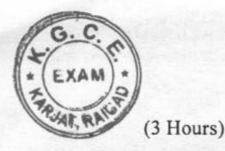
Con. 7857-13.



[Total Marks: 80

## SEI Sem- III MIST Digital Electronics | 25-11-13

- N.B.: (1) Question No. 1 is compulsory. Attempt any three questions out of remaining five questions.
  - (2) All questions carry equal marks.
  - (3) Assume suitable data if necessary.
- Solve any four out of following:-20 (a) Convert (123.091)<sub>10</sub> to HEX, Octal and Binary. (b) State and prove De Morgan's theorems. (c) Implement 4:1 MUX using logic gates. (d) Design T flipflop using NAND gates only. (e) Explain noise margin and fanout of digital ICS. (a) Performe following operation :-2. 5 (i) (29)<sub>10</sub> - (33)<sub>10</sub> using 2's complement method. (ii)  $(123)_{16} \times (ABC)_{16}$ 5 (b) Prove that  $(A + \overline{B} + AB)(A + \overline{B})(\overline{A}B) = 0$ 10 (c) Design binary to XS3 code converter using logic gates. Simplify following using K-map and implement using only any one type of universal 3. 10 gates.  $y = f(A, B, C, D) = \pi M(0, 1, 6, 7, 8, 9)$ (b) Design full adder using two half adders.. 5 (c) Compare demultiplexers and decoders. 5 4. (a) Implement full subtractor using two 4:1 MUX. 10 (b) Design synchronous mod 4 updown counter using JK flip-flops. 10 (a) Design asynchronous decade counter using T flip-flop. 5. 10 (b) Design Johnson's counter using D flip-flop. 10 Write short notes on any four :-20
  - (a) Carry look ahead adder
  - (b) Basic dynamic RAM Cell.
  - (c) ASCII Codes
  - (d) FPGA
  - (e) ALU.