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RA-0716

Second Year B. Sc. Examination

March / April – 2010

Electronics : Paper - IV

(Digital Electronics & Microprocessor)

Time : Hours] [Total Marks : **70**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **S. Y. B. Sc.**

Name of the Subject :

☛ **Electronics : Paper - 4**

☛ Subject Code No. : **0 7 1 6** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

1 Answer in brief : **14**

(i) What is an active low preset input?

(ii) Add in BCD 415 and 279.

(iii) Define :

(a) Noise margin

(b) Propagation delay

(iv) What is a flag?

(v) Give the names of different forms of number system.

(vi) What do you mean by a controlled inverter?

(vii) Give the full form of :

(a) ASCII code

(b) EBCDIC code.

2 (a) Design a 4-bit parallel adder/subtractor circuit. **6**

(b) Write a note on applications of X-OR and X-NOR gate. **8**

OR

2 (a) Draw the circuit diagram of two input TTL NAND gate and explain its working. **6**

(b) Draw a logic circuit for implementing the function $F = AB + A(B+C) + B(B+C)$ and simplifying the function and draw logic circuit for the simplified function. **8**

3 (a) Using K-maps design a full adder circuit. **6**

(b) Simplify

(i) $F = (A+B)\ (\overline{A}+C)\ (B+C)$

(ii) $F = \overline{\overline{AB} + \overline{A} + AB}$.

OR

3 (a) Explain 8 to 1 multiplexer with the help of logic diagram. **6**

(b) Explain the working of serial in-parallel out and parallel in-parallel out registers. **8**

4 (a) Design and discuss the operation of decade counter. **6**

(b) Explain the instructions used for arithmetic and logical operations in the 8085 microprocessor. **8**

OR

4 (a) Draw the circuit diagram of J.K. flip-flop and explain the working of J-K flip.flop. **6**

(b) Draw the circuit diagram of R-S flip-flop and explain its working. Extend your discussion for clocked Rs flip/ flop. **8**

5 Write short notes on : (any **two**) **14**

(a) Ripple counter

(b) Types of semiconductor memories

(c) Similarities and differences : CALL-RET and PUSH-POP instructions

(d) Error detecting and correcting codes.