b.	Explain the fiber channel protocol. Illustrate the communication protocol stack layers and the fiber channel frame structure.	12	2	2	3
30. a.	Illustrate how the backup process performed in NAS environment.	12	2	3	2
	(OR)				
b.	Compare and contrast any two backup targets with respect to working procedure and limitations.	12	3	3	2
31. a.	Develop a checklist for awaiting the security of a storage environment with SAN, NAS and iSCSI implementations. Explain how the audit will be performed. Assume that you discover atleast five security loopholes during the audit process. List them and provide control mechanisms that should be implemented to eliminate them.	12	4	4	2
	(OR)				
b.	Elaborate how containers are built on virtualization technique and how they offer an alternative to virtual machines.	12	3	4	2
32. a.	List out and explain the management tasks in a storage infrastructure.	12	2	5	2
	(OR)				
b.	Outline the cloud service models and also analyse the benefits of cloud computing.	12	2	6	1

* * * * *

Reg. No.														

B.Tech. DEGREE EXAMINATION, JUNE 2023
Fifth & Sixth Semester

18CSE360T – INFORMATION STORAGE AND MANAGEMENT
(For the candidates admitted during 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 & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks)
Answer **ALL** Questions

		Marks	BL	CO	PO
1.	What defines the time taken to position the read/write head across the platter with a radial movement in a disk drive? (A) Service time (B) Latency time (C) Data transfer time (D) Seek time	1	1	1	1
2.	Which formula is used to find the disks required to meet an application's capacity need? (A) Total capacity required / capacity of a single disk (B) Capacity of a single disk / total capacity required (C) Total capacity required + capacity of a single disk (D) Total capacity required * capacity of a single disk	1	2	1	1
3.	Which one is based on flash solid state memory technology? (A) Enterprise flash drives (B) Advanced technology attachment (C) Integrated drive electronics (D) Storage area network	1	1	1	1
4.	Which technique is used for executing the commands in an optimized way in front end controller of intelligent storage system? (A) First in first out (B) Last in first out (C) Least recently used (D) Command queuing	1	1	1	1
5.	Ports operate in _____ data transmission mode with transmit (Tx) and receive (Rx) link (A) Duplex mode (B) Half duplex mode (C) Single mode (D) Hybrid mode	1	1	2	2
6.	_____ are larger than switches, used for data center implementations. They have high fault tolerance and high port count than switches. (A) Advanced switch (B) Ports (C) Directors (D) Hub	1	1	2	2
7.	Logical partitioning in SAN is called as _____. (A) Mapping (B) Clustering (C) Zoning (D) Flushing	1	1	2	2

8. The maximum possible number of node ports in a switched fabric with 240 domains, 256 areas and 256 ports is — 1 1 2 2
   (A) 15663104 (B) 15667304
   (C) 16000013 (D) 15728640

9. The _____ is the most appropriate solution when a backup device needs to be shared among clients. — 1 1 3 3
   (A) Application server-based backup (B) Direct-attached backup
   (C) Server less backup (D) SAN-based backup topology

10. Which method helps to reduce the storage requirement for backup, shorten the backup window and remove the network burden? — 1 1 3 3
   (A) Backup targets (B) Data deduplication
   (C) Data archival (D) Data redundancy

11. A repository at a remote site where data can be periodically or continuously copied (either to tape drives or disks) so that there is always a copy at another site. — 1 1 3 3
   (A) Hot site (B) Data vault
   (C) Cold site (D) Server clustering

12. _____ backup copies the data that has changed since the last full or incremental backup, which ever has occurred more recently. — 1 1 3 3
   (A) Incremental (B) Differential
   (C) Backup granularity (D) Recovery process outage

13. Which of the following refers to a situation in which any existing security threat in the cloud spreads more rapidly in cloud infrastructures? — 1 1 4 2
   (A) Velocity of function (B) Data privacy
   (C) Information assurance (D) Data protection

14. Where the single point of security failure for all the VMs running on the cloud infrastructure will happen? — 1 1 4 2
   (A) Physical server (B) Hypervisor
   (C) Supervisor (D) Controller

15. The major storage infrastructure components that should be managed are — 1 1 4 2
   (A) Storage arrays (B) Redundant fabrics
   (C) Multipathing software (D) RAID sets

16. Cloud consumers that install or lease virtual servers can customize their environments independently from other cloud consumers that may be using _____ hosted by the same underlying physical server. — 1 1 4 4
   (A) Ready-made environment (B) Cloud storage device
   (C) Virtual servers (D) Resources replication

17. What type of computing technology refers to services and applications that typically run on a distributed network through virtualized resources? — 1 1 5 2
   (A) Cloud computing (B) Soft computing
   (C) Parallel computing (D) Distributed computing

18. In which one of the following a strategy record or document is created respectively to the events, conditions a user may face while applying cloud computing mode. — 1 1 5 2
   (A) Cloud computing value proposition (B) Cloud computing strategy planning
   (C) Planning phase (D) Business architecture development

19. A control mechanism on the switches that segments the networking to specific paths to be used for data traffic is called — 1 1 6 1
   (A) Controller (B) Zoning
   (C) Access control list (D) Role based control access

20. Logical unit number masking prevents data corruption on the storage array by restricting host access to a defined set of logical devices. — 1 1 6 1
   (A) Data security (B) Data redundancy
   (C) Data reduplication (D) Data corruption

PART – B (5 × 4 = 20 Marks) — Marks BL CO PO
Answer **ANY FIVE** Questions

21. List out the factors that affect the disk drive performance. — 4 2 1 1

22. Describe about flushing. — 4 2 1 1

23. Compare the policies of file sharing protocols supported by NAS to handle file I/O request to a remote file system. — 4 2 2 2

24. Analyze the data de duplication implementation methods performed at the data source or at the backup target. — 4 3 3 2

25. Explain vulnerable factors in storage security. — 4 2 4 2

26. Discuss in detail about the enabling technologies of the cloud computing. — 4 2 5 2

27. Discuss the architecture of an ideal storage solution that supports object based storage and access. — 4 2 2 4

PART – C (5 × 12 = 60 Marks) — Marks BL CO PO
Answer **ALL** Questions

28. a. Elaborate the various factors that affect the disk driven performance. — 12 3 1 1

(OR)

   b. Discuss about the physical component of connectivity and cache management. — 12 2 1 1

29. a. Discuss the way how the NAS implementation provides the capability to scale up their resources based on data growth and rise in performance requirements. — 12 2 2 3

(OR)