(c) Explain in detail about SIMD array processor.

(d) Write short notes on (any **two**) :

(i) Vector processor

(ii) Parallel architecture classification

(iii) Delayed branch and branch prediction

Printed Pages – 4 Roll No. : .....

322454(22)

B. E. (Fourth Semester) Examination Nov.-Dec. 2019

(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 and carries 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d) which carry 7 marks each.*

Unit - I

1. (a) What do you understand by addressing modes?

(b) Explain the steps required to execute one instruction

Add (R3), R1

which adds the contents of a memory location pointed to by R3 to register R1.

(c) Write in detail about various addressing modes with examples.

(d) Explain the format of micro instruction with proper figure and example.

Unit - II

2. (a) Define arithmetic overflow with an example.

(b) Explain booth algorithm and multiply

$(-13) \times (-11)$ using it.

(c) Explain the addition and subtraction of two fixed point signed magnitude data with flowchart.

(d) Write short notes on (any **two**) :

(i) Fast adders

(ii) Guard bits

(iii) Bit pair recoding of multipliers

Unit - III

3. (a) Define logical address and physical address.

(b) Explain memory hierarchy in a computer system with the advantages and proper diagram.

(c) Write in detail about direct mapping cache memory organisation with example and proper figures.

(d) Explain the concept of paging along with necessary hardware used.

Unit - IV

4. (a) Define peripheral devices.

(b) How a computer system handles the interrupt raised by multiple devices connected to CPU.

(c) Explain the direct memory access scheme along with its advantage for data transfer between external devices and the main memory.

(d) Explain in detail about the structure of a magnetic disk system. Also mention how we can find its capacity.

Unit - V

5. (a) Explain pipeline in brief.

(b) Write about the four segment instruction pipeline with necessary figures.