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MCSE-011

MCA (Revised)

Term-End Examination

December, 2013

MCSE-011 : PARALLEL COMPUTING

10852

Time : 3 hours *Maximum Marks : 100*

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

1. (a) List the applications of parallel processing. 8

   (b) Give the full form of each of the abbreviation and state whether True or False for the following. 2x4=8

   (i) SISD can be characterised as $I_s > 1$ & $D_s > 1$.

   (ii) SIMD can be characterised as $I_s > 1$ & $D_s = 1$

   (iii) MISD can be characterised as $I_s = 1$ & $D_s = 1$

   (iv) MIMD can be characterised as $I_s > 1$ & $D_s > 1$

   (c) Differentiate between scalar & Vector processing. 8

   (d) Explain various visualisation tools employed in performance analysis. 8

   (e) Explain the concept of sorting in the combinational circuits. 8

2. (a) Discuss Handler's classification. Explain with an example. **10**

(b) Use Bernstein's conditions for determining parallelism in the following segments. **10**

S_1: $X = Y + Z$

S_2: $Z = U + V$

S_3: $R = S + V$

S_4: $Z = X + R$

S_5: $Q = M + Z$

3. (a) Explain the following : **5x2=10**

(i) Hyper threading

(ii) Architecture of IA 64

(b) Discuss and explain arithmetic pipeline for multiplication of two 8-digit fixed numbers. **10**

4. (a) Explain the data structures used for parallel algorithms. **10**

(b) Discuss the various message passing programming systems. Explain the commands to compile & running PVM programs. **10**

5. (a) Explain the spin-lock & binary spin lock mechanism for synchronisation among concurrent processes. **10**

(b) Discuss the various kinds of metrices involved for analysing the performance of parallel computers. **10**
