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**Presidency University**

**Bengaluru**

**SCHOOL OF ENGINEERING**

**MAKE-UP EXAMINATION JULY 2024**

**Course Code**: CSE 2009

**Course Name**: Computer Architecture and Organization

**Program** : B. Tech

**Date**: 19-07-2024

**Time**: 9.30 AM – 12.30 PM

**Max Marks**: 100

**Weightage**: 50 %

**Instructions:**

1. *Read all the questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and Non-programmable calculators are permitted.*

**Part A [Memory Recall Questions]**

**Answer all the Questions. Each question carries 4 marks. (8Qx 4M= 32M)**

1. Define Full Adder? Write the equation for sum and carry.

(C.O.No.1) [Knowledge Level]

2. State the difference between Big-Endian and Little-Endian representation.

(C.O.No.2) [Knowledge Level]

3. With suitable example write the format for two and three address instruction? (C.O.No.1) [Knowledge Level]

4. With a neat diagram explain I/O mapping methods. (C.O.No.1) [Knowledge Level]

5. Mention the various special purpose registers of a Processor. (C.O.No.1) [Knowledge Level]

6. Differentiate between the two address and three address instruction formats with suitable

examples. (C.O.No.2) [Knowledge Level]

7. What are the different cache mapping techniques? (C.O.No.3) [Knowledge Level]

8. Write the steps to show how interrupts are handled? (C.O.No.3) [Knowledge Level]

**Part B [Thought Provoking Questions]**

**Answer all the Questions. Each question carries 12 marks. (3Qx12M=36M)**

9. Explain Fast Addition with a neat diagram and compute the delay for all the sum and carry bits. (C.O.No.2) [Comprehension]

10. Register R1 and R2 of computer contain the decimal value 500 and 1630 respectively. What is the effective address of the source/destination operand in each of the following instructions? Name the Addressing mode used in each Instruction. (Assume 32 bit word length)  
  
1. Store  30(R1,R2), R5  
2. Add – (R2), R5    
3. Subtract (R1) +, R5  
4. Mov (R1, R2), R4  
5. ADD (R2),R4

(C.O.No.3) [Comprehension Level]

11. Explain Programmed I/O and Interrupt driven I/O with suitable flow chart?

(C.O.No.3) [Comprehension Level]

**Part C [Problem Solving Questions]**

**Answer all the Questions. Each question carries 16 marks. (2Qx16M=32M)**

12. Apply Booth algorithm to multiply signed integers of 20 and -15.

(C.O.No.2) [Application Level]

13. Explain the restoring division algorithm in computer arithmetic. Apply restoring division on 12 and 3. Write the flow chart for restoring division algorithm?

(C.O.No.2) [Application Level]