MCSE-011

MCA (Revised)

Term-End Examination

June, 2014

MCSE-011 : PARALLEL COMPUTING

Time : 3 hours   *Maximum Marks : 100*

Note :   *Question number 1 is* **compulsory.** *Attempt* **any three** *questions from the rest.*

1. (a) What are Parallel Random Access   8
       Machines ? List the steps followed by PRAM
       model in executing an algorithm.

   (b) Compare the Flynn's classification and   8
       structural classification, on relevant
       attributes.

   (c) Why do we use MPI ? Discuss two features   8
       each of MPI - I and MPI - II.

   (d) Elaborate two features of Unix as a   8
       multi-processor system, with suitable
       example.

   (e) Illustrate the multi-statement FORALL.   8
       Construct with a suitable example.

2. (a) Discuss the Amdahl's law for measuring the   15
       speed-up performance.

   (b) How is the performance judged on the basis   5
       of run-time behaviour ?

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3. (a) What is grain size ? What are the different **15** categories of grain size ? How do we classify Parallelism on the basis of grain size ?

   (b) Describe the advantages of parallel **5** processing over sequential computations.

4. What is OpenMP and its application in Parallel **20** Computing ? Discuss the different work sharing constructs defined in OpenMP with suitable program examples.

5. (a) What are the different steps to write a **5** general parallel program ?

   (b) What are the advantages of threads over **5** processes ?

   (c) Discuss two applications of parallel **10** computing, with appropriate illustrations.

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