SET-3

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY- MSC CS

Backlog Examination (2025 Pattern) April/ May – 2026 - Semester – I

Subject Name: Database Technologies **Max. Marks: 50**
Subject Code: 25PSC101T **Time: 2:30 Hrs.**

Instructions

- All Questions are Compulsory.
- Figures to the right indicate full marks

CO #	Cognitive Ability	Course Outcome
CO1	**Remember**	Explain the core concepts of NoSQL, including data models, distribution strategies, consistency, and version control
CO2	**Understand**	Compare various NoSQL database types such as Key-Value, Document, Column-Family, and Graph databases based on structure and use cases
CO3	**Apply**	Apply MapReduce programming for processing and querying large datasets in NoSQL environments

---

Q1.	**Attempt any 5 out of 7. (2 mark each)** **(10 Marks)** a) Show any one difference between NoSQL and relational databases. b) List the four main categories of NoSQL data models. c) Define implicit schema. d) Define peer-to-peer replication in NoSQL schema. e) What is Partition Tolerance? f) What is a version stamp? g) What is the Map function?	CO1
Q2.	**Attempt any 4 out of 6. (5 marks each)** **(20 Marks)** a) Explain the applications of key-value databases. b) Compare document databases with key-value stores. c) Explain Cassandra's data model with diagram and explain the same. d) Explain with diagram how graph databases represent relationships.	CO2

	e) Explain the suitable use cases of graph databases. f) Summarize a note on Migrations in Legacy Projects.	
Q.3.	**Attempt any 2 out of 3. (5 marks each) (10 Marks)** a) Identify and explain the enterprise concerns with polyglot persistence? b) Identify and explain how event sourcing differs from traditional data storage methods. c) Choose between using a relational database and a document-oriented database for an e-commerce company that needs to manage diverse product information, customer reviews, and dynamic pricing. Discuss which option would be more suitable and justify your choice with appropriate reasons.	CO3
Q.4	**Attempt any ONE. (10 Marks)** A) Construct a document structure for a blogging platform with posts, authors, and comments. B) Construct a graph-based model showing relationships among users and products.	CO3

*****