



- 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.
  10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Describe the various trends in Integrated circuit. **5**
- b) What are various types of shared memory multiprocessor? Explain it in detail. **5**
- c) Differentiate between multicomputer & Multiprocessor. **4**
- OR**
2. a) Explain the various trends in cost. **4**
- b) Explain Flynn's classification in detail. **6**
- c) Discuss the various levels of Parallelism. **4**
3. a) What are the various types of data dependence? **4**
- b) Discuss various data Hazards in ILP. **4**
- c) Explain basic compiler techniques for exposing ILP. **5**
- OR**
4. a) How to reduce branch cost with dynamic branch prediction? **4**
- b) Explain dynamic scheduling using Tomasulo's Approach. **5**
- c) What is speculation? Differentiate between hardware & software speculation. **4**
5. a) Describe vector Architecture in detail. **7**
- b) Explain centralized shared memory architecture. **6**

**OR**

6. a) Explain SIMD instruction set. 6  
b) Describe Graphics Processing Unit (GPU). 7
7. a) Explain the eleven (11) advanced cache optimization techniques. 13
- OR**
8. a) What is virtual memory & Explain how address translation is done. 8  
b) Explain memory hierarchy design & Functionality of cache. 5
9. a) Explain message passing architecture in detail. 8  
b) What are the various potential problems occur in Routing. 6
- OR**
10. a) Discuss the switching mechanisms in message passing. 8  
b) Which features needed in Processor to support message passing. 6
11. a) Explain the standard five RAID levels. 8  
b) What are the various types of faults. 5
- OR**
12. a) What you mean by Areal density? & How can you compute disk power? 7  
b) Explain real faults & failures with example. 6

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