

## **AP 5001 Computer Architecture and parallel Processing**

### **Important 2 Marks Questions**

#### **Unit I**

1. Name four SIMD languages.
2. Compare temporal parallelism and data parallelism.
3. Differentiate multiprocessors and multicomputers.
4. State the conditions for parallelism.
5. What are the merits used for measuring the performance of parallel systems?
6. What is the difference between a binary K-cube and a cube connected network of degree K?
7. State the various performance metrics w.r.t computer design.
8. Define SIMD.
9. State the purpose of program counter.
10. What is instruction register?

#### **Unit II**

1. Define MIPS rate.
2. Define Amdahl's law of speed up performance.
3. Is it possible for the average speedup exhibited by a parallel algorithm to be super linear?
4. Given a task graph and arbitrarily large number of processors, what is a lower bound on the length of an optimal schedule?
5. State the use of branch prediction buffer.
6. Define anti dependence and output dependence with respect to parallelism and dependence relations.
7. Define Orchestration.
8. State the significance of using dynamic scheduling.
9. List the advantages and disadvantages of pipelining.
10. Differentiate horizontal and vertical processing.

#### **Unit III**

1. Classify the different cache mapping organizations.
2. Define Arbitration.
3. Name the various memory update policies.
4. What is the need for memory hierarchy?
5. Classify the different cache mapping organizations.
6. Define any four scalability merits for an application.
7. Compare write-through and write-back caches.
8. List the commonly used memories with example.
9. Define hit ratio.
10. What is virtual memory?

### **Unit IV**

1. List the merits of multiport memory over crossbar networks.
2. Define Multithreading.
3. What are the two types of data flow architecture?
4. Compare multi vector and SIMD computers.
5. Differentiate multiprocessors and multi computers.
6. State the instruction format used in VLIW process.
7. List four categories of multiprocessors placed in all computers.
8. State the advantages of Different Communication Mechanisms.
9. Name the interconnections used in a multiprocessor system.
10. Consider a simple computation on an  $n \times n$  double matrix (each element is 8 bytes) where each element  $A[i][j] = (A[i-1][j] + A[i+1][j] + A[i][j-1] + A[i][j+1])/4$ .  
Suppose you assign one matrix element to one processor (i.e. you have  $n^2$  processors). Compute the total amount of data communicated between processors.

### **Unit V**

1. Name some SIMD languages.
2. Specify the compilers used in parallel models.
3. Differentiate between SIMD and SPMD programming.
4. Present the features of IBM cell.
5. State the phases of a parallel compiler.
6. Justify the need for multi core architecture with example.
7. Draw the IBM cell architecture.
8. How are threads allocated to processors when there are more threads than the number of processors?
9. What is false sharing?
10. Define memory interleaving.