Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

PRESIDENCY UNIVERSITY
BENGALURU
School of CSE
Mid - Term Examinations - November 2024

Semester: VII

Course Code: CSE3079

Course Name: Parallel Computing

Program: B.Tech CSE

Date: 05/11/2024

Time: 02.00pm to 03.30pm

Max Marks: 50

Weightage: 25%

Instructions:
  (i) Read all questions carefully and answer accordingly.
  (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.   **5Qx2M=10M**

1	Why Parallel Computing?	2 Marks	L	CO1
2	List the applications of parallel computing.	2 Marks	L	CO1
3	Define the term prefetching.	2 Marks	L	CO2
4	Draw the diagram of a star-connected network of nine nodes.	2 Marks	L	CO2
5	What is the need for performance metrics?	2 Marks	L	CO2

Part B

Answer ALL Questions. Each question carries 10 marks.   **4QX10M=40M**

6	a.	Illustrate Superminivax-11 system architecture with neat diagram.	6 Marks	L3	CO1
	b.	Summarize Parallelism and pipelining within CPU with diagram.	4 Marks	L2	CO1

Or

7	a.	Interpret mainframe IBM system 370 architecture with neat diagram.	6 Marks	L3	CO1

	b.	Describe CPU instruction execution steps with neat diagram.	**4 Marks**	**L2**	**CO1**
8	a.	Estimate superscalar execution with code and execution schedule.	**5 Marks**	**L3**	**CO1**
	b.	Compare tightly coupled system with loosely coupled system.	**5 Marks**	**L2**	**CO1**

<div align="center">Or</div>

9	a.	Interpolate attached array processor with diagram.	**5 Marks**	**L3**	**CO1**
	b.	Compare parallel system with distributed memory.	**5 Marks**	**L2**	**CO1**
10		Sketch the concept of granularity for adding 16 numbers.	**10Marks**	**L3**	**CO2**

<div align="center">Or</div>

11		Interpret the one-to-all broadcast and all to one reduction using mesh topology.	**10Marks**	**L3**	**CO2**
12	a.	Sketch multi-stage-network.	**3 Marks**	**L3**	**CO2**
	b.	Draw the diagram of a static and dynamic tree network.	**2 Marks**	**L2**	**CO2**
	c.	Interpret the one to all broadcast using hypercube topology	**5 Marks**	**L3**	**CO2**

<div align="center">Or</div>

13	a.	Sketch bus topology.	**3 Marks**	**L3**	**CO2**
	b.	Draw the diagram of the fat tree.	**2 Marks**	**L2**	**CO2**
	c.	Explain Task Dependency Problem with minimum number example.	**5 Marks**	**L3**	**CO2**