

**MASTER OF COMPUTER  
APPLICATIONS (MCA) (REVISED)**

**Term-End Examination**

**June, 2024**

**MCSE-011 : PARALLEL COMPUTING**

*Time : 3 Hours*

*Maximum Marks : 100*

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***Note :** Question No. 1 is compulsory. Attempt any  
**three** questions from the rest.*

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1. (a) Describe the following with the help of suitable examples for each : 10
  - (i) Vector Processing
  - (ii) Array Processing
  
- (b) Define the following terms : 10
  - (i) Speed up
  - (ii) Data flow computing
  - (iii) Loop level parallelism
  - (iv) Uniform memory access model

- (c) Define Amdahl's law in detail. 10
- (d) Explain *five* applications of parallel computing. Also discuss the various levels of parallel processing. 10
2. (a) Differentiate between UMA, NUMA and COMA in details. 10
- (b) Explain Flynn's classification of parallel computer systems with examples. 10
3. (a) Explain the algorithm for matrix multiplication in sequential circuits. 10
- (b) What are the different data structures for parallel algorithms ? Explain any *two* data structures with the help of an example. 10
4. (a) Explain the various visualization tools employed in performance analysis with the help of appropriate diagram. 10
- (b) Explain the spin lock mechanism for synchronization among concurrent processes. 10

**[ 3 ]**

5. Write short notes on the following :  $4 \times 5 = 20$

(a) Data flow computing concepts

(b) Multithreaded Architecture

(c) Granularity

(d) PRAM