Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JUN 2023

Semester : Semester IV - 2021
Course Code : CSE2009
Course Name : Sem IV - CSE2009 - Computer Organization and Architechture
Program : CSE

Date : 14-JUN-2023
Time : 9.30AM - 12.30PM
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 QUESTIONS **(10 X 2 = 20M)**

1. State how Isolated I/O is different from Memory mapped I/O.
(CO3) [Knowledge]

2. Define Clock rate. If a CPU has clock speed of 4MHz, how many cycles per second will it execute?
(CO1) [Knowledge]

3. List the various steps involved in executing an instruction.
(CO3) [Knowledge]

4. Define LOR and mention it's types.
(CO3) [Knowledge]

5. List any 3 special purpose processor registers along with the usage.
(CO2) [Knowledge]

6. List all the different types of Addressing Modes.
(CO1) [Knowledge]

7. Draw 4 stage instruction Pipeline for executing 3 instructions.
(CO1) [Knowledge]

8. Draw a 4 bit ripple carry Adder.
(CO2) [Knowledge]

9. Distinguish between cache write-through and write-back policies.
(CO3) [Knowledge]

10. Define Memory Access time and Memory Cycle time.

(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS **(5 X 10 = 50M)**

11. a. Draw the flowchart for restoring division method.
b. Write down the booths recoding multiplier value for 101100.

(CO3) [Comprehension]

12. With a neat diagram explain Internal Memory organization of memory chip whose size is 256 words of 8 bits each .Find the total number of external connections.

(CO3) [Comprehension]

13. Register R5 and R6 of computer contain the decimal value 2000 and 3600 respectively. What is the effective address of the source operand in each of the following instructions? (Assume 32-bit word length)
(i) Load 10(R5), R6
(ii) Move #3000, R4
(iii) Store 20(R5, R6), R4
(iv) Add – (R6), R4
(v) Subtract (R5) +, R4
Where, R5 = 2000 and R6 = 3600

(CO2) [Comprehension]

14. Apply Booth's multiplication algorithm to compute signed multiplication of +25 and -30.

(CO3) [Comprehension]

15. With a neat diagram explain single bus organization? Write the control sequence for execution of a complete instruction?
Move (R1), R2

(CO3) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS **(2 X 15 = 30M)**

16. Ilustrate the various operation of I/O Communication Techniques with suitable figure.

(CO3) [Application]

17. Write a flowchart and Perform the division of numbers 16/4 using Restoring Division Algorithm.

(CO3) [Application]