

Code: 20EC2501B

**III B.Tech - I Semester – Supplementary Examinations  
NOVEMBER 2023**

**ELECTRONIC INSTRUMENTATION  
(Common for ALL Branches)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.  
2. All parts of Question must be answered in one place.

<b><u>UNIT – I</u></b>			
1.	a)	Differentiate gross and systematic errors.	4 M
	b)	In an industry there is a need to measure AC and DC voltages and current. Suggest a suitable instrument and explain its function.	10 M
<b>OR</b>			
2.	a)	What are random errors and what steps have to be taken to rectify the error?	6 M
	b)	Differentiate the two types of ohmmeters based on their functioning.	8 M
<b><u>UNIT – II</u></b>			
3.	a)	Choose the instrument which has the capacity to generate square wave and sine wave and explain its functioning.	6 M
	b)	Differentiate superheterodyne and frequency selective wave analyser based on its working.	8 M
<b>OR</b>			

4.	a)	Differentiate superheterodyne and filter band spectrum analyser based on its working.	8 M
	b)	Demonstrate how a function generator works with its block diagram?	6 M
<b><u>UNIT-III</u></b>			
5.	a)	Explain how amplitude and time period is measured using a CRO?	8 M
	b)	Describe the dual trace oscilloscope.	6 M
<b>OR</b>			
6.	a)	Explain the basic operation of a CRO with a neat diagram.	8 M
	b)	Analyse the advantages of storage oscilloscope compared to normal oscilloscopes.	6 M
<b><u>UNIT – IV</u></b>			
7.	a)	Show the resistance measurement using Wheatstone bridge.	7 M
	b)	Solve capacitance equation using Schering bridge.	7 M
<b>OR</b>			
8.	a)	Show the inductance measurement using Maxwell's bridge.	7 M
	b)	Solve frequency equation using Wien's bridge.	7 M
<b><u>UNIT – V</u></b>			
9.	a)	Differentiate active and passive transducers.	4 M
	b)	Demonstrate how one form of energy is converted to another form using Active transducer?	10 M

OR

10.	a)	Differentiate a sensor and a transducer.	4 M
	b)	Demonstrate how one form of energy is converted to another form using passive transducer?	10 M