

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3041

Roll No.

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B.Tech.

SIXTH SEMESTER EXAMINATION, 2004-2005

MEASUREMENTS AND INSTRUMENTATION

Time : 2 Hours

Total Marks : 50

Note : *Attempt ALL questions.*

1. Attempt *any three* parts of the following : (5x3=15)

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- (a) What are the different methods of measurement of frequency in the power frequency range ? Explain any one of them in detail.
 - (b) What are various techniques of time interval and group delay measurements ?
 - (c) Describe briefly, various methods of voltage measurement at radio frequencies.
 - (d) Describe the circuits and working of wave analysers used for audio frequencies.
 - (e) What is inter modulation distortion ? Describe the working of an inter modulation distortion meter with the help of a block diagram.

2. Attempt *any two* parts of the following : (5x2=10)
- (a) Define active and passive transducers with examples and state the role of each in measurement systems.
 - (b) Explain quartz temperature transducer with the help of block diagram.
 - (c) Explain Doppler frequency shift flowmeter.
3. Attempt *any two* parts of the following : (5x2=10)
- (a) (i) A broad cast AM transmitter radiates 60 KW of carrier power. What will be the radiation power at 75 percent of modulation ?
 - (ii) Explain current telemetering systems.
 - (b) Draw the block diagram representation of a basic frequency modulation tele metry system and explain its working. Make a comparison between frequency and amplitude modulation.
 - (c) List the features of GPIB interface bus. Explain with the help of a diagram.
4. Attempt *any three* parts of the following : (5x3=15)
- (a) Compare LED and LCD in respect of (i) construction principle (ii) speed (iii) size of display area.
 - (b) Elucidate the non-return-to-zero method of magnetic recording and reproduction of digital signal 1011001.

- (c) What is Network Analyser ? Mention its engineering applications.
- (d) Explain the principle of secondary emission in a storage oscilloscope.
- (e)
 - (i) What are the basic types of digital tape recorders ?
 - (ii) What are the various methods of magnetic tape recording ? Explain any one of them in detail.