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Total No. of Questions : 09] [Total No. of Pages : 03

Paper ID [CS201]

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B.Tech. (Sem - 3rd)

COMPUTER ARCHITECTURE (CS - 201)

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

(10 × 2 = 20)

Q1) Choose the correct or best alternative in the following:

a) Which logic is known as universal logic?

(i) PAL logic (ii) NAND logic

(iii) MUX logic (iv) Decoder logic

b) The time for which the D-input of a D-FF must not change after the clock is applied is known as

(i) Hold time. (ii) Set-up time.

(iii) Transition time. (iv) Delay- time.

c) How many memory chips of (128 × 8) are needed to provide a memory capacity of 4096 × 16 ?

(i) 64 (ii) 16

(iii) 32 (iv) None of these

d) In addition of two signed numbers, represented in 2's complement form generates an overflow if

(i) $A \cdot B = 0$ (ii) $A \oplus B = 0$

(iii) $A \oplus B = 1$ (iv) $A + B = 1$

Where **A is** the carry in to the sign bit position and B is the carry out of the **Sign bit** position.

e) Addition of $(1111)_2$ to a 4 bit binary number 'A' results:-

(i) Incrementing A (ii) Addition of $(F)_H$

(iii) No change. (iv) Decrementing A

f) In a microprocessor system, suppose, TRAP, HOLD, RESET Pin got activated at the same time, while the processor was executing some instructions, then it will first respond to

(i) TRAP (ii) HOLD

(iii) RESET (iv) None

g) Pseudo instructions are

(i) Machine instructions. (ii) Logical instructions.

(iii) Micro instructions. (iv) Instructions to assembler.

h) An attempt to access a location not owned by a Program is called

(i) Bus conflict. (ii) Address fault.

(iii) Page fault. (iv) Operating system fault.

i) Briefly write about 8255 chip.

j) Compare SPMD and MIMD machine.

Section - B

(4 × 5 = 20)

Q2) A RAM chip 4096 × 8 bits has two enable lines. How many pins are needed for the integrated circuit Package? Draw a block diagram and label all input and outputs pins of the RAM. What is the main feature of random access memory?

Q3) The RAM IC as described above is used in a microprocessor system, having 16 bit address line and 8-bit data line. It's enable- 1 input is active when A_{15} and A_{14} bits are 0 & 1 and enable-2 input is active when A_{13}, A_{12} bits are 'X' and 'O'. What shall be the range of addresses that is being used by the RAM.

(4) Give the comparison between & examples of hardwired control unit and microprogrammed control unit.

(5) What do you mean by Fetch cycle, instruction cycle, machine cycle, interrupt acknowledgement cycle.