IT-704A

DISTRIBUTED OPERATING SYSTEM

ime Allotted: 3 Hours | Full Marks

The questions are of equal value.
The figures in the margin indicate full marks
Candidates are required to give their answers in their own words as far as practicabl

GROUP A
(Multiple Choice Type Questions)

Answer any *ten* questions. 10×1

(i) In distributed system each processor has its own
(A) local memory (B) clock
(C) both (A) & (B) (D) none

(ii) If one site fails in distributed system
(A) the remaining sites can continue operating
(B) all the sites will stop working
(C) directly connected sites will stop working
(D) none of the mentioned

(iii) Processes on the remote systems are identified by
(A) host ID (B) host name and identifier
(C) identifier (D) process ID

(iv) Which one of the following hides the location where in the network the file is stored?
(A) transparent distributed file system
(B) hidden distributed file system
(C) escaped distribution file system
(D) spy distributed file system

(v) In distributed file system, a file is uniquely identified by
(A) host name
(B) local name
(C) the combination of host name and local name
(D) none of the mentioned

(vi) If timestamps of two events are same, then the events are
(A) concurrent (B) non-concurrent
(C) monotonic (D) non-monotonic

(vii) The distributed system is a collection of
(A) loosely coupled hardware on tightly coupled software
(B) tightly coupled hardware on loosely coupled software
(C) tightly coupled software on loosely coupled hardware
(D) loosely coupled software on tightly coupled hardware

(viii) CORBA is a
(A) hardware (B) software
(C) middleware (D) firmware

(ix) Communication is achieved in distributed system by
(A) disk sharing (B) shared memory location
(C) file sharing (D) message passing

(x) Which of the following is not the feature of distributed system?
(A) it is a collection of processors
(B) processors communicate with one another through high speed buses
(C) processing must be done within defined constraint or the system will fail
(D) each processor has its own local memory

(xi) Which of the following is not a distributed computing model
(A) minicomputer model (B) workstation model
(C) processor pool model (D) none of the above

(xii) Transparency in Distributed system refers to

(A) it runs the program transparently

(B) it is a technique to shift the program to another computer

(C) it makes existence of multiple computers invisible and provide a single system image to its users

(D) none of the above

GROUP B
(Short Answer Type Questions)

Answer any *three* questions. 3×5 = 15

2. Briefly describe different distributed computing system models.

3. With diagram describe loosely and tightly coupled system. What are the limitations of distributed operating system? 3+2

4. What the conditions and implementation rules are for happen – before relation?

5. What is the difference between Remote Procedure Call and Remote Method Invocation? 2+3

6. What do you mean by layered operating system? What are the advantages of this approach?

GROUP C
(Long Answer Type Questions)

Answer any *three* questions. 3×15 = 45

7. (a) What is Lamport Logical clock? 2+3+5+5
   (b) What are the limitations of Lamport Logical clock.
   (c) What are the necessary conditions satisfied by the system of clocks? Describe with example.
   (d) Briefly discuss "Chandy Lamport Global State Recording Algorithm".

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8. (a) Describe different issues in deadlock detection and resolution. 5+5+5
   (b) Describe a "Path-Pushing Algorithm" and mention its limitation of this algorithm.
   (c) Briefly describe "Edge – Chasing Algorithm" for distributed deadlock detection.

9. (a) Describe "Lamport's Distributed Mutual Exclusion Algorithm" with suitable example. 5+5+5
   (b) Describe "Suzuki-Kasami's Broadcast Algorithm" with suitable example.
   (c) Describe "Ricart-Agrawala Algorithm" for distributed mutual exclusion.

10.(a) What is deadlock? How does authentication take place in distributed security? Explain distributed mutual exclusion algorithm 1+5+9

11. Write short notes on any *three* of the following: 3×5
   (a) Digital signature.
   (b) Memory coherence.
   (c) Global State Detection Algorithm.
   (d) Design issues in Remote Procedure call (RPC).
   (e) Inter Process Communication (IPC).

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