

Date: 06. 02. 2006

Time: 4.00 pm – 5.30 pm

Answer All Questions

-01-

01.1 Make a truth table for the following Boolean logic expression.

$$F = A \bar{B} + \bar{A} B C + B \bar{C}$$

01.2 Fig.1.1 shows the schematic diagram of a TTL digital circuit. Determine the output Boolean equations of P and Q

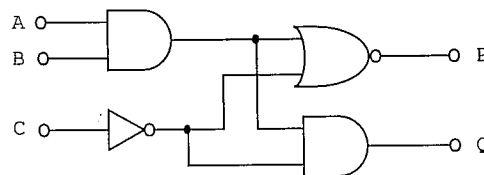


Fig.1.1

-02-

02.1 A digital circuit has four inputs A, B, C and D, and two outputs P and R. Equation 1.1 and 1.2 gives the Boolean functions of the outputs. Draw the circuit using mixed basic logic gates.

$$P = A B C + B \bar{C} D + \bar{A} C + A \bar{B} \bar{D} \quad - \text{Equation 1.1}$$

$$R = \bar{B} C D + A \bar{B} \bar{C} + A D + \bar{A} \bar{C} D \quad - \text{Equation 1.2}$$

-03-

03.1 Minimize the following Boolean equations using the Karnaugh map method and draw the circuit for the minimized equations.

$$F = \bar{A} \bar{B} \bar{C} + \bar{A} B \bar{C} + \bar{A} B C + A \bar{B} \bar{C}$$

$$F = \bar{A} B \bar{C} D + A \bar{B} \bar{C} D + A \bar{B} \bar{C} \bar{D} + A B \bar{C} D + \bar{A} \bar{B} \bar{C} D$$

$$F = \bar{A} B C D + A \bar{B} D + A \bar{B} \bar{C} + A \bar{B} \bar{C} D$$

$$X = A \bar{B} \bar{C} D \text{ and } \bar{A} \bar{B} \bar{C} \bar{D}$$

*** All Right Reserved ***