Code No: 183AV **R22**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year I Semester Examinations, February - 2024
ELECTRONIC MEASUREMENTS
(Electronics and Instrumentation Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.
- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

1.a)	List out few International standards.	[1]
b)	What is an error?	[1]
c)	Draw the circuit for Schering Bridge.	[1]
d)	Mention the applications of Wheatstone bridge.	[1]
e)	What do you mean by Period measurement?	[1]
f)	What is time base selector?	[1]
g)	Define the function of wave analyzer?	[1]
h)	What is the Significance of Spectrum Analyzer?	[1]
i)	List out the essential components of a CRT.	[1]
j)	Mention the advantages of LED display.	[1]

PART-B

(50 Marks)

2.a) Explain about static characteristics of measuring instrument.
b) Analyze primary and secondary standards measurements. [5+5]

OR

3.a) Explain in detail the construction of Multi- meter.
b) Classify the Measurement Errors and explain them. [5+5]

4.a) Explain the operation of Q-meter and its applications.
b) The four arms of a Hay's alternating current bridge are arranged as follows: AB is a coil of unknown impedance; BC is a non-reactive resistor of 1200Ω; CD is a non-reactive resistor of 850Ω in series with a standard capacitor of 0.40μF; DA is non-reactive resistor of 1700Ω. If the supply frequency is 50Hz, determine the inductance and the resistance at the balanced condition. [5+5]

OR

5. Discuss the principle of working of a Kelvin's double bridge for measurement of unknown low resistances. Explain how the effects of contact resistance and resistance of leads are eliminated. [10]

6. Explain the Principle of operation Digital Frequency Meter with a neat sketch. [10]

OR

7. Discuss the principle of working of Electronic Counter and its different modes. [10]

8.a) Draw the simple circuit of wave analyzer and explain its working. How to overcome limitations of it?

b) Explain the Harmonic distortion analyzer with the help of suitable diagram. [5+5]

OR

9.a) Explain the Principle and working of Harmonic distortion analyzers.

b) Explain the information that is provided by the Spectrum analysis. [5+5]

10.a) What is sampling oscilloscope? Mention its advantages and disadvantages.

b) Discuss briefly about Dot Matrix. [5+5]

OR

11.a) Briefly explain the different types of storage oscilloscopes.

b) Explain 14 segment display with neat diagram. [5+5]

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