Day : Tuesday	Time : 10:00 AM-01:00 PM
Date : 06/05/2025	S-25932-2025	Max. Marks : 100

N. B. :

1) Attempt ANY FIVE questions form Section – I. Each question carries 12 marks.
2) Attempt ANY TWO questions form Section – II. Each question carries 20 marks.
3) Figures to the right indicate FULL marks.
4) Answers to both the sections should be written in SAME answer book.

SECTION – I

Q. 1	Describe the three levels of database abstractions.	(12)
Q. 2 a)	Explain strengths and weakness of NoSQL.	(06)
b)	Explain Network Data Model.	(06)
Q. 3	What is a key? Compare and contrast among the Primary Key, Foreign Key, Composite Key and Candidate Key.	(12)
Q. 4	What is Decomposition? Explain Lossy and Lossless Decomposition.	(12)
Q. 5	Why do we need Concurrency Control? Explain.	(12)
Q. 6	Explain static and dynamic hashing technique with suitable example.	(12)
Q. 7	Write short notes on ANY TWO of the following:	(12)
a)	Database Languages	
b)	Heterogeneous and Homogeneous Database	
c)	Responsibility of DBA	

SECTION – II

Q. 8 a)	What is Deadlock? Explain Wait-Die and Wound-Wait.	(10)
b)	Explain Log Based Recovery.	(10)
Q. 9	What is Normalization? Explain 1NF, 2NF and 3NF with suitable example.	(20)
Q.10	Draw an ER diagram for a Hotel Reservation System. Identify the different entities. Specify their attributes and relationships. Consider all the cardinalities (one-to-one, one-to-many or many-to-many) and include any necessary additional information, such as primary keys and foreign keys. Also map the ERD into Relational Model.	(20)

* * * * *

Day : Tuesday   Time : 10:00 AM-01:00 PM
Date : 06/05/2025   S-25932-2025   Max. Marks : 60

N.B.

1) Attempt any **FIVE** questions from **Section – I.**
2) Attempt any **TWO** questions from **Section – II.**
3) Figures to the **RIGHT** indicate **FULL** marks.
4) Answer to both the sections should be written in the **SAME** answer books.
5) Draw neat diagram **WHEREVER** necessary.

SECTION – I

Q.1 What is transaction? Explain ACID properties of transactions.   **(08)**

Q.2 Explain three – tier architecture of DBMS.   **(08)**

Q.3 Explain different data models with example.   **(08)**

Q.4 Explain different relational Algebra operators with example.   **(08)**

Q.5 What is concurrency control mechanism? Why do we need lock-based **(08)** protocol? Explain.

Q.6 Write short answer question on **ANY TWO** of the following: **(08)**
   a) RAID in DBMS
   b) DBA
   c) NoSQL

SECTION – II

Q.7 Normalize up to 3NF on sales database containing following attributes: **(10)** SalesID, SalesDate, Cust_ID, Cust_Name, Prod_ID, Prod_Name, Qtysold, Unit _Price, Total_Sales_amt, salespersonID, SalespersonName

Q.8 Explain time stamp ordering protocol with example.   **(10)**

Q.9 Draw an ERD for Inventory Management System for any product **(10)** representing its different entities, relationship and mapping coordinate. (Make assumptions wherever required).

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-I : SUMMER : 2025
SUBJECT: APPLIED DATABASE MANAGEMENT SYSTEMS

N.B.

1) Attempt any **FIVE** questions from **Section – I.**
2) Attempt any **TWO** questions from **Section – II.**
3) Figures to the **RIGHT** indicate **FULL** marks.
4) Answer to both the sections should be written in the **SAME** answer books.
5) Draw neat diagram **WHEREVER** necessary.

