

322414(22)

B. E. (Fourth Semester) Examination, 2020

(Old Scheme)

(CSE Engg. Branch)

COMPUTER SYSTEMS ARCHITECTURE

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each question is compulsory. Solve any two parts of each question i.e. from (b), (c) & (d) 7 marks.

1. (a) Write basic components of CPU. 2
- (b) Explain the working of accumulator based CPU and its organization through block diagram. 7

[2]

- (c) Explain the representation, selection and applications of instruction set. 7
- (d) How fixed point and floating point operations are implemented in CPU? Explain. 7
2. (a) Define overflow condition. 2
- (b) Draw and explain the structure of combinational and sequential ALU. 7
- (c) Explain Booth's Multiplication Algorithm with suitable example. 7
- (d) Explain Hardware Algorithm for Division with suitable example. 7
3. (a) Define pipelining. 2
- (b) Write down the differences between Hard-wired and Micro programmed control unit. 7
- (c) Explain the Multiplier Control Unit with control signal programming. 7
- (d) Describe the organization of CPU incorporating a 4 stage instruction pipeline. 7

[3]

4. (a) Draw Memory Hierarchy. 2
- (b) Explain block diagram and function table of RAM chips. 7
- (c) Draw the block diagram of organization of Serial Access Memory Unit with explanation. 7
- (d) Explain associative and set associative mapping in cache memory with suitable diagram. 7
5. (a) Define Interrupts. 2
- (b) What do you understand by programmed I/O? Explain. 7
- (c) Explain DMA transfer in a computer system with block diagram. 7
- (d) Explain Fault tolerance system and static and dynamic redundancy. 7