

## Digital Logic Design &amp; Application / SE-IT-Sem3 / May 2013

Con. 6580-13

GS-6459

- 1 (a) Write a Hamming code for 1100. 5
- 1 (b) Perform  $942_{(10)} - 573_{(10)}$  in BCD using 10's complement. 5
- 1 (c) Convert T flipflop into D flipflop. 5
- 1 (d) Implement the following function using 8: 1 MUX : 5
- $$f(A, B, C, D) = \Sigma m(0, 2, 6, 10, 12, 14)$$
- 2 (a) Design and implement BCD to ex-3 code converter 10
- 2 (b) Design 2 bit up/down asynchronous counter. 10
- 3 (a) Write short note on PAL and PLA. 8
- 3 (b) Given the logic expression  $AB + A\bar{C} + C + AD + A\bar{B}C + ABC$ . 12
- (i) Express in standard SOP form
- (ii) Minimize using k-map realize using only NOR gates.
- 4 (a) Design 3 bit comparator. 10
- 4 (b) Minimize using Quine McClusky method 10
- $$F(A, B, C, D) = \Sigma m(0, 1, 3, 5, 7, 9, 11, 14) + d(2, 14)$$
- 5 (a) Design a full subtractor using 2 half subtractors. 10
- 5 (b) Design 2 bit look ahead carry generator 10
- 6 (a) Design a synchronous counter for the following sequence using T F/F 12
- $$6 - 3 - 5 - 2 - 0 - 4 - 1 - 7$$
- 6 (b) Prove that NAND and NOR are Universal Gates. 8
- 7 (a) Priority encoder 10
- 7 (b) VHDL Programming feature 10
- 7 (c) CAD Tools. 10