



R17 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 1E7DE

B.Tech IV Year I Semester Regular Examinations, February 2021

Electronic Measurements and Instrumentation

(Electronics and Communication Engineering)

Maximum Marks: 70

Date: 27.02.2021 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 List out the types of errors in an instrument?
- 2 What is the difference between precision and accuracy.
- 3 Write the applications of signal generators.
- 4 List out the difference between Spectrum analyzers and Power analyzers.
- 5 Define CRO?
- 6 Draw the block diagram of Digital storage oscilloscopes.
- 7 Define transducer?
- 8 Mention the advantages of thermocouples.
- 9 Explain the principle of Kelvin Bridge?
- 10 Write short notes on data acquisition .

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 A Voltmeter having a sensitivity of $10k \Omega /V$ reads 40V on a 100V scale, when connected across an unknown resistor. The current through the resistor is 5mA. Calculate the % of error due to loading effect (10M)

OR

- 12 Explain the working of True RMS voltmeter.(10M)

- 13 Explain the working principle of heterodyne wave analyzer with neat block diagram. (10M)

OR

- 14 What is the minimum detectable signal of a spectrum analyzer with a noise figure of 30dB and using a 2-kHz, 3-dB filter?(10M)

- 15 Explain the method of finding frequency relationship of two waveforms using Lissajous figures?(10M)

OR

- 16 Explain the working principle of Cathode Ray Oscilloscope with neat block diagram. (10M)

17 Explain the construction, working principle , characteristics and applications of LVDTs.
(10M)

OR

18 Explain the working principle of Hot-wire Anemometer.(10M)

19 With neat diagram explain the Maxwell Bridge and derive the expression for unknown inductance.(10M)

OR

20 In a Wheatstone bridge circuit, consider the measurements $R_A=100k\ \Omega$, $R_B=200k\ \Omega$, $R_C=200k\ \Omega$, $R_D=150k\ \Omega$. $E=2.5V$, $R_g=50\ \Omega$, with usual notation. Determine the current through the detector galvanometer.(10M)