

21

QP Code : 30702

(3 Hours)

[Total Marks : 80

- N.B. (1) Question No. 1 is compulsory  
(2) Assume suitable data if necessary  
(3) Attempt any three questions from remaining questions

1

- (a) Convert  $(532.125)_8$  into decimal, binary and hexadecimal. (3)  
(b) Convert  $(47.3)_7$  BCD, Excess-3 and Gray code. (3)  
(c) Subtract using 1's and 2's complement method  $(56)_{10} - (76)_{10}$ . (4)  
(d) Obtain odd parity Hamming code for 1011. (2)  
(e) Implement Ex-OR gate using NOR gate only. (2)  
(f) Perform the following operations without changing the base. (4)  
    i)  $(314)_8 + (737)_8$                       ii)  $(312.40)_5 + (214.33)_5$   
(g) State and prove Demorgans theorem. (2)
- 2 (a) Reduce equation using Quine McCluskey method and realize circuit using basic gates. (10)  
     $F(A,B,C,D) = \sum m (1, 3, 7, 9, 10, 11, 13, 15)$   
(b) Design 8 bit BCD adder. (10)
- 3 (a) Design a logic circuit to convert Gray to BCD code. (10)  
(b) Implement the following using only one 8:1 Mux and few gates. (5)  
     $F(A,B,C,D) = \sum m (0, 3, 5, 7, 9, 11, 13, 15)$   
(c) Design a full adder circuit using half adders and some gates. (5)
- 4 (a) Compare TTL and CMOS logic. (5)  
(b) Implement Full subtractor using Demultiplexer. (5)  
(c) Explain 4 bit Universal shift register (10)
- 5 (a) Design mod 5 asynchronous UP counter. (10)  
(b) Convert SR flipflop to JK flipflop and D flipflop. (10)
- 6 Write short note on (any four):- (20)  
(a) VHDL  
(b) Decade Counter  
(c) State table  
(d) 4-bit Magnitude comparator  
(e) Multivibrators

MUPD16025 ANJUMANI P. J. RAMS KALSEKAR TECHNICAL CAMPUS COLLEGE OF ENGINEERING, NEW PANVEL 30-05-2016 13:38:48