

Faculty of Engineering

End Semester Examination May 2025

IT3ED08 Information Storage & Management

Programme	:	B.Tech.	Branch/Specialisation	:	IT
Duration	:	3 hours	Maximum Marks	:	60

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary.
 Notations and symbols have their usual meaning.

Section 1 (Answer all question(s))

Marks CO BL
 1 1 2

Q1. Which of the following best describes Information Lifecycle Management (ILM)?

Rubric	Marks
a) Managing information throughout its lifecycle	1

- Managing information throughout its lifecycle
- The process of storing data without categorization
- Disposing of data after creation
- Ignoring data security measures

Q2. What is a key benefit of modern storage technology evolution?

1 1 1

Rubric	Marks
a) Higher data security and availability	1

- Higher data security and availability
- Increased cost of storage solutions
- Slower data access times
- Increased dependency on paper records

Q3. What is the key difference between modular and integrated storage arrays?

1 2 2

Rubric	Marks
c) Modular arrays are more scalable and flexible	1

- Modular arrays are a single entity, while integrated arrays are flexible
- Integrated arrays are more fault-tolerant
- Modular arrays are more scalable and flexible
- Integrated arrays allow more scalability compared to modular arrays

Q4. What is the purpose of hot sparing in RAID systems?

1 2 2

Rubric	Marks
c) To act as a backup for failed disks	1

- To slow down disk performance
- To remove the need for disk mirroring
- To act as a backup for failed disks
- To increase the need for manual intervention

Q5. Which storage solution provides a dedicated high-speed network for data storage?

1 3 1

Rubric	Marks
b) SAN	1

- DAS SAN
 NAS JBOD

Q6. What is a major advantage of a Content Addressable Storage (CAS) system?

1 3 2

Rubric	Marks
d) Reduced redundancy in archived data	1

- High latency compared to DAS Real-time transaction processing
 Fast retrieval of structured data Reduced redundancy in archived data

Q7. Which of the following is a type of storage virtualization?

1 4 2

Rubric	Marks
c) Block-level virtualization	1

- Optical storage Magnetic tape storage
 Block-level virtualization Memory swapping

Q8. What is a fundamental requirement of a data center?

1 4 1

Rubric	Marks
d) High availability and redundancy	1

- Exclusive reliance on physical storage No backup mechanisms
 Only local storage infrastructure High availability and redundancy

Q9. Which of the following is NOT a backup method?

1 5 1

Rubric	Marks
b) Parallel backup	1

- Differential backup Parallel backup
 Incremental backup Full backup

Q10. What is the main goal of backup and restore operations?

1 5 1

Rubric	Marks
b) To ensure data availability in case of failure	1

- To reduce network bandwidth usage To ensure data availability in case of failure
 To replace live data storage To permanently delete old data

Section 2 (Answer all question(s))

Marks CO BL

Q11. Explain data categorization with example.

4 1 2

Rubric	Marks
data categorization	3
example	1

Q12. (a) Explain the concept of Data Proliferation. What are its causes and challenges in storage management?

6 1 2

Rubric	Marks
Data Proliferation	3
causes and challenges in storage management	3

(OR)

(b) Explain Information Lifecycle Management (ILM) in detail with example.

Rubric	Marks
Information Lifecycle Management (ILM)	4
example	2

Section 3 (Answer all question(s))

Marks CO BL

Q13. Explain an Intelligent Disk Subsystem (IDS) and its components?

4 2 2

Rubric	Marks
Intelligent Disk Subsystem (IDS)	3
components	1

Q14. (a) Explain RAID levels in detail. Provide a comparative analysis of different RAID configurations.

6 2 2

Rubric	Marks
RAID levels	4
comparative analysis of different RAID configurations	2

(OR)

(b) What are the key components and their functions of a disk storage system explain with diagram.

Marks CO BL

4 3 2

Rubric	Marks
key components and their functions of a disk storage system	5
diagram	1

Section 4 (Answer all question(s))

Q15. Define Content Addressable Storage (CAS). What is the need of CAS?

Rubric	Marks
Content Addressable Storage	2
need of CAS	2

Q16. (a) Discuss the evolution of JBOD, DAS, NAS and SAN storage solutions.

6 3 2

Rubric	Marks
JBOD, DAS, NAS and SAN 1.5 mark each	6

(OR)

(b) Discuss the security challenges in networked storage systems and how they can be mitigated.

Rubric	Marks
security challenges in networked storage systems	4
how they can be mitigated	2

Section 5 (Answer all question(s))

Marks CO BL

Q17. Explain the concept of hybrid storage solutions and how they combine different storage technologies for better performance. 4 4 2

Rubric	Marks
concept of Hybrid Storage Solutions	2
how they combine different storage technologies for better performance	2

Q18. (a) Describe the different types of storage virtualization and their benefits in data management.

6 4 2

Rubric	Marks
types of storage virtualization	4
benefits in data management.	2

(OR)

(b) What is a data center? Explain its core elements and requirements.

Rubric	Marks
Data Center	2
core elements	2
requirements	2

Section 6 (Answer all question(s))

Marks CO BL

Q19. What are the key storage management activities in cloud environments?

4 5 2

Rubric	Marks
key storage management activities in cloud environments	4

Q20. (a) Explain different backup methods used in cloud storage. How do they ensure data protection?

6 5 3

Rubric	Marks
backup methods used in cloud storage	4
How do they ensure data protection	2

(OR)

- (b)** Discuss storage infrastructure management challenges in cloud environments. How can they be addressed?

Rubric	Marks
storage infrastructure management challenges in cloud environments	4
How can they be addressed	2
