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B.Tech. DEGREE EXAMINATION, DECEMBER 2022

Fifth Semester

18CSE356T – DISTRIBUTED OPERATING SYSTEMS

For the candidates admitted from the academic year 2018-2019 to 2021-2022)

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours | Max. Marks: 75

PART – A (25 × 1 = 25 Marks)

Answer **ALL** Questions

	Marks	BL	CO	PO
1. The transparency that enables multiples instances of resources to be used, is called _____. (A) Performance transparency (B) Scaling transparency (C) Concurrency transparency (D) Replication transparency	1	1	1	1
2. A set of highly integrated machine that runs the same process in parallel is known to be (A) Space based (B) Loosely based (C) Tightly couples (D) Peer-to-peer	1	1	1	1
3. There are four requirements in the design of distributed system. Choose the correct combination from the list below (A) Network performance, quality of service, caching and replication, dependability issues (B) Network dependency, quality of service, cookies and replication, dependability issues (C) Network integrity, quality of software, caching and alteration, dependability issues (D) Network accessibility, quality of hardware, caching and replication, dependability issues	1	2	1	1
4. What is not a major reason for building distributed systems? (A) Resource sharing (B) Computation speedup (C) Reliability (D) Simplicity	1	2	1	1
5. Distributed operating systems woks on the _____ principles. (A) File foundation (B) Multi system image (C) Single system image (D) Networking image	1	2	1	1
6. A process that is based on IPC mechanism which executes on different system and can communicate with other process using message based communication, is called _____. (A) Local procedure call (B) Inter process communication (C) Remote procedure call (D) Remote machine invocation	1	1	2	1
7. Which of the following two operations are provided by the IPC facility? (A) Write and delete message (B) Delete and receive message (C) Send and delete message (D) Receive and send message	1	1	2	1

8. ATM standard defines _____ layers. 1 1 2 1

(A) 2 (B) 3
(C) 4 (D) 5

9. A typical _____ program creates some remote objects, make references to these objects accessible and waits for clients to invoke methods on these objects. 1 1 2 1

(A) Server (B) Client
(C) Thread (D) Concurrent

10. The local operating system on the server machine passes the incoming packets to the 1 2 2 1

(A) Server stub (B) Client stub
(C) Client operating system (D) Client process

11. Election message is always sent to the process with _____. 1 2 3 1

(A) Lower numbers (B) Waiting processes
(C) Higher numbers (D) Requesting lower number of resources

12. Define the clock skew as 1 1 3 1

(A) The difference in time values between any two clocks (B) The period of time between two consecutive clock synchronization actions
(C) The rate by which the value of a clock drifts from the ideal time (D) The adjustment that need be made to a clock so that its value achieves the average time

13. In the token passing approach of 1 distributed systems, process are organized in a ring structure 1 2 3 1

(A) Logically (B) Physically
(C) Logically and physically (D) Physiologically

14. Which of the following is not a property of transactions? 1 2 3 1

(A) Atomicity (B) Concurrency
(C) Isolation (D) Durability

15. The request and release of the resources are 1 2 3 1

(A) Command line statements (B) Interrupts
(C) System calls (D) Special programs

16. A set of primitives available to the users relating to thread is _____. 1 2 4 4

(A) Thread package (B) Process package
(C) Line package (D) String package

17. Which algorithm does not require any advance information 1 2 4 1

(A) Deterministic algorithm (B) Centralized algorithm
(C) Hierarchical algorithm (D) Bidding algorithm

18. _____ should be capable of working after the crash of one or more nodes of the system — 1 1 4 1
(A) Stability (B) Scalability
(C) Faculty tolerance (D) Fairness of service

19. How to exchange load information among nodes — 1 1 4 1
(A) Load estimation policy (B) Process transfer policy
(C) Location polity (D) State information exchange policy

20. In which redundancy approach extra bits are added to allow recovery from garbled bits — 1 1 4 1
(A) Information redundancy (B) Time redundancy
(C) Physical redundancy (D) Logical redundancy

21. In which of the following consistency model all writes becomes perceptible to all process — 1 2 5 1
(A) Strict (B) Weak
(C) Casual (D) Sequential

22. If process P and Q both receive messages M and M', then P receives M before M' if and only if Q receives M before M', the order delivery is _____. — 1 1 5 1
(A) Consistent ordering (B) Absolute ordering
(C) Casual ordering (D) Fifo ordering

23. Which of the following is not a states of cache block — 1 1 5 1
(A) Invalid (B) Clean
(C) Dirty (D) Write through

24. Which bit telling whether the block is present in cache block table in memnet device? — 1 1 5 1
(A) Valid bit (B) Exclusive bit
(C) Home bit (D) Location field

25. _____ is a mechanism allowing end users processes and access shared data without using inter processes communication. — 1 2 5 1
(A) Distributed shared memory (B) Local memory
(C) Virtual memory (D) Primary memory

PART – B (5 × 10 = 50 Marks) — Marks BL CO PO
Answer **ALL** Questions

26. a. Describe the various issues in designing of distributed systems. — 10 1 1 3

(OR)

b. Explain the hardware concepts of multiprocessor and multicomputer distributed systems with types. — 10 2 1 1

27. a. Explain the RPC mechanism in detail with the help of a diagram. — 10 1 2 1

(OR)

b.i.	Explain ATM networks in detail.	5	1	2	1
ii.	Write short notes on buffered primitives vs unbuffered primitives.	5	1	2	1
28. a.	Discuss any two algorithms for ensuring the mutual exclusion in distributed systems.	10	3	3	1
	(OR)				
b.	Explain about the distributed deadlock prevention algorithm with example.	10	2	3	1
29. a.	Describe the design issues for thread packages in distributed systems.	10	2	4	3
	(OR)				
b.	Describe the design issues for processor allocation algorithm.	10	1	4	3
30. a.	Explain the different types of consistency models in distributed shared memory.	10	2	5	1
	(OR)				
b.	Explain about object based distributed shared memory.	10	3	5	1

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