

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Voc. (Electronics & Information Technology) (Sem.-2)

DIGITAL ELECTRONICS

Subject Code : BVET-201-20

M.Code : 79546

Date of Examination : 04-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

- a. List the various advantages and disadvantages of digital systems.
- b. Why 1's and 2's complement are used in digital system?
- c. Differentiate between Boolean algebra and Ordinary algebra.
- d. Discuss the principle of Duality.
- e. What is the need of programmable logic array? Explain.
- f. What is race around condition?
- g. What is the need of multiplexer?
- h. What do you mean by state diagram?
- i. Compare Synchronous and Asynchronous counters.
- j. What do you mean by memory cycle? Discuss.

SECTION-B

2. Prove that NAND and NOR gates are Universal gates.
3. Reduce $F(a,b,c,d) = \sum m(0,1,2,5,6,7,8,9,10,14)$ to the simplest possible form using K-Map method.
4. Discuss the need of memory and explain the various types of memories.
5. Explain the working of 4 bit ripple counter.
6. For a 5-bit resistive divider, determine the following :
 - a) the weight assigned to the LSB;
 - b) the weight assigned to the second and third LSB;
 - c) the change in output voltage due to a change in the LSB, the second LSB, and the third LSB;
 - d) the output voltage for a digital input of 10101. Assume $0 = 0 \text{ V}$ and $1 = +10 \text{ V}$.

SECTION-C

7. Why analog to digital converter are required? Explain the counter type and Dual slope analog to digital converter. Support your answer with suitable diagrams, if required.
8. Design a 4 bit counter having the following states 0000,0001, 0010, 0011, 0100,0101, 0110, 0111, 0000, 0001.
9. Discuss :
 - a) JK flip flop and its advantages.
 - b) Gray and Excess 3 codes.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.