

MCA (Revised)
Term-End Examination
December, 2015

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) Explain the various levels of parallel processing. 10
- (b) Determine the dependency relations among the following instructions : 10
- $I_1 \Rightarrow a = b + c$
- $I_2 \Rightarrow b = a + d$
- $I_3 \Rightarrow c = a/f$
- (c) List the differences between Clos network and Benz network. 10
- (d) Identify the factors due to which the speed of the pipelining is limited. 10

2. (a) Identify the types of the following vector processing instructions : 10
- (i) $C(I) = A(I) \text{ and } B(I)$
 - (ii) $C(I) = \text{MAX}(A(I), B(I))$
 - (iii) $B(I) = A(I)/S$, where S is a scalar item
 - (vi) $B(I) \leftarrow \text{SIN}(A(I))$
- (b) What are the differences between scalar processing and superscalar processing ? What is the condition for compacting the instruction in a VLIW instruction word ? 10
3. (a) Explain the concept of analysis of parallel algorithms. 10
- (b) Explain the algorithm for Matrix Multiplication, using (i) CRCW, (ii) CREW. 10
4. (a) What are intrinsic functions ? Name any five of them. 10
- (b) Explain in detail the various generations of message passing multi-computers. 10

5. Write short notes on the following :

4×5=20

- (a) IA-64 Architecture
 - (b) Asymptotic Notations
 - (c) PRAM
 - (d) Flynn's Classification
-