Q.2   a. Discuss Limiting errors and relative limiting errors.
Answer: Article 3.1-3.2 of Text Book 1

   b. A voltage has a true value of 1.50V. An analog indicating instrument with a scale range of 2.50V shows a voltage of 1.46 V.
   (i) What are the values of absolute error and correction?
   (ii) What is the error as a function of the true value and as a % of full scale deflection?

Answer:

Q.3   a. What are the various methods used to measure medium resistance? Explain anyone method in brief.
Answer: Article 14.2/14.2.4 of Text Book 1

   b. Explain working of Anderson's bridge with the help of phasor diagram. Also derive the relation for self inductance of a coil.
Answer: Article 16.5.4 of Text Book 1

Q.4   a. What are the general requirements of a shunt?
Answer: Article 3.1, Page Number 65 of Text Book 2

   b. A 100 µA meter movement with an internal resistance of 500 Ω is to be used in a 0-100 mA Ammeter. Find the value of the required shunt.
Answer:

   c. Explain working of AC voltmeter using rectifiers.
Answer: Article 4.12, Page Number 99 of Text Book 2

Q.5   a.   Discuss the working principle and applications of the following:
            (i) Universal counter
Answer: Article 6.5, Page Number 158 of Text Book 2
            (ii) Voltage to frequency conversion using integrating type DVM.
Answer: Article 5.4, Page Number 132 of Text Book 2

         b.   Write the working principle and applications of Q meter.
Answer: Article 10.7, Page Number 286 of Text Book 2

Q.6   Explain the working of the following using block diagram.
            (i) VHF sampling oscilloscope
Answer: Article 7.17, Page Number 201 of Text Book 2
            (ii) Standard Signal Generator
Answer: Page Number 222 of Text Book 2

Q.7   a.   Draw the block diagram of Spectrum Analyser and explain its working.
Answer: Page Number 254 of Text Book 2

         b.   Explain in brief Self Balancing Bolometer Bridge with the help of a
            diagram.
Answer: Page Number 692 of Text Book 2

Q.8   Discuss working principle of the following and write their applications.
            (i) Magnetic Recorders
Answer: Article 12.7, Page Number 385 of Text Book 2
            (ii) Galvanometer type Recorder
Answer: Article 12.3, Page Number 374 of Text Book 2

Q.9   a.   Write applications of the following
            (i)   Differential output transducer
            (ii)   Capacitive transducer
            (iii) Strain Gauges
            (iv)   Resistive transducers
Answer: Page Number 402 of Text Book 2

         b.   Explain single channel Data Acquisition System (DAS) in brief.
Answer: Page Number 600 of Text Book 2

TEXT BOOKS

1. A Course in Electrical and Electronic Measurements and Instrumentation, A.K Sawhney, Dhanpat Rai & Co., New Delhi, 18th Edition 2007.

2. Electronic Instrumentation, H.S Kalsi, Tata McGraw Hill, Second Edition 2004.