R20 Regulation *Subject code: 3E8DD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VIII Semester Supplementary Examinations, May 2026

RADAR ENGINEERING

(ECE)

Maximum Marks: 70 Date: 04.05.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	Bloom Tx
1	Define Maximum Unambiguous Range.	2M	CO1	BT1
2	Define the terms i). missed detection ii) false alarm	2M	CO1	BT1
3	Define Doppler effect.	2M	CO2	BT2
4	Draw the simple block diagram of CW Radar.	2M	CO2	BT1
5	Define blind speeds in MTI Radar.	2M	CO3	BT1
6	Differentiate between pulse Doppler radars and MTI Radar.	2M	CO3	BT1
7	Define the function of tracking radar.	2M	CO4	BT2
8	Draw any two scanning patterns of tracking radar.	2M	CO4	BT1
9	List the various types of displays used in radar.	2M	CO5	BT2
10	Define Noise Temperature and noise figure.	2M	CO5	BT1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
11	Draw the block diagram of pulse Radar and analyze it's the operation.	10M	CO1	BT2
	OR			
12	Derive the radar range equation and explain all the terms related in the equation.	10M ~~5M~~	CO1	BT2
13	a) Draw the block diagram of CW Radar and Explain its operation. b) Discuss the need for isolation between transmitter and receiver in CW Radar.	5M 5M	CO2	BT2
	OR			
14	Draw the block diagram of FM CW Radr and analyze its operation with neat wave forms.	10M	CO2	BT2
15	a) Draw the block diagram of MTI Radar using power amplifier b) Explain the concept of Delay line canceller	5M 5M	CO3	BT2
	OR			
16	a) Draw the Block diagram of MTI Radar using Range Gates and filters. b) Discuss the concept of staggered PRF.	5M 5M	CO3	BT2

17	Analyze the operation of Sequential Lobing using neat diagram	10M	CO4	BT3
	OR			
18	Discuss the concept of tracking in range using split gate range tracker.	10M	CO4	BT3
19	a) Derive the Matched Filter Frequency response. b) Compare the efficiency of non-matched filters with the matched filter.	5M 5M	CO5	BT4
	OR			
20	a) Derive the Noise figure of 2 networks when they are in cascade. b) Explain the operation of branch type duplexer with neat sketch.	5M 5M	CO5	BT3