(3 Hours) **[Total Marks : 80**

N.B.: All Questions are compulsory.
Attempt any three questions out of five
All questions carry equal marks.
Assume suitable data, if required and state it clearly.

Q1. Attempt any **four** out of five sub-questions (5 marks each). **[20]**
(a) Draw block diagram of radar system.
(b) Summarize applications of radar and explain any two of them.
(c) Explain the working of Magnetron with diagram.
(d) In a doppler radar, the transmitted frequency was 100 MHz whereas that of received echo was 110 MHz Find the direction of target with respect to radar.
(e) Explain radar altimeter.

Q2. **(a)** Explain concept of monopulse tracking. **[10]**
(b) Derive radar range equation. **[10]**

Q3. **(a)** Explain microwave landing system ground-controlled approach. **[10]**
(b) Categorize different types of clutter and explain sea and land clutter. **[10]**

Q4. **(a)** Explain MTI Radar with neat block diagram. **[10]**
(b) Write a note on "Pulse Doppler Radar ". **[10]**

Q5. **(a)** List limitations of tracking accuracy and explain low angle tracking? **[10]**
(b) Write note on radar plotting **[10]**

Q6. **(a)** Explain block diagram of radar receiver. **[5]**
(b) Explain maximum unambiguous range. **[5]**
(c) Draw radar cross section of following targets **[5]**
1)sphere 2) cone
(d) Explain any two types of radar displays according to IEEE standard **[5]**

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