of X-band

6 Find the noise power in an IF Amp. of 60 Mhz bandwidth at ambient temperature of 27oC. Define range.

7 An IF Amplifier of 35Mhz in a receiver of radar is operating at 27oC with an output signal to noise ratio of 1.5. Find the minimum detectable signal if the noise figure = 25. Define aspect angle.

8 A linear target of 20 scatterers separated by a distance of 30 cm reflects 15 watt power of 2 GHZ. Find change in aspect angle and change in frequency at the same aspect angle.

9 Derive the radar equation. Assume necessary parameters.

10 What are the parameters which should be accounted for target radar cross section of fluctuations. Explain them briefly.

11 A vertically polarized EM wave of 500 V/m is reflected when 3000 V/m of the same polarization is transmitted to a target at 15 km away from the radar station. Find its radar cross section and also it scattering parameter.

12 What are the various applications of a radar? If a radar of 50 MHz bandwidth shows false alarm after a period of 15 minutes. Find the probability of false alarm?

13 Write a short who on swerling models with its different cases.

14 Explain system losses of a radar? Which of beam shapes is more used. What are the factors which affect the beam shape loss.