Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U3405

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth Semester

Electrical and Electronics Engineering

21UEE405-ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	Classify the types of errors.	CO1- U
2.	Outline the block diagram of functional elements of measurement system	CO1- U
3.	Classify the types of instruments used as ammeter and voltmeter	CO1- U
4.	List out the advantages of MI instruments	CO1- U
5.	Outline the circuit diagram of Schering bridge	CO1- U
6.	A Wheatstone bridge consists of the following parameters. R1=12KΩ, R2 = 16KΩ and R3 = 42KΩ. Find the unknown resistance R4.	CO3- App
7.	Classify the different methods of magnetic tape recording.	CO1- U
8.	Enumerate the merits and demerits of pulse width modulation recording.	CO1- U
9.	A basic step of a 9 bit is 10.4mV. If 000000000 represents 0V, What output is produced if the output is 101101111?	CO4-App
10.	List the different types of Transducer.	CO1- U

PART – B (5 x 16= 80 Marks)

11.	(a)	Explain the different types of calibration of measuring instruments	CO1- U	(16)
		Or		
	(b)	If a set of six observations are as follows: 2V, 3V, 1.5V, 5V, 2V, 4.5V. Calculate the arithmetic mean, average deviation.	CO1- U	(16)

12.	(a)	With a neat diagram explain the construction and working of Moving iron Attraction type instruments	CO1- U	(16)
		Or		
	(b)	Explain the construction and working of PMMC instruments. Derive the equation for deflection.	CO1- U	(16)
13.	(a)	A Maxwell bridge is used to measure an inductive impedance. The bridge constants at balance are: R1=200KΩ, C1=0.015 μF, R2=3 KΩ, R3=60 KΩ. Find the series equivalent of the unknown impedance.	CO2- App	(16)
		Or		
	(b)	Explain the circuit of Maxwell bridge used for measurement of inductance. Derive the condition for balance.	CO2- App	(16)
14.	(a)	Explain the in detail about Direct recording method used in magnetic tape with a neat sketch.	CO1- U	(16)
		Or		
	(b)	Categorize the different types of printing methodology used for printing the documents onto the paper.	CO1- U	(16)
15.	(a)	Explain the in detail about types of transducers and selection of transducers for any applications.	CO1- U	(16)
		Or		
	(b)	Explain the construction and working of RTD with a neat sketch.	CO1- U	(16)