



CBCS SCHEME

17EC833

Eighth Semester B.E. Degree Examination, Jan./Feb. 2023 Radar Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Briefly describe the major areas of Radar applications. (10 Marks)
b. Explain second time around echoes and maximum unambiguous range. (10 Marks)

OR

- 2 a. Define and explain basic principle of radar with suitable diagram. (10 Marks)
b. Define duty cycle and find average power P_{av} if radar has the following characteristics
 $P_t = 1\text{MW}$, $\tau = 1\ \mu\text{sec}$, $T_P = 1\ \mu\text{sec}$. (10 Marks)

Module-2

- 3 a. Discuss briefly false alarm and missed deflection. (10 Marks)
b. Explain radar equation and threshold deflection. (10 Marks)

OR

- 4 a. Explain thermal noise power and noise figure with equations. (10 Marks)
b. Compare pulse repetition frequency and multiple time around echo. (10 Marks)

Module-3

- 5 a. Derive equation of Doppler frequency shift. (10 Marks)
b. Explain with block diagram simple. Continuous wave (CW) Doppler. (10 Marks)

OR

- 6 a. Explain with block diagram MTI radar. (10 Marks)
b. Explain with block diagram of delay line canceller. (10 Marks)

Module-4

- 7 a. Explain different types of tracking radar. (10 Marks)
b. Explain with block diagram one angle coordinate of amplitude comparison. (10 Marks)

OR

- 8 a. Explain different hybrid junction uses in monopulse radar. (10 Marks)
b. Compare conical scan and sequential lobing. (10 Marks)

Module-5

- 9 a. Explain function of radar – antenna. (10 Marks)
b. Explain receiver noise figure. (10 Marks)

OR

- 10 a. Explain the working of balanced duplexer using dual TR tubes with neat diagram. (10 Marks)
b. Explain electronically steered phase array. (10 Marks)

CMRIT LIBRARY
BANGALORE - 560 037

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.