



V.P. & R.P.T.P SCIENCE COLLEGE
First Internal Test
US03CELE-02

Date: 07/10/15
3:00 to 4:30 pm
Total Marks 25

Q1: Multiple choice questions:

3 marks

- 1's and 2's complement system is used to represent -----numbers
 - 1) Positive numbers
 - 2) Negative numbers
 - 3) Complex numbers
- 8421 is
 - 1) Weighted binary code
 - 2) Non weighted binary code
 - 3) Reflective Code
- By forming quadrate we can reduce -----variables in Karnaugh mapping
 - 1) 2 variables
 - 2) 3 variables
 - 3) 1 variable

Q2 : Answer in short: (Any two)

4 marks

1. Subtract $1A92_{16}$ from $AB683_{16}$
2. State De'Morgan's theorem and state its utilities.
3. Define Reflective code and Sequential code and give examples.

Q3 : Do as directed :

6 marks

- (i) Multiply 1110 by 110 using Computer Method
 - (ii) Multiply $6A \times 2DD5$
- OR

Q3 : Do as directed :

6 marks

- (i) Multiply 1001 by 101 using Computer Method
- (ii) Add 28 to -154 using 2's complement.

Q4 : Do as directed :

6 marks

- (i) Add 6748 to 5972 in BCD (8421) code
- (ii) Add 247.6 to 359.4 in XS3 code



OR

Q4 : Do as directed :

- (i) Subtract 175 from 267 in XS3 code
- (ii) Add 1935 to 7565 using BCD code

6 marks

Q5 : (i) Reduce the Boolean Expression using Boolean Laws

$$\overline{AB} + \overline{A} + AB$$

6 marks

- (ii) Reduce the expression in SOP form $F = \sum m(2,3,5,7,8,9,11,12,13,14,15)$ and implement in NAND logic.

OR

Q5 (i) Find the POS and SOP form of $Y = \sum m(0,1,3,6,7,8,9,13,15)$. Which is less expensive? 6 marks

- (ii) Construct AND, OR and NOT gate using NAND gate.

***** Best of Luck*****