5E5101

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5E5101

B.Tech. V Semester (Main/Back) Examination, Nov./Dec. - 2017

Computer Science

5CS1A Computer Architecture

CS,IT

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 26

Instructions to Candidates :

*Attempt any **five questions**, selecting **one question** from **each unit**. All Questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitable be assumed and stated clearly). Units of quantities used/calculated must be stated clearly.*

Unit - I

1. a) Explain Von-Neumann architecture in detail. **(8)**

   b) What is addressing mode? Explain the direct and indirect register addressing modes with suitable examples. **(8)**

OR

1. a) Explain the Flynn's classification of computer. **(8)**

   b) Explain the arithmetic micro-operation in register transfer language. **(8)**

Unit - II

2. a) Explain the differences between RISC and CISC computers. **(8)**

   b) Explain speed up, efficiency and throughput in pipelining. **(8)**

OR

2. a) Why do we require instruction pipelining? Explain its working procedure. Discuss the pipeline performance measures. **(8)**

   b) Draw and explain the organization of a CPU showing the connections between the register to a common bus. **(8)**

Unit - III

3. a) Using Booth algorithm. Multiply (+14) and (–12) when the number's are represented in 2's complement form. **(8)**

   b) Draw and explain flow chart for addition and substraction of floating points numbers. **(8)**

OR

3. a) Explain array multiplier with a suitable example. (8)

b) Divide 0100100001 by 11001 using restoring division algorithms. Explain the steps. (8)

Unit - IV

4. a) Explain how virtual address is translated into real address in segmented memory system. (8)

b) Briefly compare the mapping procedure used in cache memory organization. (8)

OR

4. Give the basic cell of an associative memory and explain its operation. Show how associative memories can be constructed using the basic cell with match logic. (16)

Unit - V

5. a) Describe the data transfer method using DMA. (8)

b) What are the various modes of data transfer to and from the computers system? Explain. (8)

OR

5. Write short note on : (2×8=16)

a) Priority interrupt

b) IOP processor