R18 Regulation *Subject code:* 2E8DH

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular Examinations, June 2022

RADAR SYSTEMS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

Maximum Marks: 70 Date:20.06.2022 Duration: 3 hours

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 List the applications of radar.
2 How do you calculate the average radar power?
3 What is meant by CW radar?
4 What is Doppler effect?
5 What are the limitations of MTI Radar?
6 Define Blind Speed.
7 What is Boxcar Generator in conical Scanning?
8 What is sequential Lobing?
9 Define the efficiency of a Matched filter.
10 What are the types of duplexers?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 Derive the simple Radar range equation? What is the effect of wavelength on it? (10)

OR

12 Explain the Radar Cross Section (RCS) of sphere and cone-sphere targets. (10)

13 Draw the block diagram of FM-CW radar using side band super heterodyne receiver and explain its operation. (10)

OR

14 Explain the principle of operation of CW Doppler radar with non-zero IF receiver. (10)

15 Explain the principle of operation of MTI radar with power oscillator transmitter with a neat block diagram. (10)

OR

16 A) Briefly explain about range gated Doppler filters (5)
B) Describe the importance of double cancellation. (5)

17 Explain the operation of a Amplitude comparison mono pulse Tracking Radar. (10)

OR

18 A) Differentiate the conical and mono pulse Tracking Radars. (7)
B) Write the application of pulse compression radar. (3)

19 A) Write about radiation pattern of phased array antennas with suitable equations. (6)
B) Write about beamwidth of phased array antennas. (4)

OR

20 Derive the matched filter characteristics of a radar receiver? (10)