

## Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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**Fourth Semester B.E. Degree Examination  
INSTRUMENTATION AND MEASUREMENTS**

TIME: 03Hours

Max. Marks: 100

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module -1			Marks	*Bloom's Taxonomy Level	CO
Q.01	a	Define measurement? Mention the significance of measurement	5	L1	4
	b	Briefly explain the modes of operation in Secondary instruments	6	L2	4
	c	Explain the elements of a Generalized Measurement System along with the example	9	L3	4
<b>OR</b>					
Q.02	a	Explain the various Functions of Instruments & Measurement Systems	9	L2	4
	b	Write a short note on Applications of measurement Systems in industry	6	L3	4
	c	Define the following terms (i) Accuracy (ii) Sensitivity (iii) Reproducibility (iv) Drift (v) Calibration	5	L1	4
<b>Module-2</b>					
Q. 03	a	What are the outstanding characteristics of DVM?	5	L1	2
	b	Explain the working of successive approximation DVM with the help of block diagram.	7	L2	2
	c	Explain the Integrating type DVM (voltage to frequency) with relevant equations	8	L3	2
<b>OR</b>					
Q.04	a	What is a Digital PH meter? Explain in brief	5	L1	2
		Explain the working and construction of a Digital Frequency Meter with neat diagrams	7	L2	2
	b	Explain the Digital Measurement of time with neat diagrams.	8	L3	2
<b>Module-3</b>					
Q. 05	a	With the help of neat sketch explain Cathode Ray Tube (CRT)	6	L2	3
	b	Explain in detail the operation of a Time Base Generator with a neat diagram.	6	L3	3
	c	Differentiate between Double beam and Dual trace Oscilloscopes	4	L1	3
<b>OR</b>					
Q. 06	a	Explain the principle of Sampling Oscilloscopes with necessary diagram	7	L2	3
	b	With the help of block diagram, describe the basic circuitry of cathode ray oscilloscope	8	L3	3
	c	Write a short note on the usage of electronic switch in	5	L1	3

		Oscilloscope			
<b>Module-4</b>					
Q. 07	a	With the help of Maxwell's Bridge, Compare the standard capacitance with inductance.	8	L3	2
	b	Mention Advantages and Disadvantages of Maxwell's Bridge	5	L1	2
	c	Explain the Principle of Kelvin Bridge with its connections.	7	L2	2
<b>OR</b>					
Q. 08	a	Explain the Wien's Bridge of frequency determination. Also derive the expression for it	10	L4	2
	b	Show the Wagner Earthing connection and describe it.	7	L2	2
	c	Write a short note on AC Bridges	3	L1	2
<b>Module-5</b>					
Q. 09	a	What are transducers? Differentiate between Active and Passive transducers	5	L1	3
	b	With neat sketch explain Linear Variable Differential Transformer (LVDT). Also mention advantages and disadvantages of it.	12	L3	1
	c	Write a short note on Resistance Thermometers	3	L2	1
<b>OR</b>					
Q. 10	a	Explain the principle of Piezoelectric Transducers. What are the piezoelectric materials used?	7	L3	3
	b	Explain the bridge type Compensation method for thermocouple	6	L3	1
	c	What are LCD's? Describe the various types of LCD's	7	L2	4

\*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.