

Code: 9A10504

R09

B.Tech III Year II Semester (R09) Supplementary Examinations December/January 2015/2016

LINEAR & DIGITAL IC APPLICATIONS

(Common to EEE & MCT)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain the characteristics of ideal differential amplifier and explain its operation with the help of its transfer characteristics.
(b) List the ideal characteristics of an OP-amp.
(c) Discuss about FET input OP-amp.
- 2 (a) Describe the operation of an OP-amp based differentiator.
(b) Discuss about precision rectifiers.
- 3 (a) Design an astable multivibrator using 555 timer to produce a square wave of 2 KHz frequency and 30% duty cycle. Draw the circuit with all component values.
(b) Draw the circuit of PLL AM detector and explain its operation.
(c) List out the applications of VCO 566.
- 4 (a) Design CMOS transistor circuit for 2-input AND gate. With the help of function table explain the circuit.
(b) List out the advantages of CMOS logic.
(c) Give the working principle of I^2L logic with neat circuit diagram.
- 5 (a) Differentiate between standard, tri state and open collector TTL gates.
(b) Draw the circuit diagram of basic TTL NAND gate and explain the three parts with the help of functional operation.
- 6 Give example for:
(a) Exit statement.
(b) Next statement.
(c) Assertion statement.
(d) Report statement, pertaining to VHDL.
- 7 (a) Draw the functional truth table and schematic of 4-bit parallel binary adder/subtractor.
(b) Construct a 4 bit binary – to – gray code converter.
- 8 (a) Design a conversion circuit to convert a D flip-flop to J-K flip flop.
(b) Design a 3-bit binary synchronous counter.
