PVP 14

Code: EC7T5C

IV B.Tech - I Semester –Supplementary Examinations March - 2021

RADAR SYSTEMS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22 M

1.

a) List out some important applications of a radar system.
b) Calculate the range of a target, if the time taken by the signal to travel and return is 100 μs?
c) Outline the Doppler Effect.
d) Why isolation between Transmitter and Receiver is required in CW Radar?
e) Distinguish between MTI and Pulse Doppler Radar.
f) What are Range gate Doppler filters?
g) Discuss about blind speeds?
h) Explain the purpose of tracking radar. List out the types of tracking radar.
i) What is sequential Lobing?
j) Explain the significance of a matched filter Receiver?
k) Discuss about "Efficiency of non-matched filters"

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Describe the operation of radar block diagram. 8 M

   b) Derive radar range equation. 8 M

3. a) Explain range and Doppler measurement in FM-CW Radar. 8 M

   b) Draw and explain CW radar with nonzero IF receiver. 8 M

4. a) Describe the operation of MTI Radar with power oscillator transmitter. 8 M

   b) Explain the working principle of range-gated doppler filter. 8 M

5. a) With a neat sketch and explain the operation of conical scanning method. 8 M

   b) Explain the working of phase-comparison of monopulse radar. 8 M

6. a) Define the noise figure and noise temperature of a radar receiver and derive the expressions for it. 8 M

   b) Explain the operation of branch type duplexer in transmission and reception modes with a neat sketch. 8 M