Please solve the tutorial questions in advance.

1. Describe a parallel formulation of matrix-vector multiplication in which the matrix is 1-D block-partitioned along the columns and the vector is equally partitioned among all the processes. Show that the parallel run time is the same as in case of rowwise 1-D block partitioning.

2. Let $f'$ denote the fraction of total execution time on the serial portion of a parallel algorithm using $p$ processors. Show that the speedup of the parallel algorithm is not more than $p - (p-1)f'$. Explain the different purposes of this speedup formulation with the speedup formulated by Amdahl’s Law.

3. The claim that “using 1 processor in computation is $p$ times slower than using $p$ processors if communication overhead can be ignored” is too optimistic. Do you agree? Justify.

4. What type of problem is not suitable for High Performance Computing?

5. Give a checklist used to increase the chance of achieving a promising speedup in High Performance Computing.

6. Besides achieving a speedup, what is the other purpose of doing High Performance Computing?

7. Is it worthwhile to do High Performance Computing?

Question 3, 4, 5, 6, 7 are for you to show me that you have learnt something from this course.

Please solve the tutorial questions in advance to gain the maximum benefit from our tutorial session.