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B.Tech. 5th Semester (F) Scheme (ECE)

Examination, December-2018

ELECTRONIC MEASUREMENT AND

INSTRUMENTATION

Paper-EE-303-F

Time allowed : 3 hours]

[Maximum marks : 100

Note : Question No. 1 is compulsory and attempt one question from each section.

1. (a) Why is delay line used in the vertical section of an oscilloscope? 04
- (b) Define piezoelectric transducers. What are the common materials used for piezoelectric transducer? 04
- (c) Define resolution, accuracy and sensitivity of Instrument. 04
- (d) An electronic counter counts 500 cycles of a 2 MHz clock during the period of input signal when operated on its period mode. What is the frequency of Input signal? 04
- (e) What is thermocouple? Enumerate desired properties of thermocouple metals. 04

Section-A

2. (a) Describe the construction and working of an analog storage oscilloscope. Explain the principle of secondary emission. 10
- (b) Discuss the measurement of phase and frequency with the help of CRO. 10

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3. Draw the block diagram of general purpose CRO and explain the function of following controls in detail. 20
- (a) Vertical and horizontal positioning
 - (b) Intensity
 - (c) Focus
 - (d) Synchronization
 - (e) Blanking

Section-B

4. (a) What are the differences amongst average, peak and rms responding electronic voltmeter? Explain the working of true rms type voltmeters with the help of its diagram. 10
- (b) Describe the various factors which are taken into consideration while selecting electronic type analog voltmeter. 10
5. (a) Describe the methods of measurement of voltage and power at radio-frequencies. 10
- (b) Explain, with the help of a block diagram the various parts of an electronic multimeter. 10

Section-C

6. (a) What are the requirements of pulse? Draw and explain circuit of any one multivibrator used per pulse generation. 10
- (b) Draw and explain block diagram of a heterodyne wave analyzer. Give its applications. 10

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7. (a) Explain the working of decade counting Assembly. 10
- (b) Describe the method of period measurement, with the help of suitable diagram. 10

Section-D

8. (a) What are the various principle of operation of Capacitive transducer? Explain them, give merits, demerits and applications of capacitive transducer.
- (b) Explain how torque can be measured using Strain-Gauge. 10
9. (a) Draw block diagram of an ac signal Conditioning System. Explain function of each block. 10
- (b) Explain in detail the different components of digital data acquisition system. 10

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