NKT/KS/17/5302

## Bachelor of Science (B.Sc. I.T.) Semester-II (C.B.S.) Examination FUNDAMENTALS OF DIGITAL ELECTRONICS Paper-I

Time : Three Hours]
[Maximum Marks : 50
Note :-(1) ALL questions are compulsory.
(2) Draw neat labelled diagrams wherever necessary.

## EITHER

1. (a) Explain double dabble method of converting decimal number into its binary equivalent.
(b) What are binary codes ? Explain gray code with suitable example.

## OR

(c) Do as directed :
(i) $(1101)_{10}=()_{2}$
(ii) $(234)_{7}=()_{10}$.5
(d) Explain 2's complement method of number representation. 5

## EITHER

2. (a) Construct AND, OR and NOR gates using only NANO gates. 5
(b) State and prove De-Morgan's theorem. 5

OR
(c) What is a k-map ? How does it help in reducing the equations in SOP form ? 5
(d) Explain Quine McClusky method. 5

## EITHER

3. (a) What is a multiplexer ? Explain the working of 4:1 multiplexer with circuit diagram.
(b) Explain the working of a 3-bit asynchronous counter. 5

OR
(c) What is full adder ? Explain the working of a full adder circuit with neat diagram. 5
(d) Explain the working of JKMSFF with circuit diagram. 5

## EITHER

4. (a) Explain ROM and EPROM. 5
(b) Explain the organization of a hard disk. 5

OR
(c) Write a note on any two I/O devices. 5
(d) What is cache memory ? Explain. 5
5. Attempt all :
(a) What is an ASCII code ? Explain. $2 \frac{1122}{2}$
(b) Why NOR gates is called as universal building blocks ? Explain. 2½
(c) What is a demultiplexer ? Explain. $2 \frac{1122}{2}$
(d) What is RAM ? Explain. $2 \frac{1 ⁄ 2}{2}$

