

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURAJADA VIZINAGARAM
II B. Tech I Semester Regula/Supply Examinations, November – 2025
DIGITAL LOGIC & COMPUTER ORGANISATION
(CSE,CSE(CS))

Time: 3 hours**Max. Marks: 70***Question paper consists of Part A, Part B.**Part A is compulsory, Answer all questions.**In Part B, Answer any one question from each unit.************PART-A****(20 Marks)**

- 1
 - a) Convert $(AC)_{16} = ()_{10}$ [2]
 - b) Write truth table of universal gates [2]
 - c) Draw the truth table of JK Flip Flop [2]
 - d) Define Functional Unit [2]
 - e) Subtract $(1111)_2 - (101)_2$ using 2's complement method [2]
 - f) represent floating point number of 16.5 [2]
 - g) What is cache memory [2]
 - h) Define ROM [2]
 - i) What is an interrupt [2]
 - j) Define DMA [2]

PART-B**(50 Marks)****Unit-1**

- 2
 - a) Convert the following [5]
 - i. $(BCD)_{16} = ()_{10}$
 - ii. $(121)_{10} = ()_2$
 - iii. $(235.68)_{10} = ()_8$
 - b) Implement OR gate, AND gate using NOR gate. [5]
(OR)
- 3
 - a) Minimize the following function $(X+Y)(X+Y')+(XY'+X')$ [5]
 - b) Express the following functions in sum of minterms and product of maxterms. [5]
 $F=A'+B'$

Unit-2

- 4
 - a) Design a 4 bit ripple counter [5]
 - b) Demonstrate bus structure of computer [5]
(OR)
- 5
 - a) Explain the operation of SR and JK Flip Flop [5]
 - b) Design 4bit ripple carry adder [5]

Unit-3

- 6
 - a) Discuss about the execution of a complete instruction [5]
 - b) Explain Multi bus organization [5]
(OR)
- 7
 - a) Design 4 bit carry look ahead adder [5]
 - b) Demonstrate the addition of two signed numbers [5]

Unit-4

- 8
 - a) Illustrate the operation of Read only Memory [5]
 - b) Write short notes on Speed, Size, and Cost [5]
(OR)
- 9
 - a) What is the role of virtual memories [5]
 - b) Discuss about secondary storage [5]

Unit-5

- | | | |
|----|---|-----|
| 10 | a) Demonstrate about accessing I/O Devices | [5] |
| | b) Write the concept of Buses in IO organization | [5] |
| | (OR) | |
| 11 | a) What are interface circuits? Discuss their role in I/O organization. | [5] |
| | b) Describe the operation of a DMA controller in system communication. | [5] |

