Seat No. : 2893

MD-124

November-2016

B.Sc., Sem.-V

CC-303 : Electronics

[Max. Marks : 70

Time : 3 Hours]

Instructions : (1) All questions carry equal marks.

(2) Symbols used here have their usual meaning.

1. (a) Write the principle of operation of chopper type voltmeter. Discuss the chopper type DC amplifier voltmeter in detail with necessary diagrams. **10**

OR

(i) Draw the block diagram of solid state voltmeter and explain its working.

(ii) Draw the block diagram of true – RMS voltmeter and explain its working. **4**

(b) Write considerations in choosing an analog voltmeter.

OR

Calculate the value of multiplier resistor for a 10 V_{rms} on the voltmeter using half wave rectifier. I_{fsD} = 1 mA and Rm = 200 Ω. Also calculate the sensitivity of meter movement.

2. (a) Draw the block diagram of successive approximation DVM and explain its working with suitable example. **10**

OR

Draw the block diagram of integrating type DVM and explain it with necessary waveforms.

(b) Explain 3½ digit, resolution and sensitivity of digital voltmeter. A 3½ digit DVM is used for measuring voltage. Determine resolution. **4**

OR

An integrator consists of 100 kΩ resistor and 1μF capacitor. If the voltage applied to the integrator input is 1V what voltage will be present at the output of the integrator after 1 sec. If a reference voltage of 10 V is applied to the integrator at time t_1. What is time interval of t_2 ?

10V

3. (a) Discuss CRT circuits with necessary diagram. 8

OR

Explain Post deflection acceleration. Draw the diagram of post deflection acceleration cathode ray tube using a mesh and explain it. Write disadvantages of mesh type post deflection acceleration cathode ray tube.

(b) Draw neat and clean block diagram of general purpose CRO. Explain the function of each block. 6

OR

Write short note on screens for CRT.

4. (a) Draw the block diagram of laboratory square wave and pulse generator. Explain its working with necessary diagrams. 10

OR

Explain pulse characteristics and terminology with suitable diagram.

(b) Write note on pulse and square wave generator. 4

OR

Write note on Piston attenuator.

5. Answer in short : 14

(1) What is TVM ?

(2) Write difference between average responding voltmeter and peak responding voltmeter.

(3) Write two advantages of DVM.

(4) Write full form of SAR.

(5) Write formula for closed loop gain of feedback amplifier.

(6) Write two advantages of staircase type DVM.

(7) What is Luminance ?

(8) What is graticule ?

(9) Draw simple sample and hold circuit.

(10) Write two kinds of delay line.

(11) Draw the effect of overcompensated probe.

(12) Define duty cycle.

(13) What is sag ?

(14) Convert + 5dBw to dBm.