Code No.: CS302PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Supply) - February- 2024
COMPUTER ORGANIZATION AND ARCHITECTURE
(Common to CSE, IT, CSC & CSM)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
    Part A is compulsory which carries 20 marks. Answer all questions in Part A.
    Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) Differentiate logical shift and arithmetic shift [2M]
   b) Define register transfer language? [2M]
   c) Differentiate micro operation and micro instruction [2M]
   d) What is control word and how many fields it consists [2M]
   e) What is restoring method in division algorithm? [2M]
   f) Obtain the 10's complement of 123900 decimal number [2M]
   g) What is memory hierarchy? [2M]
   h) Define Associative memory. [2M]
   i) Differentiate between RISC and CISC [2M]
   j) Define cache coherence [2M]

PART-B   (50 Marks)

2. What is bus? What are different types of buses used in computers? Discuss their uses [10M]

OR

3. Explain the Arithmetic and Logic micro operations with hardware implementation [10M]

4. a) Explain about stack organization used in processors. What do you understand by register stack? [5M]
   b) What is an effective address? Explain instruction format. [5M]

OR

5. What are addressing modes? List and explain different addressing modes with suitable examples. [10M]

6. a) Describe the derivation procedure of addition and subtraction algorithms. [5M]
   b) Show the systematic multiplication process of $(-15) \times (-16)$ using Booth's Algorithm. [5M]

OR

7. a) Draw the flow chart for multiplication algorithms. [5M]
   b) Drive an algorithm for evaluating the square root of a binary fixed-point number. [5M]

8. With a neat schematic diagram, explain about DMA controller and its mode of data transfer. [10M]

OR

9. Explain the following. [10M]
   a) Cache Memory.
   b) Virtual Memory.

10. What is pipelining? How it improves the performance of computing? Explain. [10M]

OR

11. Discuss the implementation of arithmetic pipeline. [10M]

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