MCSE-011

MCA (Revised)
Term-End Examination
December, 2018

04983

MCSE-011 : PARALLEL COMPUTING

Time : 3 hours   *Maximum Marks : 100*

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

1. (a) What is meant by scalability of parallel algorithms ? Write the characteristics of parallel algorithm written for PRAM machine. *10*

    (b) Using Bernstein's conditions, detect maximum parallelism between the instructions of the following code : *10*

    P1 : A = B * C

    P2 : P = Q + A

    P3 : R = T + A

    P4 : A = S + P

    P5 : V = Q ÷ C

    (c) Explain Gustafson's law with an example. *10*

    (d) Discuss the features of the parallel computer series PARAM and MARK developed by India. *10*

2. (a) Explain the parameters used to analyse genetic algorithms. Write a parallel algorithm to rank the elements of a linearly linked list in terms of distance from each node to the last element of the list. *10*

   (b) Discuss Handler's classification based on three distinct levels of computers. *10*

3. (a) Explain the architecture of pipeline processing. *10*

   (b) Differentiate between Control flow computing and Data-flow computing. Also give example for each. *10*

4. (a) With the help of a diagram, illustrate the concept of sorting using comparators for the unsorted list having the following elements : *10*
   4, 5, 9, 11, 95, 7, 23, 46, 39, 12, 6, 18

   (b) What is Synchronization Latency Problem in multithreaded processors ? *10*

5. Write short notes on the following : *4×5=20*

   (a) Fat Tree

   (b) Asymptotic Notation

   (c) Cluster Computing

   (d) OpenMP