2019 VI 10 **1430** **Seat No.** | | | | | |

Time : 2 Hours **DIGITAL ELECTRONICS AND COMPUTERS**

Subject Code

V	3	3	1

Total No. of Questions : 5 **(Printed Pages : 3)** **Maximum Marks : 50**

***INSTRUCTIONS* :** (*i*) Answer each question on a fresh page.

(*ii*) Write the number of the questions and sub-questions clearly.

(*iii*) *All* questions are compulsory.

(*iv*) Figures to the right indicate full marks.

(*v*) Draw neat diagrams wherever necessary.

1. (*a*) Fill in the blanks : 2

(*i*) 2's complement of $(100)_2$ is ..... .

(*ii*) Binary digits are usually contracted to ..... .

(*b*) Answer the following :

(*i*) With the help of a neat circuit diagram and truth table explain the working of 2 input RTL NOR gate. 3

(*ii*) Explain the working of logic circuit used to add 3 bits with the help of a neat diagram and truth table. 3

(*c*) Answer the following :

State and prove De-Morgan's second theorem. 2

2. (*a*) Define the following : 2

(*i*) Monostable multivibrator

(*ii*) Super Computer.

(*b*) Answer the following :

(*i*) Eplain the working of a four bit shift register with the help of neat logic circuit diagram. 3

(*ii*) Explain any *three* applications of microprocessor. 3

(*c*) Answer the following : 2

What is the difference between edge triggering and level clocking ?

3. (*a*) Fill in the blanks : 2

(*i*) The logic circuit used to add 2 bits is called ..... .

(*ii*) The diameter of mini floppy is ..... .

(*b*) Do as directed : 3

(*i*) Convert $(64)_8$ to its decimal equivalent.

(*ii*) Convert $(2879)_{10}$ to its hexadecimal equivalent.

(*iii*) Convert $(8CB)_{16}$ to its decimal equivalent.

(*c*) Answer the following in detail : 5

(*i*) With the help of a neat circuit diagram explain the working of Transistorised Bistable Multivibrator.

Or

(*ii*) Explain the working of positive edge triggered J-K flip flop with the help of neat logic diagram.

4. (*a*) Answer the following in one sentence : 2

(*i*) What is the IC number used as a clock generator driver in 8080 A microprocessor ?

(*ii*) What is the output of a 2-input X-NOR gate if the two inputs are high ?

(*b*) Answer the following : 3

What are impact and non-Impact printers ? State one example of each.

(*c*) Answer the following in detail : 5

(*i*) Define Modulus of a counter. Explain the working of a counter having modulus 10 with the help of a neat logic circuit diagram.

Or

(*ii*) Explain the working of a 3-bit synchronous counter with the help of neat logic circuit diagram.

5. (*a*) Answer the following :

(*i*) What are volatile and non-volatile memories ? 2

(*ii*) Draw the block diagram of microprocessor. 2

(*iii*) Why "A" to "D" and "D" to "A" are necessary in a computer system ? 2

(*iv*) Explain briefly magnetic tape as a storage device. 2

(*v*) Draw the block diagram of a counter type "A" to "D" Convertor. 2