

No. of Printed Pages : 3

**MCSE-011**

**MCA (REVISED)**

**Term-End Examination**

**June, 2026**

**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) Discuss Flynn's classification of Parallel computers. 8
- (b) Draw and explain Arithmetic pipeline for multiplication of two 6-digit fixed numbers. 8
- (c) Explain Biotonic Sorting will example. 8
- (d) Define OpenMP in detail. 8
- (e) Explain Wait protocol and Sole access protocol. 8

2. (a) Explain the concept of “grain size” in parallelism. Discuss various parallelism conditions based on “grain size” in detail. 10
- (b) Discuss various levels of parallel processing with the help of examples. 10
3. (a) Explain the following terminologies with respect to Interconnection Network : 10
  - (i) Network diameter
  - (ii) Network throughput
  - (iii) Data Routing functions
  - (iv) Bisection Bandwidth
- (b) Draw and explain  $16 \times 16$  3-stage benz network in detail. 10
4. (a) Analyze odd-even transposition sorting method using an example. 10
- (b) Explain Parallel Virtual Machine (PVM) along with its features and set-up process. 10

**[ 3 ]**

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

- (a) Hyper threading
- (b) Loosely coupled and tightly coupled system
- (c) Handler's classification
- (d) Types of parallel programming

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