



S.E. (Computer) (Semester – III) (RC) Examination, Nov./Dec. 2012
INTEGRATED ELECTRONICS

Duration : 3 Hours

Max. Marks : 100

Instruction : Answer **any five** questions, selecting at least **one** from **each** Module.

MODULE – I

1. a) Draw the circuit diagram of an op-amp in inverting amplifies configuration and derive the expression for its closed loop gain assuming an ideal op-amp. 7
- b) Derive equation for input and output resistance with feedback in voltage series feedback amplifier. 9
- c) What are the drawbacks of an op amp as an integrator and how are they overcome ? 4
2. a) With the help of a neat circuit diagram and equations, explain :
a) Summing amplifier b) Averaging amplifier 8
- b) Draw and explain block diagram of a instrumentation system. 7
- c) What are compensating networks ? Why are they required ? 5

MODULE – II

3. a) Draw the block diagram of IC 555 and explain its operation as a Astable multi vibrator. 8
- b) With the help of diagram, explain briefly series voltage regulator. 7
- c) Explain the working of PLL. 5
4. a) Give pin description of LM105 with its block diagram. 8
- b) Explain design of low voltage regulator using IC 723. Draw the circuit and write relevant equations. 8
- c) Give two applications of 555 timer. 4

P.T.O.



MODULE – III

5. a) Draw the circuit diagram of a TTL gate with Totem-pole output driver and explain its operation. What is the use of clamping diodes in TTL gate ? 9
- b) Explain Noise Margin and propagation time delay with respect to digital logic circuit. 8
- c) Give a symbol for CMOS transmission gate and along with a circuit its operation. 3
6. a) Explain the operation of Schottky TTL. How does the use of Schottky diode reduce the turn off time to negligible preparation in a TTL circuit ? 8
- b) Explain wired – OR connections and fan out in ECL gates. Name two popular ECL families. 8
- c) Name the types in Bipolar and Unipolar logic families. 4

MODULE – IV

7. a) Explain successive approximation type A/D converter and its advantages. 8
 - b) An 8-bit ADC output for all 1's is 5.1 volts. Determine its
 - i) Resolution
 - ii) Digital output when the input is 1.28 volts. 8
 - c) Give examples where A/D and D/A converters are used. 4
 8. a) Describe 3 bit R-2R ladder D/A network. State its advantages and disadvantages. 8
 - b) A 5-bit flash comparator ADC has a reference voltage of 15 V. 7
 - i) How many voltage comparators and resistors will be needed ?
 - ii) State the advantages and disadvantages of this converter.
 - iii) What is the increment between fixed voltage applied to the comparator ?
 - c) Define the terms : 5
 - i) Monotonicity
 - ii) Settling time
 - iii) Linearity error.
-