



- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Assume suitable data whenever necessary.

1. Define parallel computing. Explain pipelined processor in detail. **13**

OR

2. a) Differentiate between instruction pipeline and arithmetic pipeline. **8**

b) Enlist the features required by operating system to support parallelism. **5**

3. a) What are different types of dependencies found in loop. Give example of each. **8**

b) Explain various parallel programming models. **5**

OR

4. a) Solve the dependence problem in the loop. **6**

L: do I = 0, 10, 1

S: X (2I+34) =

T: =... × (-3I+35).....

enddo

By method of bands.

b) Discuss general model of shared memory programming. **7**

5. Explain parallel sorting algorithm. Explain the type of dependency in sequential sorting algorithm of your choice. How it is solved in parallel programming. **14**

OR

6. With the help of a diagram illustrate the concept of sorting using comparators for the unsorted list having the elements value as **14**
(3, 5, 8, 9, 10, 12, 14, 20, 95, 90, 60, 35, 23, 18, 0).

7. a) Explain the inter process communication in multiprocessor system. **8**
b) Define Distributed tree search for parallel alpha beta search. **5**

OR

8. Explain the algorithm for matrix multiplication on the hypercube with suitable example. **13**
9. a) Explain various debugging techniques in distributed parallel programming system. **7**
b) Explain the concept of virtual memory in parallel computing in shared memory model. **6**

OR

10. a) Discuss cache allocation and management in shared memory multiprocessor system. **7**
b) What are the limitations of virtual memory in distributed system. **6**
11. a) What is Amdahl's law ? What is its significance in parallel systems. **7**
b) Explain systolic architecture. **7**

OR

12. a) Write short note on dataflow languages. **7**
b) How performance a parallel processor are measured what are the limitation of parallel processor. **7**
