2603E1333   Candidate's Seat No :_____

B.Sc. Semester-5 Examination
CC 303
Electronics

Time : 2-30 Hours]   March-2024   [Max. Marks : 70

Instructions: (1) Symbols used here have their usual meanings.
(2) Figures to the right indicate marks.

Q-1 (i) Draw the circuit diagram of solid state mV voltmeter using Op-Amp. Explain its working in detail. (7)

(ii) Explain true-RMS AC voltmeter in brief. (7)

OR

(i) Explain the standard mode of operation of a DC standard/Differential voltmeter with the help of proper block diagram. (7)

(ii) Write a short note on peak responding AC voltmeter. (7)

Q-2 (i) A 4 and ½ digit voltmeter is used for voltage measurements. (1) Find its resolution (2) How would 12.98 V be displayed on 10 V range? (3) How would 0.6973 be displayed on 1 V and 10 V ranges. (7)

(ii) Explain the basic principle of successive approximation type DVM. (7)

OR

(i) Explain ramp technique (Voltage – to – time conversion) with the help of negative ramp. (7)

(ii) Write a note3 and ½ digit display of a DVM. Explain resolution and sensitivity of a digital meter. (7)

Q-3 (i) Draw the block diagram of C.R.O. Explain function of each block briefly. (7)

(ii) Draw electrostatic focusing system of a conventional CRT, prove that the equi-potential surfaces acts as the surface of a lens in geometrical optics. (7)

OR

(i) Write a short note on distributed parameter delay line. (7)

(ii) Explain the terms : (1) Graticules (2) Fluorescene (3) Phosphorescene (4) Persistance (5) Luminance (6) Sweep voltage (7) Beam current (7)

Q-4 (i) Explain pulse terms/characteristics, with the help of suitable diagram, (1) rise time (2) fall-time (3) duty cycle (4) sag (7)

(ii) Derive formula for the total time period of oscillation for astable multivibrator. (7)

OR

(i) Explain basic concept of simplified current source operation in laboratory pulse generator. (7)

(ii) Write a short note on sine wave generator. (7)

Q-5 Attempt any seven out of twelve. (14)

(1) What is the full form of TVM?

(2) What is a disadvantage of a balanced bridge voltmeter?

(3) Write any two advantages of chopper voltmeter.

(4) What is the function of input comparator in Ramp type DVM?

(5) Which are the two types of multi-meters?

(6) _____ is the full form of ADC.

(7) What is the basic difference between lumped and distributed parameter delay line?

(8) In horizontal channel of CRO, the signal processing takes the time on the order of _____.

(9) Which control adjusts the potential between the deflection plates and the first accelerating electrode and is used to produce a round spot?

(10) Write any one common characteristic of a signal generator.

(11) Duty cycle for a perfect square wave is _____ percentage.

(12) What is the difference between circuits used for pulse generation and pulse shaping?