

Code: 22ECMC2T2

I M.Tech - II Semester – Regular Examinations - JULY - 2023**DETECTION AND ESTIMATION THEORY
(MICROWAVE & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 60

Note: 1. This paper contains 4 questions from 4 units of Syllabus. Each unit carries 15 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Discuss the role of estimation in Signal Processing.	L2	CO1	7 M
	b)	Explain the unbiased estimation in detail.	L2	CO1	8 M
OR					
2	a)	Illustrate the process of finding MVU estimators.	L3	CO3	7 M
	b)	Analyze the Cramer – Rao Lower Bound concept with necessary equations.	L4	CO3	8 M

UNIT-II					
3	a)	Demonstrate the process of Least Squares Estimation with equations.	L3	CO3	7 M
	b)	Enumerate the Best Linear unbiased estimation procedure.	L2	CO2	8 M
OR					
4	a)	With an example discuss Bayesian philosophy.	L3	CO2	7 M
	b)	Explain the process of selection of prior PDF.	L2	CO3	8 M
UNIT-III					
5	a)	What is the significance of MAP detection in Hypothesis Testing? Discuss in detail.	L2	CO2	7 M
	b)	Demonstrate the Minimum Probability of Error Criterion with an example.	L3	CO2	8 M
OR					
6	a)	Explain Min Max Criterion and provide its necessity.	L2	CO3	7 M
	b)	Illustrate multiple Hypothesis and its importance.	L3	CO3	8 M

UNIT-IV

7	a)	What is WGN? Discuss its role in a system that how it affects.	L2	CO3	7 M
	b)	Explain the different procedures for detection of Signals.	L4	CO3	8 M

OR

8	a)	Demonstrate the M-ary detection process of known signals in WGN.	L3	CO4	7 M
	b)	Illustrate the Binary Detection procedure with the help of an example.	L3	CO4	8 M