

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. THIRD SEMESTER EXAMINATION, DECEMBER 2015

SECOND YEAR [BATCH 2014-17]

ELECTRONICS [General]

Date : 18/12/2015

Time : 11 am – 1 pm

Paper : III

Full Marks : 50

Answer **any five** questions :

1. Answer the following questions : [5×2]
  - a) State Moore's Law and explain its significance in electronic industry.
  - b) Define accuracy & resolution.
  - c) Mention the application of CRO.
  - d) Why CMOS is called 'Complementary' MOS?
  - e) Mention the advantages of IC over discrete component based circuits.
2.
  - a) Explain 'Y' chart with a neat diagram. [3]
  - b) What is Regularity, Modularity and Locality? [3]
  - c) Show the importance of VHDL in electronic circuit designing. Also explain VHDL briefly. [4]
3.
  - a) Describe VLSI design flow using flow diagram. [5]
  - b) Design a 2-i/p NAND Gate using CMOS transistors. [5]
4. Draw and explain the working principle of CRO. [10]
5.
  - a) Distinguish the difference between Sensor and Transducer. [2]
  - b) Explain the operating principle of LVDT and Strain Gauge. [4+4]
6. In a CRT the anode voltage is 600V. The deflection plates are 1.5 cm long and 0.8 cm apart. The screen is 30 cm away from the centre of the deflection plates. Calculate—
  - (i) Velocity of electron beam
  - (ii) Voltage that must be applied to the deflecting plates to have a displacement of 1 cm. [10]
7. In a CRT, the distance of the Screen from the centre of the magnetic field is 25cm. The deflection magnetic field of flux density  $2.5 \times 10^{-4}$  Wb/m<sup>2</sup> extends for a length of 5 cm along the tube axis. The anode voltage is 1500V. Find the deflection. [10]
8. Write short notes on **any two** of the following : [2×5]
  - a) CMOS – Inverter
  - b) FPGA
  - c) Storage Oscilloscope
  - d) Comparison of TTL, ECL, MOS.