

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth semester B.Tech degree examinations (S) September 2020

Course Code: AE303**Course Name: ELECTRICAL MEASUREMENTS AND MEASURING INSTRUMENTS**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) Explain loading effect. (5)
- b) Briefly explain the classification of different types of errors in a measurement systems. (10)
- 2 a) Compare accuracy and precision. (6)
- b) Explain the operation of a rectifier type voltmeter. (5)
- c) Differentiate primary and secondary standards. (4)
- 3 a) Sketch the basic construction of a typical permanent magnet moving coil instrument and explain its operation. (7)
- b) Give the basic principle of electrostatic instruments. With the aid of a neat diagram explain the working of a quadrant type electrostatic voltmeter. (8)

PART B*Answer any two full questions, each carries 15 marks.*

- 4 a) Explain the principle of operation of a Carey Foster Slide Wire Bridge. (7)
- b) Draw the Thevenin equivalent circuit of a Wheatstone bridge as seen from the galvanometer. Derive the equation for galvanometer current. (8)
- 5 a) Derive the general equation for an AC bridge at balance. (5)
- b) Differentiate coordinate and polar type AC potentiometers. (10)
- 6 a) Describe a Kelvin's bridge stating its advantage. (8)
- b) Explain the working of a Schering's bridge with circuit diagram. (7)

PART C*Answer any two full questions, each carries 20 marks.*

- 7 a) With a neat block diagram, explain the working of a digital storage oscilloscope. (10)
- b) Explain the oscilloscopic techniques to determine frequency and phase angle measurement. (10)

- 8 a) Explain the function of an X-Y recorder. With the help of necessary circuit diagram, explain how the X and Y scales are set. (10)
- b) Elaborate the working of a true RMS responding voltmeter with a block diagram. (10)
- 9 a) Draw basic circuit diagram of a Q meter and explain its operation. (10)
- b) With block diagram explain the working of a spectrum analyser. (10)

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