

Seat No. : \_\_\_\_\_

**NM-116**  
November-2017  
B.Sc., Sem.-V  
CC-303 : Electronics

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) All questions carry equal marks.  
(2) Symbols used here have their usual meaning.

1. (a) Draw a general rectifier type AC voltmeter arrangement and explain its working. Draw a circuit diagram of AC voltmeter using half wave rectifier and explain. 10

OR

Explain the principle of chopper type DC amplifier voltmeter. Discuss the chopper type DC amplifier voltmeter in detail with necessary diagrams.

- (b) Draw the block diagram of average responding voltmeter and explain. 4

OR

Calculate the dc sensitivity, ac sensitivity and multiplier resistor for 50 V rms ac range of voltmeter using full wave rectifier circuit.  $R_m = 100 \Omega$ ,  $I_{fSD} = 100 \mu A$ .

2. (a) Draw the block diagram of Integrating type DVM and explain its working with suitable diagram. 10

OR

Write the operating principle of Ramp-type DVM. Draw the block diagram of Ramp Type DVM and explain.

- (b) A  $3\frac{1}{2}$  digit voltmeter is used for voltage arrangement : 4

- (i) Find its resolution.  
(ii) How would 11.52 V be displayed on 10 V range ?  
(iii) How would 0.5234 V be displayed on 1 V and 10 V range ?

OR

An integrator contains a  $100 \text{ k}\Omega$  and  $1 \mu F$  capacitor. If the voltage applied to the integrator input is 1 Volt, what voltage will be present at the output of after 1 sec. If the reference voltage is applied to the integrator at time  $t_1$  is 5 Volt in amplitude, what is time interval of  $t_2$  ?

3. (a) Discuss the function of delay line. Explain lumped parameter delay line. Write advantages and disadvantages of lumped parameter delay line. 8

**OR**

Discuss CRT circuits with necessary diagram.

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

**OR**

Draw the diagram of Meshless scan expansion post deflection acceleration cathode ray tube and explain.

4. Draw the block diagram of laboratory square wave and pulse generator. Explain its working with necessary diagrams. 14

**OR**

Explain pulse characteristics and terminology with suitable diagram.

5. Answer in short : 14

- (1) Define Duty cycle.
  - (2) What is VTVM ?
  - (3) Write two advantages of DVM.
  - (4) Write basic difference between peak responding voltmeter and average responding voltmeter.
  - (5) Define Resolution.
  - (6) What is half digit ?
  - (7) Write full form of SAR.
  - (8) In which DVM the principle of voltage to time conversion is used ?
  - (9) What is graticules ?
  - (10) What is Luminance ?
  - (11) Draw the output waveform of sample and hold circuit.
  - (12) Write full form of PRR.
  - (13) How many stable stage in Astable multivibrator ?
  - (14) What is piston attenuator ?
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