Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

IT-222

B.E., III Semester

Examination, December 2016

Choice Based Credit System (CBCS)

Digital Circuit and System

Time : Three Hours

Maximum Marks : 60

Note: i) Attempt any five questions out of given eight questions.
ii) All questions carry equal marks.

1. a) Do as directed
   i) Given that $(16)_{10}=(100)_x$, find the value of x.
   ii) Add $(6E)_{16}$ and $(C5)_{16}$
   iii) $(4433)_5 = (\ )_{10} = (\ )_2$
   iv) $(1011011101101110)_2 = (\ )_{16}$
   v) Subtract $(45)_8$ from $(66)_8$
   vi) Convert the Gray code 1101 to binary
   vii) Find the XS-3 (Excess-3) code of 37
   b) i) State DeMorgan's theorems and prove with the help of truth table.
   ii) Convert F(A, B, C) = BC+A into standard minterm form.

2. a) Explain various gates for digital logic design.
   b) Design 4-to-16 Decoder from two 3-to-8 Decoders.

3. a) Design a counter using D flip-flop for the following sequence:
   0, 1, 2, 4, 5, 6, 7, 3, 0
   b) With neat diagram for design 4-bit bidirectional shift register.

4. a) Explain asynchronous and synchronous counters.
   b) Design 4-bit ripple counter using negative edge triggered JK flip-flop.

5. a) Draw the circuit diagrams and Truth table of all the flip flops (SR, D, T and JK).
   b) Implement D flip-flop using JK flip-flop.

6. a) What are the registers? Differentiate between serial and parallel registers.
   b) Compare the followings in every aspect.
   i) TTL and CMOS
   ii) RAM and ROM

7. a) What is multivibrator? Explain different types of multivibrator.
   b) Explain the Digital to Analog Converter with neat diagram.

8. a) Explain the working of display devices.
   b) Write short note on 7 and 16 segment LED display.

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