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Roll No .....

CS-3003 (CBGS)

B.E., III Semester

Examination, May 2018

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 $(41.6875)_{10}$ to 7
   i) Binary
   ii) Octal
   iii) Hexadecimal
   b) Justify the following statements with examples. 7
   i) Excess-3 code is self complementary code
   ii) Gray code is a reflected code

2. a) Write five theorem of Boolean Algebra and simplify 7
   $F = (A+B)'(A'+B')'$
   b) Realize NAND, NOR and NOT gates using transistors. 7

3. Simplify the Boolean function with don't care conditions and implement it with NAND gates 14
   $F(wxyz) = \Sigma (1, 3, 7, 11, 15)$
   $d(wxyz) = \Sigma (0, 2, 5)$

4. a) How to design a combination circuit? Design a Full Adder circuit. 7
   b) Draw and explain the working of monostable multivibrator. 7

5. a) Define Fan-out and Figure of merit. Compare TTL, ECL and CMOS logic families. 7
   b) What is Decoder? Explain how combinational circuits like full adder can be implemented with decoder. 7

6. a) Design a BCD to excess-3 code converter. 7
   b) Design a MOD-5 counter. 7

7. a) Explain any one type of Analog to digital converter in detail. 7
   b) What is shift register? Draw and explain shift left-right register. 7

8. Write a short notes on (any two): 14
   a) PLA
   b) Multiplexer
   c) V-F converter
   d) Encoder

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