Total No. of Questions : 12] [Total No. of Pages : 3

P1287

[3864]-250

B.E. (Electronics)

ELECTRONIC MEASUREMENT

(2003 Course) (404209)

Time : 3 Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***

SECTION - I

Q1) a) Write the principle of Digital LCR - Q meter. Draw the diagram and explain. Also state its applications and specifications. **[10]**

b) Why the Vector Impedance Meter is used? Explain its operation with neat block diagram. **[8]**

OR

Q2) a) What is the distributive capacitance C_d? Explain distributive capacitance measurement in Q-meter circuit. How C_d and insertion resistance affect the 'Q' of a coil? **[10]**

b) Explain with the neat diagram Autoranging in DMM. What do you mean by Autozeroing in DMM. **[8]**

Q3) a) State how the stability is achieved in Digital Frequency Meter using TCXO and OCXO. **[8]**

b) Explain the High Frequency Measurement techniques in Digital Frequency counter. **[8]**

OR

Q4) a) Write brief notes on

i) Regression Analysis.

ii) Calibration Methodologies. **[8]**

b) Calculate

i) Arithmetic Mean

ii) Deviation of each value from the mean.

iii) Standard Deviation.

iv) Variance

P.T.O.

for the given data:

$x_1 = 49.7$

$x_2 = 50.1$

$x_3 = 50.2$

$x_4 = 49.6$

$x_5 = 49.7$ [8]

Q5) a) Compare Digital Storage Oscilloscope with Analog CRO. Write their specifications also. [8]

b) What are different sampling Techniques used in DSO? Explain. Also draw and explain the Block diagram of DSO. [8]

OR

Q6) a) Explain the various measurements performed on DSO. Also comment on the memory in DSO. [8]

b) What is the difference between dual beam CRO and dual Trace CRO? Draw and explain the block diagram of dual Trace CRO. [8]

SECTION - II

Q7) a) Explain in brief the need of Logic Analyzer, FFT Analyzer, Protocol Analyzer and Spectrum Analyzer in electronic measurement systems. State at least one specification of each. [10]

b) Draw the diagram and explain Fundamental Suppression Distortion Analyzer. [8]

OR

Q8) a) What are different types of Spectrum Analyzers? State their application area. Explain any one with neat block diagram. [8]

b) Write the different modes of observing the signals on Logic Analyzer. Also write any two applications and two specifications of Logic Analyzer. [6]

c) Why protocol analyzer is used in the measurement system? [4]

Q9) a) Write a brief note on S-parameters and their measurements [8]

b) Comment on the Accuracy of Network Analyzer. [8]

OR

*Q10)*a) Compare Scalar Network Analyzer and vector Network analyzer. Explain any one with neat diagram. [8]

b) Comment on Sensitivity, Selectivity and phase fitter measurement in communication system. [8]

*Q11)*a) What do you mean by Virtual Instrumentation? Describe in brief the components of virtual instrumentation system. **[8]**

b) Explain IEEE-488 bus structure in detail. **[8]**

OR

*Q12)*a) Write a brief note on Computer Controlled test measurements. **[8]**

b) Compare FDM and TDM. How will you use Virtual Instrumentation for the measurement of FDM and TDM? **[8]**