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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING MID TERM EXAMINATION - MAY 2023

Semester : Semester IV - B.Tech CSE - 2021

Course Code : CSE2009

Course Name : Sem IV - CSE2009 - Computer Organization and Architecture

Program : B.Tech. Computer Science and Engineering

Date : 18-MAY-2023

Time : 2.00 PM - 3.00 PM

Max Marks : 50

Weightage : 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
 - (ii) Question paper consists of 3 parts.
 - (iii) Scientific and non-programmable calculator are permitted.
 - (iv) Do not write any information on the question paper other than Roll Number.
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PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. Name the different types of computers
(CO1) [Knowledge]
2. Distinguish between CISC and RISC family of processors
(CO1) [Knowledge]
3. Explain Basic Performance Equation? Also Define Possibilities for increasing the clock rate
(CO1) [Knowledge]
4. Explain Indirect and Index addressing modes with suitable examples.
(CO1) [Knowledge]
5. Explain different types of Memories
(CO1) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(4 X 5 = 20M)

6. Explain SAFE PUSH and SAFE POP in Stack
(CO1) [Comprehension]
7. Evaluate $(A+B)/(C+D)$ in Three address, Two address and one address instruction
(CO1) [Comprehension]

8. Explain Generation of computer

(CO1) [Comprehension]

9. Define the functions of following registers:

1. MAR
2. MDR
3. IR
4. PC
5. Rn

(CO1) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(2 X 10 = 20M)

10. Represent the following pairs of signed decimal numbers in 4 bit 2's complement numbers and add them. State whether overflow occurs or not.

- i) +2 and +3
- ii) +4 and +5
- iii) +7 and -3
- iv) -6 and -2

(CO1) [Application]

11. . Register R1 and R2 of computer contain the decimal value 1800 and 2600 respectively. Identify the addressing mode in each instruction and calculate effective address of the source/destination operand in each of the following instructions? (Assume 32-bit word length)

- (i) Load 42(R1), R2
- (ii) Move #3000, R4
- (iii) Store 30(R1, R2), R4
- (iv) Add -(R2), R4
- (v) Subtract (R1)+, R4
- (vi) Mov (R1, R2), R4
- (vii) ADD 100(R1, R2), R4

Where, R2 = 1200 and R3 = 2400

(CO1) [Application]