

IV B.Tech I Semester Supplementary Examinations, April/May 2005
RADAR ENGINEERING
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE Questions
All Questions carry equal marks

1. Derive an expression for the radar range in terms of the noise figure of the receiver, and integration efficiency. Define and explain all the terms involved.
2. (a) With a neat block diagram, explain the principle of working of a CW radar with IF receiver.
(b) Illustrate the principle of range and Doppler measurement with FMCW radar, for an approaching Target.
3. (a) Distinguish clearly between the principles and functioning MTI and pulse Doppler Radars.
(b) With a neat block diagram, explain the functioning of a MTI radar with power oscillator type of Transmitter.
4. (a) What are the special features of a Tracking radar? Explain the principle of working of a conical scan tracking radar.
(b) Explain the principle of simultaneous lobing technique and list out its advantages.
5. (a) What is a duplexer? Explain the principle of working of a branch type duplexer with neat schematics.
(b) Explain and distinguish between the different types of radar displays.
6. (a) Explain the characteristic features and applications of a cosecant squared antenna.
(b) List out the limitations and describe the limiting parameters that govern the performance of MTI radars.
7. (a) Define and derive the characteristics of a matched filter receiver.
(b) Explain and distinguish between the terms: Optimum receiver, Cross correlation receiver.
8. Write short notes on any THREE:
 - (a) Butterfly effect.
 - (b) Phase comparison mono-pulse Technique.
 - (c) Radomes.
 - (d) ECM and ECCM.
