

Total No. of printed pages = 3

CSE 181402

Roll No. of candidate

03/07/23

--	--	--	--	--	--	--	--	--	--

BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatkhowapara
Guwahati - 781017

2023

B.Tech. 4th Semester End-Term Examination

COMPUTER ORGANIZATION AND ARCHITECTURE

New Regulation (w.e.f. 2017-18) & New Syllabus (w.e.f. 2018-19)

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No. 1 and any *four* from the rest.

1. Answer the following questions : (10 × 1 = 10)
- (i) Generally dynamic RAM is used as main memory in a computer system as it
- (a) consumes less power (b) has higher speed
- (c) has lower cell density (d) needs refreshing circuitry
- (ii) In computer, subtraction is generally carried out by
- (a) 9's complement (b) 10's complement
- (c) 1's complement (d) 2's complement
- (iii) The main memory in a personal computer is made of
- (a) cache memory (b) static RAM
- (c) dynamic RAM (d) both (a) and (b)
- (iv) _____ register keeps tracks of the instructions stored in program stored in memory
- (a) Address Register (b) Index Register
- (c) Program counter (d) Accumulator

[Turn over

- (v) Micro programmed control organization uses
- Control logic, gates, FF etc
 - Made for instruction representation
 - Controlled information stored in memory
 - None of these
- (vi) The computer architecture aimed at reducing the time of execution of instructions is _____
- CISC
 - RISC
 - ISA
 - ANNA
- (vii) The flow of information among various units is controlled by Control Unit. (False/True)
- (viii) Floating point representation is used to store
- Boolean values
 - Whole numbers
 - Real integers
 - Integers
- (ix) The addressing mode used in an instruction of the form ADD BL, CL is
- Register addressing
 - Direct addressing
 - Indirect addressing
 - Immediate addressing
- (x) In a memory-mapped I/O system, which of the following will not be there?
- LDA
 - IN
 - ADD
 - OUT
2. (a) What do you mean by instruction cycle? Briefly describe its phases. (5)
- (b) Explain the general register organization of CPU with the help of a block diagram. (10)
3. (a) Explain fixed point and floating point representation of a number Represent (0.875) decimal in IEEE754 floating point representation. (5+5=10)
- (b) Perform the step by step multiplication of (3) * (7) using Booth's algorithm. (5)
4. (a) Discuss the architecture of 8086 microprocessor with proper block diagram. (10)
- (b) What is addressing modes? Name four addressing modes from 8086. (5)

BINA CHOY
CENTRAL LIBRARY
(CIT & GIPS)
Azara Hatkhonpara
Guwahati - 781017

5. (a) Explain two stages pipelining? What are the pipelining hazards? Discuss the structural hazard pipelining. (5+2+5=12)
- (b) Explain the term locality of reference. Distinguish between temporal and spatial locality. (3)
6. (a) Difference between static and dynamic RAM. (5)
- (b) Explain the difference between polling and interrupt driven I/O. (5)
- (c) Explain the concept of DMA data transfer. (5)
7. (a) What is the fundamental idea of cache management? Explain about memory hierarchy. (2+6=8)
- (b) Given the page reference string as 701203042303231052. Calculate the number of pages faults using FIFO, LRU and optimal page replacement algorithm. (7)

BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatkhowapara
Guwahati - 781017