Dr. Meenakshi

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2016

B.Tech III Semester (CSE, IT)

COURSE CODE: 10B11EC401   MAX. MARKS: 15

COURSE NAME: DIGITAL ELECTRONICS

COURSE CREDITS: 04   MAX. TIME: 1Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

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1. a) Convert decimal 536 in BCD, Excess three, Gray Code.   [0.5 + 0.5 + 1 = 2]

   b) Determine the minimized expression for the function

   $f(A, B, C, D) = \Sigma m(4, 6, 8, 10, 11, 12, 15) + d(3, 5, 7, 9)$.   [2]

   c) Give the advantages of digital signals over analog signals.   [1]

2. a) Let * be any operator which is defined as $P * Q = \bar{P} + Q$. Find the value of $Z * X$ where $Z = X * Y$.   [2]

   b) Give the Boolean expression for the output of the following circuits.   [1 + 1 = 2]
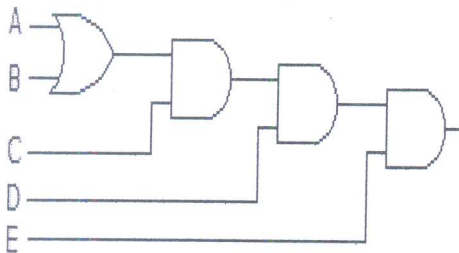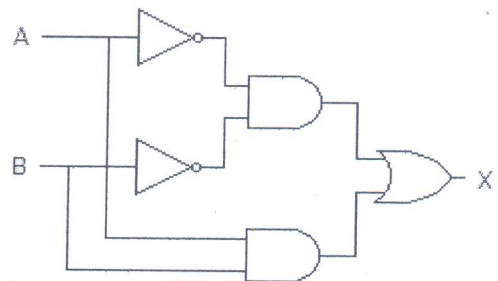
(a)   (b)

   c) Find the minimal dual of the function $f = (B + \bar{A})(\bar{A} + B + \bar{C})(A + B)$ [1]

3. a) Why 2421 are known as self complementing codes   [1]

   b) Subtract $(45)_8$ from $(66)_8$ using 2's complement and verify your result using 7's complement.   [1.5 + 1.5 = 3]

   c) Find the max-terms of the following expression   [1]
      $f(A, B, C, D) = \Sigma m (0, 1, 4, 5, 6, 7, 9, 11, 15)$