(3 hours)

[Total Marks: 80]

NB :

1) Question No.1 is **compulsory.**
2) Attempt any **three** questions out of the remaining questions.
3) Make suitable assumptions wherever necessary.

Q.1 Solve Any four **(5 Marks X 4)**

a) Compare parallel and distributed system models by giving example of each. **5**

b) State the goals of a distributed system. **5**

c) Compare and contrast between message oriented and stream oriented communication. **5**

d) Discuss Amdahl's law for measuring speed up performance of parallel system. **5**

e) Enlist and discuss desirable features of global scheduling algorithm **5**

Q.2 a) Illustrate 4 stage pipeline architecture. **10**

b) What is Remote Procedure Call. Discuss the working of RPC in detail. **10**

Q.3 a) Discuss the role consistency in distributed system. What is the need of client centric consistency models. Explain any two data centric consistency models. **10**

b) Illustrate the implementation details of pipelined floating point adder. **10**

Q.4 a) Discuss the need of process migration. Explain the role of resource to process and process to resource binding in process migration. **10**

b) Explain Raymond's Tree based algorithm of token based distributed mutual exclusion. **10**

Q.5 a) Describe code migration issues in detail. **10**

b) Explain the load balancing approach. Explain static and dynamic load balancing algorithm. **10**

Q.6 Attempt any two **(10X2)** **20**

a) Pipeline hazards and techniques to eliminate those hazards

b) Lamport algorithm

c) Election Algorithm

d) Andrew File System(AFS)

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