

Con. 5520-07.

(REVISED COURSE)  
( 3 Hours)

CD- 7209  
[Total Marks : 100

- N. B. : (1) Question No. 1 is compulsory.  
(2) Attempt any four questions out of remaining six questions.

1. (a) Explain Radar resolution cell in brief. 5  
(b) What is Hyperbolic Navigation ? 5  
(c) Explain remote sensing radar in brief. 5  
(d) What do you understand by the term four point tracking ? 5
2. (a) Derive the Radar range equation as governed by minimum detectable signal to noise ratio. Enumerate the system losses that might occur in a long range surveillance radar and indicate the typical value of the losses due to each factor. 10  
(b) Describe the chief characteristics of the radar echo from a target when its radar cross-section is in the (i) Rayleigh region (ii) Resonance region and (iii) In the optical region. 10
3. (a) What do you understand by the term clutter ? Explain the different types of radar clutter. Enumerate the properties of Sea and Land clutter. 10  
(b) What is the drawback in simple CW Radar ? How it is overcome in CW-IF Radar ? Draw and explain CW - IF Radar in detail. 10
4. (a) Draw the functional block diagram of an MTI radar system and explain its operation. Define the terms range tracking and MTI improvement factor. 10  
(b) What do you mean by blind speed ? Explain in detail how this problem is overcome in pulse doppler Radar. 10
5. (a) What do you mean by RCS fluctuations ? Explain different swerings model for RCS fluctuations. 10  
(b) Explain the principle of operation of Loran A and Loran C. 10
6. (a) With a suitable block diagram explain the working of a conical scan tracking radar. Explain the various factors that need to be considered in determining the optimum squint angle. 10  
(b) What is the purpose of Instrument Landing System (ILS) ? Explain the limitations of ILS and how the same have been overcome in the MLS. 10
7. Write short notes on the following :—
  - (a) VHF Omnirange (VOR) 5
  - (b) Any two types of display used in Radar 5
  - (c) TACAN 5
  - (d) Phased array radar. 5