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

Roll No .....

CS-3003 (CBGS)

B.E., III Semester

Examination, December 2017

Choice Based Grading System (CBGS)

Digital Circuit and Design

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Convert $(412)_{10}$ to
   i) Binary
   ii) Octal
   iii) Hexadecimal
   b) What is universal gate? Implement AND, OR and NOT gates using NAND gates and OR gates.

2. a) Simplify the Boolean function using k map.
   $F(ABCD) = \Sigma(0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14)$
   b) What is Boolean algebra write any three theorems of Boolean algebra?

3. a) Design and draw a full adder circuits.
   b) Explain monostable multibrater and write its application.

4. a) Compare RTL, DTL and TTL logic families.
   b) Draw and explain 4 × 1 multiplexer.

5. a) What is counters? Differentiate Synchronous and Asynchronous counters.
   b) What is shift registers? Explain.

6. a) Implement a full adder circuit with a (3 to 8 lines) decoder and two OR gates.
   b) Why Analog to Digital converters is needed? Explain any one Digital converters.

7. a) Give a brief introduction of a semiconductor memories.
   b) What is a flip-flops? Explain with a suitable example.

8. Write a short notes (any three)
   a) Schmitt trigger circuits
   b) BCD adders
   c) CMOS logic family
   d) Half adder

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