

Q2 (a) Draw block diagram of generalized measurement system and discuss the function of its components.

Answer Article 1.13 of Text Book - I

Q2 (b) Three resistors have the following ratings: $R_1 = 37\Omega \pm 5\%$, $R_2 = 75\Omega \pm 5\%$, $R_3 = 50\Omega \pm 5\%$. Determine the magnitude and limiting error in ohm and in percent of resistance of these resistance connected in series.

Answer Problem Number 3.4, Page Number 64 of Text Book - I

Q3 (a) Write special features of High Voltage Schering Bridge.

Answer Article 16.6.3 of Text Book - I

Q3 (b) Derive an expression for the sensitivity of Wheatstone bridge.

Answer Article 14.2.4 of Text Book - I

Q4 Discuss the working & applications of the following:

- (i) Multirange Ammeters**
- (ii) Digital Multimeters**

Answer Article 3.2 of Text Book - II

Q5 (a) Write applications of the following:

- (i) Dual slope Integrating type DVM**
- (ii) Digital Capacitance meter**
- (iii) Phase meter**
- (iv) Continuous Balanced DVM**

Answer

- i.** Article 5.4 of Text Book - II
- ii.** Article 6.13 of Text Book - II
- iii.** Article 10.5 of Text Book - II
- iv.** Article 5.8 of Text Book - II

Q5 (b) Discuss working principles of the following with the help of suitable diagrams:

- (i) Digital Tachometer**
- (ii) Digital pH meter**

Answer

- i.** Article 10.3 of Text Book - II
- ii.** Article 6.10 of Text Book - II

Q6 (a) Explain the working principle of square & pulse wave generator with the help of a block diagram Mention its applications.

Answer Article 8.8 of Text Book - II

Q6 (b) Draw the block diagram of CRO & discuss the functions of the following:

- (i) CRT**
- (ii) Vertical amplifier**

Answer Article 7.3 of Text Book - II

- (i) Article 7.2 of Text Book - II**
- (ii) Article 7.5 of Text Book - II**

Q7 Discuss features & applications of the following:

- (i) Heterodyne wave analyzers**
- (ii) Spectrum analyzer**
- (iii) Bolometer method of power measurement**
- (iv) Measurement of RF power**

Answer

- i. Article 9.4 of Text Book - II**
- ii. Article 9.6 of Text Book - II**
- iii. Article 20.3 of Text Book - II**
- iv. Article 20.10 of Text Book - II**

Q8 (a) Explain the requirements and selection of Recorders.

Answer Article 12.2/12.3 of Text Book - II

Q8 (b) Discuss features and working principle of the X-Y recorder. What are its applications?

Answer Article 12.10 of Text Book - II

Q9 Write short notes on the following:

- (i) Electrical transducers**
- (ii) Flow measurement transducers**
- (iii) LVDT**
- (iv) Thermistor**

Answer

- i. Article 13.2 of Text Book - II**
- ii. Article 13.23 of Text Book - II**

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- iii. Article 13.11 of Text Book - II
 - iv. Page Number 396 of Text Book - II

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.