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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING  
MID TERM EXAMINATION - APR 2023**

**Semester :** Semester IV -2021

**Course Code :** CSE2009

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

**Program :** CSE

**Date :** 15-APR-2023

**Time :** 9:30AM - 11A

**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.

**PART A**

**ANSWER ALL THE QUESTIONS**

**(5 X 2 = 10M)**

1. What is a computer (CO1) [Knowledge]
2. What are the different Functional units of a computer (CO1) [Knowledge]
3. Explain Indirect and Index addressing modes with suitable examples. (CO1) [Knowledge]
4. Explain Big Endian and Little Endian (CO1) [Knowledge]
5. a. Discuss the factors that affect the performance of the computer. Let a processor operates by a frequency 10MHz and it executes a typical program in which 50% are register referenced instruction, 30% are memory reference instructions and 20% are branch instructions with 4, 8 and 6 clock cycles respectively. find out the total time taken by the processor to execute the program. (CO1) [Knowledge]

**PART B**

**ANSWER ALL THE QUESTIONS**

**(4 X 5 = 20M)**

6. Explain Functional Units of a Computer (CO1) [Comprehension]
7. With a neat diagram Explain the connection between processor and memory? (CO1) [Comprehension]

8. With an example explain 3 address, 2 address and 1 address instruction formats  
(CO1) [Comprehension]
9. Explain different types of Operations on stack?  
(CO1) [Comprehension]

### PART C

**ANSWER ALL THE QUESTIONS**

**(2 X 10 = 20M)**

10. What is addressing mode? Explain any 4 various addressing modes with examples.  
(CO1) [Application]
11. a. Perform the operations on 5-bit signed numbers using 2's complement system. Also indicate whether overflow has occurred.
- (i)  $(-10) + (-13)$
  - (ii)  $(-2) + (-9)$
  - (iii)  $(-9) + (-7)$
  - (iv)  $(+7) - (-8)$
- (CO1) [Application]