



Name :

Roll No. :

Invigilator's Signature :

CS/M.TECH (CT)/SEM-1/M(CT)-105/2010-11

2010-11

ELECTRONIC INSTRUMENTATION

Time Allotted : 3 Hours

Full Marks : 70

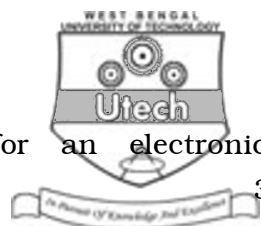
The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

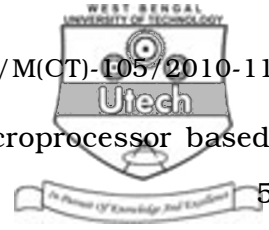
Answer any *five* questions.

5 \times 14 = 70

1. a) What is the function of ammeter ? Explain with diagram
the working principle of a moving iron ammeter. 1 + 5
- b) What is the basic difference between moving iron and
moving coil based meters ? 4
- c) A moving coil ammeter reads upto 10 amperes when it
has a resistance of 0.2 ohm. How the ammeter can be
used to read current up to 100 amperes ? 4



2. a) What are the properties used for an electronic voltmeter ? 3
- b) Explain the working principle of an electronic meter with diagram. 7
- c) What is watt-hour-metre ? 2
- d) Why is LCR meter used ? 2
3. a) What is the purpose of an oscilloscope ? 3
- b) Describe the working principle of an oscilloscope with block diagram. 8
- c) Describe the function of control grid of a Cathode Ray Tube. 3
4. a) Describe SAR method of A/D conversion with diagram. 6
- b) Describe with diagram a 4-bit D/A converter. 5
- c) What is shift register and why are they used ? 3
5. a) What are the types of flip-flops ? Describe any one flip-flop. 2 + 5
- b) What are the features of an Op-Amp ? 3
- c) How an Op-Amp can be used as voltage comparator ? 4
6. a) What is seven segment display and how the segments can be illuminated of a seven segment display using decoder ? 2 + 5
- b) What is the function of a Decade Counter ? Describe a Decade Counter with diagram. 2 + 5



7. a) Describe the basic elements of a Microprocessor based system. 5
- b) What are the features of a Microcontroller ? 4
- c) Justify the uses of Microprocessor based system and Microcontroller based system. 5
8. Describe with diagram the Microprocessor based Temperature Controller of a furnace.
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