

V.P.& R.P.T.P SCIENCE COLLEGE

First Internal Test

US03 ELE-02

Date: 4/11/13

1:00 to 2:30 pm

Total Marks 30

Multiple choice questions:

6 marks

1.  $93_{16} + DE_{16} =$ 
  - (i)  $271_{16}$
  - (ii)  $161_{16}$
  - (iii)  $171_{16}$
2. -17 in 2's complement system is represented as
  - (i)  $11101111_2$
  - (ii)  $11101110_2$
  - (iii)  $10101111_2$
3. In 2421 code 7 is expressed as
  - (i) 0111
  - (ii) 1101
  - (iii) 1100
4. XS3 code is
  - (i) weighted Binary code
  - (ii) Reflective code
  - (iii) None of the above
5. By forming quadret we can reduce -----variables in Karnaugh mapping
  - (i) 2 variables
  - (ii) 3 variable
  - (iii) 1 variable
6. In negative logic
  - (i) 0V is low state and 5V is high state
  - (ii) 0V is high state and 5V is low state
  - (iii) None of above



Q2 :Answer in short: (Any three)

6 marks

1. Convert  $72905_{16}$  to Decimal.
2. Subtract  $1AB5_{16}$  from  $2BAA_{16}$
3. Add 1857 to 6775 using BCD (8421) code.
4. Construct AND, OR and NOT gates using NAND gate.
5. State De'Morgan's theorem and state its utilities.
6. Define Reflective code and Sequential code and give examples.

**Q3 : Do as directed :** **6 marks**

- (i) Multiply 1110 by 1010 using Computer Method
- (ii) Multiply  $1AB5_{16}$  by  $AA_{16}$

OR

**Q3 : Do as directed :** **6 marks**

- (i) Multiply 1100 by 1000 using Computer Method
- (ii) Add -25 to -115 using 2's complement.

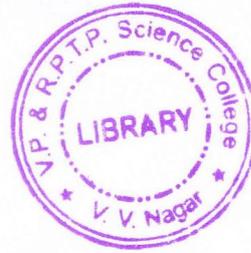
**Q4 : Do as directed :** **6 marks**

- (i) Add 37 to 28 in XS3 code
- (ii) Subtract 27.8 from 57.6 in XS3 code.

OR

**Q4 : Do as directed :** **6 marks**

- (i) Add 247.6 to 359.4 in XS3 code
- (ii) Subtract 175 from 267 in XS3 code. **3 marks**



**Q5 : (i) Reduce the Boolean Expression using Boolean Laws  $ABC + \overline{A}\overline{B} + BC$**

**(ii) Find the POS and SOP form of  $Y = \sum m(0,1,3,6,7,8,9,13,15)$  **3 marks****

OR

**Q5 : (i) Reduce the Boolean Expression using Boolean Laws **3 marks****

$$\overline{\overline{A}B + ABC + A(B + \overline{A}B)}$$

**(ii) Reduce and implement in NAND logic **3 marks****

$$Y = \sum m(2,3,5,7,9,11,12,13,14,15)$$

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