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B. E. (Fourth Semester) Examination, April-May 2021

(New Scheme)

(IT Branch)

COMPUTER ORGANIZATION and 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 **two** parts from (b), (c), (d) of each question. The figures in the right-hand margin indicate marks.*

Unit-I

1. (a) Define PCI.   2

    (b) Explain stack organization in Computer with example.   7

(c) Explain various different addressing mode techniques. 7

(d) What are the different types of CPU organisation? Also explain in brief about instruction format. 7

Unit-II

2. (a) What is 2's complement? 2

(b) Explain Booth Multiplication Algorithm. 7

(c) Explain algorithm for addition & subtraction of numbers in signed – 2's complement representation. 7

(d) Explain with flowchart the division of floating point numbers. 7

Unit-III

3. (a) Define Micro Operation. 2

(b) Difference between horizontal micro programming & vertical micro programming. 7

(c) Difference between hardwired control unit & micro-programmed control unit. 7

(d) Explain micro-instruction sequencing using two address field sequencing technique. 7

Unit-IV

4. (a) Define Cache Memory & Virtual Memory. 2

(b) Explain address mapping using pages in virtual memory. 7

(c) Design a memory of 102 h words with RAM & ROM chips of 128 word size of RAM and 512 word size of ROM. 7

(d) What do you mean by Cache coherence & what are its conditions? Also write solutions to the cache coherence problem. 7

Unit-V

5. (a) What is Pipe Lining? 2

(b) Discuss the various modes of transfer between CPU & IOP data transfer. 7

(c) Difference between Linear pipeline and Non-linear pipeline. 7

(d) Explain various sequence of operations that may be carried out during CPU-IOP communication. 7