Code No.: 20506

MR12

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER-2019

Subject: **COMPUTER ORGANIZATION**

Branch: **CSE**

Time: 3 hours **Max. Marks: 75**

Answer ANY FIVE questions of the following **5x15M= 75M**

1. a) Discuss about logical and shift micro operations? [7M]
   b) Draw the block diagram of a computer system and describe each of its parts along with their functions? Also design the information flow between the parts with arrows. [5M]

2. a) What are the different types of instruction formats? Explain with examples. **[10M]**
   b) Define microoperation. Explain about arithmetic microoperation. [5M]

3. a) Describe how micro instructions are arranged in control memory and how they are interpreted? [8M]
   b) Define the following [7M]
   i) Micro operation ii) Micro instruction iii) Micro code

4. a)Write about array multipliers [7M]
   b) Explain the addition and subtraction with signed 2's complement data (8M)

5. a) Explain what is cache memory and how memory mapping is done in cache memory [10M]
   b) Explain the structure of main memory and how it is connected to CPU. (5M)

6. a) What is an interrupt? Explain different types of interrupt. [8M]
   b) What are the different issues behind serial communication? [7M]

7. a) Explain with neat diagram about pipelining.
   b) Flow matrix multiplication is done in vector processing?
   c) Explain about Arithmetic Pipe lining.

8. Write short note on [5+5+5M]
   a) pipeline conflicts b) hardware interlocks c) pre-fetch target instruction.

Code No.: 20511

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

II B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER-2019

Subject: **DESIGN & ANALYSIS OF ALGORITHMS**

Branch: **CSE**

Time: 3 hours **Max. Marks: 75**

Answer ANY FIVE questions of the following **5x15M= 75M**

1. a) What is an Algorithm? What are the characteristics of an Algorithm? [7M]

   b) Explain briefly about Asymptotic Notations. [8M]

2. Discuss in detail about Spanning Trees in disjoint set operations.

3. a) Write the Control Abstraction for Divide and Conquer? [5M]

   b) Apply Quick Sort approach on the following elements and derive its worst case Time Complexity -10 -15 -20 25 30 35 40 45 50 [10M]

4. Explain Job sequencing with Dead Lines problem. Solve the following instance using Greedy method with the help of an algorithm.

   n=4, (P1, P2, P3, P4) = (100, 10, 15, 27) and (dl, d2, d3, d4) = (2, 1, 2,1).

5. a) What is Dynamic Programming? How it is differentiated from greedy method. [5M]

   b) How Matrix Chain Multiplication can be performed for the following matrices. [10M]

   A_{2X3} X B_{3X3} X C_{3X4} X D_{4X2}

6. a) Explain 4-Queens Problem with an example. [7M]

   b) Explain M-colorng problem with an example and write algorithm for it. [8M]

7. a) Explain LC-Branch and Bound Solution for 0/1 Knapsack Problem for the following instance n=4 m=15 (pl,p2,p3,p4)=(10,10,12,18) ,(wl,w2,w3,w4)=(2,4,6,9). [10 M]

   b) What is Branch and Bound and write the general method with applications . [5M]

8. a) What is Satisfiability Problem? Explain with example. [8 M]

   b) Explain the basic concepts of non deterministic algorithms [7 M]