

St. Claret College

Autonomous, Bengaluru

9

Roll No:
Date:

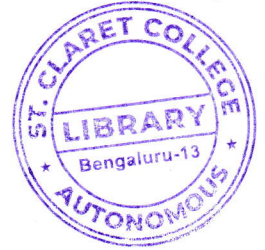
UG END SEMESTER EXAMINATION-NOVEMBER 2025

BCA - I SEMESTER

CA 1224: COMPUTER ARCHITECTURE

TIME: 3 hours.

MAX. MARKS: 80



This paper contains TWO printed pages and FOUR parts

Instructions:

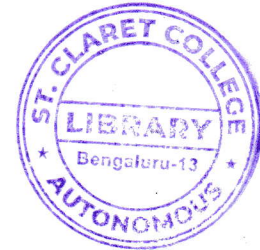
1. Verify and ensure that the question paper is completely printed.
2. Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.
3. Students must check the course title and course code before answering the questions.

PART-A

Answer ALL questions. Each answer carries ONE mark.

[10 x 1 = 10]

1. Which of these sets of logic gates are known as universal gates?
a) XOR, NAND, OR b) OR, NOT, XOR
c) NOR, NAND, XNOR d) NOR, NAND
2. How many bits are used to represent a character in EBCDIC.
a) 7 bits b) 8 bits c) 4 bits d) 6 bits
3. The following hexadecimal no $(1E.43)_{16}$ is equivalent to
a) $(36.506)_8$ b) $(36.206)_8$ c) $(36.206)_8$ d) $(36.206)_8$
4. What is the word length of the 8085 microprocessor?
a) 4-bit b) 8-bit c) 16-bit d) 32-bit
5. Which of the following will be done in 8085 Microprocessor when an instruction LXI H 2070H is executed.
a) 70H is loaded in H register and 20H is loaded in L register.
b) Content of the memory 2070H is loaded in H register.
c) 20H is loaded in H register and 70H is loaded in L register.
d) 2070H is loaded in H register
6. The address bus of any microprocessor is always
a) Unidirectional b) bidirectional c) Either unidirectional or bi-directional d) None
7. In which unit of CPU are instructions from memory
a) Control Unit b) CPU c) I/O Unit d) Cache
8. Which of the following commands are part of I/O command?
a) Control Command b) Status Command c) Both a & b d) None of these
9. Multiplexer receives information from one of ___ data line and directs that to ___ line.
a) n input and 1 output b) 2^n and n output c) 2^n input and 1 output d) None of these



10. In which state does the output of JK flip-flop toggle?
- a) J = 0 and K = 0 b) J = 1 and K = 0
 c) J = 0 and K = 1 d) J = 1 and K = 1

PART-B

Answer any FIVE questions. Each answer carries TWO marks.

[5 x 2 = 10]

11. Write truth table and logic symbol of OR gate.
 12. Define BCD with an example.
 13. Write an 8085 program to swap two 8-bit numbers.
 14. What is a flag? List the flags of 8085.
 15. Mention the phases of instruction cycle.
 16. Define different types of registers.
 17. Define De-Morgan's Theorems.

PART-C

Answer any FOUR questions. Each question carries FIVE marks.

[4 x 5 = 20]

18. Convert $(392.8)_{10} = ()_8, ()_2, ()_{16}$.
 19. Explain 8085 microprocessor pin diagram.
 20. What are the different addressing modes of 8085? Give example for each.
 21. Write a note on instruction codes.
 22. Explain SISO & PISO shift registers.
 23. Explain SR flip flop.

PART-D

Answer any FOUR questions. Each question carries TEN marks.

[4 x 10 = 40]

24. a) State and prove De-Morgans Theorem.
 b) Simplify SOP minterm using K map.

$$Y = \sum m(1,5,7,8,9,13)$$
 (6+4)
 25. Explain the architecture of 8085 microprocessor with a neat diagram.
 26. a) Write an 8085 program to add two 8-bit numbers.
 b) Explain instruction formats based on word size. (5+5)
 27. a) Explain DMA controller with a block diagram.
 b) Write a short note on data transfer instructions (7+3)
 28. a) Explain common bus system
 b) Bring out the difference between RISC and CISC. (6+4)
 29. a) Explain 4 to 1-line Multiplexer.
 b) Explain 3 to 8-line Decoder. (6+4)