Program:	**F.Y.B.Sc DS**	**Semester:**	**II**	**Program Code:**	**UGDS03**
Course:	**Database Management System**			**Course Code:**	**NUDS202**

Duration: **1 Hour** **Examination Pattern:** **NEP-Autonomous - External** **Max. Marks:** **30**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat diagrams wherever necessary.

Examination:

REGULAR

Q. 1		**Attempt any TWO of the following.**	**[10]**	**Course Outcome**	**Knowledge Level**
	(a)	Write a note on three-tier database management system architecture.		**CO1**	**L2**
	(b)	List and explain various types of attributes in the entity-relationship model.		**CO2**	**L1, L2**
	(c)	Design an entity-relationship model for the library management system.		**CO2**	**L6**
	(d)	What are the basic building blocks of a data model?		**CO2**	**L2**
Q. 2		**Attempt any TWO of the following.**	**[10]**	**Course Outcome**	**Knowledge Level**
	(a)	How does the first normal form (1NF) work? Give an example.		**CO3**	**L1**
	(b)	Explain conceptual and logical design with suitable example.		**CO4**	**L2**
	(c)	Compare centralized and decentralized database design.		**CO5**	**L4**
	(d)	What is atomicity and consistency in transaction management?		**CO5**	**L3**
Q. 3		**Attempt any TWO of the following.**	**[10]**	**Course Outcome**	**Knowledge Level**
	(a)	List notations used in entity-relationship model.		**CO2**	**L1**
	(b)	What is specialization/generalization and aggregation in the extended entity-relationship model.		**CO2**	**L2**
	(c)	Explain two-phase locking protocol.		**CO5**	**L2**
	(d)	Write a short note on the role of database in an organization.		**CO1**	**L2**

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