

Total number of printed pages-3

53 (IE 504) ELIN

2015

ELECTRONIC INSTRUMENTATION

Paper : IE 504

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions.

1. (a) Explain the true RMS voltmeter with neat sketch. 6
- (b) Define the Q-factor of a coil. Explain with a circuit diagram, construction and basic principle of operation of a basic Q-meter. 10
- (c) Compare the signal generator and function generator. 4

Contd.

2. (a) Define Harmonic distortion and its causes. 4
- (b) What are the applications of Spectrum analyzer ? Draw the block diagram of spectrum analyzer and explain its working. 10
- (c) Explain the relation between sine wave and square wave generator. 6
3. (a) How is the electron beam focused on to a fine spot on the face of the CRT ? 5
- (b) Explain briefly : 10
- * Screens for CRT
 - * Signal generators.
- (c) Calculate the value of the multimeter resistance on the 50V range of a *dc* voltmeter that causes a $200\mu\text{A}$ meter movement with an internal resistance of 100Ω . 5
4. (a) Explain how we display with the help of segmental and dot matrix display. 10
- (b) What is X-Y recorder ? Write the differences between the recording and display devices with example. 10

5. (a) What are dual beam and dual trace ? State the differences between these two. 10
- (b) What is digital instrument ? How can we measure frequency, period, phase difference, pulse width by digital method ? 10
6. (a) Discuss sweep frequency generator with neat figure. 10
- (b) What is vertical and horizontal deflection system in CRO ? 4
- (c) Write the applications of CRO. 2
- (d) What are the differences between storage and sampling oscilloscope ? 4
7. Write short notes on : **(any four)** $5 \times 4 = 20$
- * Digital Voltmeter
 - * Spectrum Analyzer
 - * Sampling Oscilloscope
 - * Delay line
 - * Cathode ray Oscilloscope
 - * Probes.
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