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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, May - 2021

(Eighth Semester)

**BCSPE8014 / BITPE 8011- PARALLEL COMPUTING**

(CSE and I.T)

Time: 2 hrs

Maximum: 50 Marks

**Answer ALL Questions****The figures in the right hand margin indicate marks.****PART – A: (Multiple Choice Questions)****(1 x 10 = 10 Marks)****Q.1. Answer ALL questions**

[CO#]

[PO#]

- |  |   |   |
|--|---|---|
| a. The correspondence between the main memory blocks and those in the cache is given by _____. | 1 | 1 |
| A. Hash function   |   |   |
| B. Mapping function  |   |   |
| C. Locale function   |   |   |
| D. Assign function   |   |   |
| b. The algorithm to remove and place new contents into the cache is called _____               | 1 | 1 |
| A. Replacement algorithm   |   |   |
| B. Renewal algorithm   |   |   |
| C. Updation  |   |   |
| D. None of the mentioned   |   |   |
| c. Execution of several activities at the same time.   |   |   |
| A. processing  | 1 | 1 |
| B. parallel processing   |   |   |
| C. serial processing   |   |   |
| D. multitasking  |   |   |
| d. Computer system of a parallel computer is capable of  | 2 | 1 |
| A. Decentralized computing   |   |   |
| B. Parallel computing  |   |   |
| C. Centralized computing   |   |   |
| D. Distributed computing   |   |   |
| e. The fastest data access is provided using _____   | 2 | 1 |
| A. Caches  |   |   |
| B. DRAM's  |   |   |
| C. SRAM's  |   |   |
| D. Registers   |   |   |
| f. The address location in the main memory, is referred to as                                  | 2 | 1 |
| A. Logical address   |   |   |
| B. Physical address  |   |   |
| C. Static address  |   |   |
| D. Block associative   |   |   |
| g. Several instructions execution simultaneously in _____                                      | 3 | 1 |
| A. processing  |   |   |
| B. parallel processing   |   |   |
| C. serial processing   |   |   |
| D. multitasking  |   |   |
| h. _____ leads to concurrency.   | 3 | 1 |
| A. Serialization   |   |   |
| B. Parallelism   |   |   |
| C. Serial processing   |   |   |
| D. Distribution  |   |   |
| i. What is the relation between Sparsity and Density of a matrix?                              | 4 | 1 |
| A. Sparsity = 1 - Density  |   |   |
| B. Sparsity = 1 + Density  |   |   |
| C. Sparsity = Density*Total number of elements   |   |   |
| D. Sparsity = Density/Total number of elements   |   |   |
| j. In Gaussian elimination method, original equations are transformed by using _____           | 4 | 1 |

- A. Column operations
- C. Mathematical Operations

- B. Row Operations
- D. Subset Operation

**PART – B: (Short Answer Questions)**

**(2 x 5 = 10 Marks)**

Q.2. Answer ALL questions

	[CO#]	[PO#]
a. Discuss Deadlock.	1	1
b. Define Semaphore.	1	1
c. Define Load Balancing.	2	1
d. What is Roofline Model?	3	1
e. What is parallel prefix?	4	1

**PART – C: (Long Answer Questions)**

**(6 x 5 = 30 Marks)**

Answer ANY FIVE questions

	Marks	[CO#]	[PO#]
3. Explain in detail about the Race Condition Architecture.	(6)	1	1
4. Write the short note on Multicore, Manycore and Multithreading.	(6)	1	1
5. Explain in detail about Static and Dynamic Graph Partitioning.	(6)	2	1
6. Discuss in detail about block-cyclic data distribution.	(6)	2	1
7. What is PRAM and Alpha/Beta Model? Discuss and Compare.	(6)	3	1
8. Discuss in detail about Data Parallel Languages.	(6)	3	1
9. Explain in detail about Matrix Multiplication -Canon's algorithm.	(6)	4	1
10. Discuss in detail about Structured and Unstructured Grids.	(6)	4	1

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