Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SET - B

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2023

Semester : Semester III - 2021
Course Code : CSE2009
Course Name : Sem III - CSE2009 - Computer Organization and Architecture
Program : B.Tech. CSE(AII)

Date : 18-JAN-2023
Time : 1.00PM - 4.00PM
Max Marks : 100
Weightage : 50%

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 TEN QUESTIONS **10 X 2 = 20M**

1. Define Computer (CO1) [Knowledge]

2. State the performance equation? (CO1) [Knowledge]

3. What is Byte Addressability? (CO1) [Knowledge]

4. What is meant by Bid-Endian and Little Endian. (CO2) [Knowledge]

5. list and draw the memory hierarchy. (CO2) [Knowledge]

6. Define Locality of reference. (CO2) [Knowledge]

7. Give the booth's recorder for the given number - 1001110 (CO3) [Knowledge]

8. What are the three communication techniques used for I/O? (CO3) [Knowledge]

9. List the control signals used for MDR operation. (CO4) [Knowledge]

10. What is Pipelining? List the stages involved in Pipelining.

(CO4) [Knowledge]

PART B

ANSWER ALL THE FIVE QUESTIONS **5 X 10 = 50M**

11. Perform the operations on 5-bit signed numbers using 2's complement system. Also indicate whether overflow has occurred.
(i) (-10)+(-13)
(ii) (-10) – (-13)
(iii) (-2) + (-9)
(iv) (-9) + (-7)
(v) (+7) – (-8)

(CO1) [Comprehension]

12. What are addressing modes? Explain any 5 various addressing modes with examples.

(CO2) [Comprehension]

13. Write steps of restoring division algorithm. Perform restoring division for 8÷3 by showing all the steps.

(CO3) [Comprehension]

14. List down the reasons why Input/Output Interface is required in between the central computer and the peripheral device. Explain the two-mapping methods Memory mapped I/O and I/O mapped I/O with the help of an example.

(CO3) [Comprehension]

15. Define ROM. Explain various types of ROMs.Discuss the difference between Read-only Memory and Random Access Memory

(CO2) [Comprehension]

PART C

ANSWER ALL THE TWO QUESTIONS **2 X 15 = 30M**

16. Consider a cache consisting of 256 blocks of 16 words each, for a total of 4096 words and assume main memory is addressable by 16 bit address and it consists of 4K blocks. Illustrate in detail the working of associative and set associative mapped cache with 2 blocks per set with relevant diagram.

(CO2) [Application]

17. Executing an Instruction involves different operations. Write the control sequence for performing operations like Data Transfer, ALU, Fetching and Storing a word with appropriate diagrams.

(CO4) [Application]