

Set No. 1

(Electronics and Communication Engineering)

Max. Marks: 75

All Questions carry equal marks

- 1 a) Draw the block diagram of a basic Radar system and explain its operation. Discuss the system losses in Radar briefly. [8]
b) Calculate minimum receivable signal in a radar receiver that has an IF bandwidth of 1.5 MHz and 9-dB noise figure. [7]
- 2 a) What is the integration of Radar pulses? How does it help to improve the performance? [8]
b) Calculate the minimum pulse interval and pulse repetition frequency required for Radar to detect unambiguous target, upto a range of 125 Km. [7]
- 3 a) Draw a block diagram of the FMCW radar and explain its operation. [8]
b) Discuss about Measurement Errors. [7]
- 4 a) Write in detail about low angle tracking and range gated Doppler filter. [8]
b) What do you understand by blind speed? How can it be eliminated? [7]
- 5 a) Discuss various tracking methods in Radar systems in detail. [8]
b) Draw the block diagram of conical-scan radar, one-coordinate monopulse tracking, and explain its operation. [7]
- 6 a) Discuss with necessary diagrams electronically steered phased array antenna system. [8]
b) Write about cosecant-squared antenna patterns. [7]
- 7 a) Explain about constant false alarm rate receiver. [8]
b) Discuss about Efficiency of Non-matched Filters. [7]
- 8 a) With neat sketches explain the following displays
(i) A- Scope (ii) B- Scope (iii) RHI (iv) PPI [8]
b) Discuss in brief branch type and balanced type duplexers. [7]