



Printed Pages : 3

IC – 603

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

PAPER ID : 3047

Roll No.

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B. Tech.

(SEM. VI) EXAMINATION, 2006-07

ELECTRONICS MEASUREMENT & INSTRUMENTATION

Time : 2 Hours]

[Total Marks : 50

Note : Attempt all questions.

- 1 Attempt any **four** parts of the following : **4×4=16**
 - (a) Define and explain briefly the static performance parameters of instruments.
 - (b) A source having an open circuit voltage of 20V and an output impedance of $(1.5 + j4) \Omega$ is connected through a transmission network of impedance $(0.5 + j1)\Omega$. What should be the load impedance so that the maximum power will be delivered to it? Calculate the maximum deliverable power.
 - (c) Derive the equations for capacitance and dissipation factor of a low voltage Schering bridge. Draw the phasor diagram of the bridge under conditions of balance.
 - (d) Explain the function and working of Wagner Earth Device.
 - (e) Describe the phenomenon of synchronisation of vertical input signal to sweep generator in CRO.
 - (f) Discuss delayed sweep in CRO.

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2 Attempt any **four** parts of the following : **4×4=16**

- (a) Write a technical note on loading effects of instruments
- (b) Explain with the help of a block diagram, the various parts of an electronic multimeter.
- (c) Describe the methods of measurement of voltage and power at radio frequencies.
- (d) What are the various factors, taken into consideration while selecting an electronic type analog voltmeter.
- (e) A saw tooth voltage has a peak value of 40V and a time period of 5.0 second as shown in figure below.

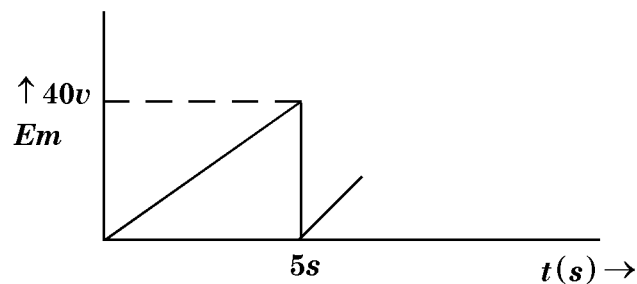


Fig. 1

Calculate the error when measuring this voltage with an average reading voltmeter, calibrated in terms of rms value of sinusoidal waves.

- (f) Describe the circuit diagram and operation of a d.c. voltmeter using a direct coupled amplifier.

3 Attempt any **two** parts of the following : **4.5×2=9**

- (a) Describe the working of an inter modulation distortion meter with the help of a block diagram.

- (b) What are different types of distortions caused by amplifiers?
- (c) Describe the basic circuit of a spectrum analyser.

4 Attempt any **two** parts of the following : **4.5x2=9**

- (a) Explain frequency measurement using Schmitt trigger with the help of a diagram.
 - (b) Sketch the block diagram for time interval measurement mode of operation using DDAs and DCAs.
 - (c) Explain operation of digital phase meters with the help of block diagram.
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