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Roll No. :

322454(22)

B. E. (Fourth Semester) Examination, 2020

APR-MAY 2022

(New Scheme)

(CSE Branch)

COMPUTER SYSTEMS ARCHITECTURE

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory. Attempt any one part from (b) and (c) of each question. Please write complete answer number like Ans 2(c).

Unit-I

1. (a) What is instruction cycle of a computer?

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- (b) With the help of a neat diagram and example, explain the working of a typical micro programmed control unit. 14
- (c) An instruction is stored at location 300 with its address field at location 301. The address field has the value 400. A processor register R1 contains the number 200. Evaluate and explain the effective address if the addressing mode of the instruction is (i) direct; (ii) immediate; (iii) relative; (iv) register indirect; (v) index with R1 as the index register. 14

Unit-II

2. (a) What are the guard bits? 14
- (b) Multiply the signed numbers by using Booth's multiplication algorithm, numbers are $(-9) \times (13)$. (Flowchart, algorithm, solution of problem). 14
- (c) Draw and explain flowchart for addition and subtraction of two fixed point signed magnitude binary numbers. 14

Unit-III

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3. (a) Define Memory. 2
- (b) Explain memory hierarchy in a computer system with suitable diagram. 14
- (c) Write short notes on : (Diagram + concept + types if any + example) 14
- (i) Virtual memory
- (ii) Cache memory
- (iii) Associative memory

Unit-IV

4. (a) What is CD ROM? 2
- (b) What is DMA controller? How it transfers data in a computer system? 14
- (c) Define interrupts, types of interrupts and interrupt handling mechanisms. 14

Unit-V

5. (a) What is RISC? 2

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- (b) Write short notes on : 14
- (i) Vector processing
 - (ii) Array processing
 - (iii) Classification of parallel architecture
- (c) What is the difference between instruction pipeline and arithmetic pipeline? What are the advantages of pipelining? 14