CBCS SCHEME

USN

BEC714D/BTE714D

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Radar Communication

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Derive Radar equation. Discuss the effects of each parameter on the maximum detection range of the radar.	10	L3	CO1
	b.	Draw the block diagram of pulse radar with super heterodyne receiver and explain the function of each block and its operation.	10	L2	CO1
		OR			
Q.2	a.	Define Radar cross section of targets and explain its significance for various types of targets.	10	L2	CO1
	b.	Explain the following : (i) Pulse Repetition Frequency (PRF) (ii) Range Ambiguities (iii) Minimum detectable signal	10	L2	CO1
		Module – 2			
Q.3	a.	With a neat block diagram, explain simple CW Doppler radar. Also mention the advantages and disadvantages.	10	L2	CO2
	b.	Discuss the block diagram of MTI radar that uses a power amplifier as the transmitter.	10	L2	CO2
		OR			
Q.4	a.	Explain one angle co-ordinate amplitude comparison mono-pulse tracking with neat diagram.	10	L2	CO2
	b.	What are the different types of tracking radar systems? Explain with diagrams, how angle tracking is done.	10	L2	CO2
		Module – 3			
Q.5	a.	Explain the parameters required for measurement of a point target.	10	L2	CO3
	b.	Explain how the formula for time delay accuracy in radar measurement is simplified.	10	L2	CO3
		OR			
Q.6	a.	Derive surface clutter radar equation.	10	L3	CO3
	b.	Explain the detection of radar signals in high resolution sea clutter.	10	L2	CO3

		Module – 4			
Q.7	a.	Explain Klystron with a neat diagram.	10	L2	CO4
	b.	Explain the working principle of a traveling wave tube with the help of a diagram.	10	L2	CO4
		OR			
Q.8	a.	List and explain different types of mixers used in radar receiver.	10	L2	CO4
	b.	With diagram, explain the operation of balanced duplexer.	10	L2	CO4
		Module – 5			
Q.9	a.	Derive Radar equation for synthetic Aperture Radar system.	10	L3	CO4
	b.	Explain the classification of OTHR systems. Explain ionosphere effect on OTHR systems.	10	L2	CO4
		OR			
Q.10	a.	Explain principles of secondary Surveillance Radar.	10	L2	CO4
	b.	With related formula, explain range performance in secondary Surveillance Radar.	10	L2	CO4

* * * * *

CMRIT LIBRARY BANGALORE - 560 037