

(3 Hours)

[Total Marks: 80]

Instructions:

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

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| Q1. | Attempt any 4 questions out of 6. Each question carries | 5 marks. |
| a) | Compare between DOS, NOS and Middleware. | |
| b) | Explain with the diagram Dispatcher-Worker thread model. | |
| c) | Explain happens before relation with its features. | |
| d) | Explain naming in a distributed system. | |
| e) | Compare caching and replication. | |
| f) | Explain stream - oriented communication. | |
| Q2. | Each question carries | 10 marks. |
| i. | Explain in detail Raymond's Tree-Based algorithm (Token-based algorithm). | |
| ii. | Write a note on the Network File System (NFS) . | |
| Q3. | Each question carries | 10 marks. |
| i. | Write note on Andrew File System (AFS) . | |
| ii. | Explain steps involved in the RMI execution process in detail. | |
| Q4. | Each question carries | 10 marks. |
| i. | What is Remote Procedure Call?Explain the working of RPC in detail. | |
| ii. | Explain different types of distributed systems with diagrams. | |
| Q5. | Each question carries | 10 marks. |
| i. | Explain with diagrams various client-centric consistency models. | |
| ii. | Compare static and dynamic load balancing algorithms. | |
| Q6. | Each question carries | 10 marks. |
| i. | Explain with an example load sharing approach. | |
| ii. | Explain any one election algorithm in detail with suitable example. | |