SECTION – I

Q.1	What is transaction? Explain ACID properties of transactions.	(08)
Q.2	Explain three – tier architecture of DBMS.	(08)
Q.3	Explain different data models with example.	(08)
Q.4	Explain different relational Algebra operators with example.	(08)
Q.5	What is concurrency control mechanism? Why do we need lock-based protocol? Explain.	(08)

Q.6   Write short answer question on **ANY TWO** of the following: (08)
  a) RAID in DBMS
  b) DBA
  c) NoSQL

SECTION – II

Q.7   Normalize up to 3NF on sales database containing following attributes: (10)
SalesID, SalesDate, Cust_ID, Cust_Name, Prod_ID, Prod_Name, Qtysold, Unit _Price, Total_Sales_amt, salespersonID, SalespersonName

Q.8   Explain time stamp ordering protocol with example.   (10)

Q.9   Draw an ERD for Inventory Management System for any product representing its different entities, relationship and mapping coordinate. (Make assumptions wherever required).   (10)

Day : Thursday   Time : 10:00 AM-01:00 PM

Date : 08/05/2025   **S-25934-2025**   Max. Marks : 60

N.B.:
1) Section I- Attempt any **FIVE** questions. Each questions carries **08** marks.
2) Section II- Attempt any **TWO** questions. Each questions carries **10** marks.
3) Figures to the right indicate **FULL** marks.
4) Answers to both the sections should be written in **SAME** answer book.

SECTION-I

40 Marks

			CO	BL
Q.1	What is Polymorphism? Explain in detail with example.	(08)	CO2, 3	BL1
Q.2	What is Thread? Explain the life cycle of thread.	(08)	CO1	BL3
Q.3	List and explain any five string methods.	(08)	Co2, Co3	BL-1
Q.4	Explain the concept of class and object with example.	(08)	CO2, CO3	BL-2
Q.5	Explain the various control statements used in Java.	(08)	CO1	BL2
Q.6	What is Array? Explain the types of array.	(08)	CO1	BL2
Q.7	Write short notes on any **TWO**:	(08)		
	a) Hashmap		CO4	BL1
	b) Byte stream		CO5	BL1
	c) Exception Handling		CO1	B3

SECTION-II

20 Marks

			CO	BL
Q.8	Write a Java Program to convert Hexadecimal number to decimal number.	(10)	CO1	BL6
Q.9	Write a Java Program to shuffle elements of a collection.	(10)	CO4	BL3
Q.10	Write a Java Program to read content from one file and write it into another file.	(10)	CO5	BL3

*   *   *

Day : Tuesday   Time : 10:00 AM-01:00 PM
Date : 13/05/2025   S-25933-2025   Max. Marks : 60

N.B.:
   1)   Section- I – Attempt any **FIVE** questions. Each question carries 08 marks.
   2)   Section – II- Attempt any **TWO** questions. Each question carries **10** marks.
   3)   Answer to both the sections should be written in the SAME answer book.

<center>SECTION-I</center>   **40 Marks**

			CO	BL
Q.1	Explain unguided media with their characteristics.	(08)	CO2	BL2
Q.2	Explain packet switching with appropriate example.	(08)	CO2	BL3
Q.3	Compare OSI reference model and TCP/ IP model.	(08)	CO1	BL3
Q.4	Define network topology. Explain different types of network topologies in detail.	(08)	CO1	BL2
Q.5	What is protocol? Explain FTP, SMTP, SNMP and POP.	(08)	CO5	BL2
Q.6	Write short notes on any **TWO**:	(08)		
	a) MANET		CO4	BL2
	b) Bandwidth		CO2	BL2
	c) Internet		CO5	BL3

<center>SECTION-II</center>   **20 Marks**

Q.7	What is congestion? What is the role of congestion control algorithm in network? Explain different congestion prevention policies.	(10)	CO3	BL3
Q.8	Identify the class of each IP address given below i) 7. 19 11. 15 ii) 125. 128. 129. 130 iii) 205. 249. 240. 224 iv) 192. 222. 245. 126 v) 192. 168. 199. 120	(10)	CO3	BL4
Q.9	As a network engineer, you are assigned task of designing local area a network of 100 computers. Give the minimum requirement to build this network. Which topology will you prefer and why?	(10)	CO1	BL5

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-I : SUMMER : 2025
SUBJECT: COMPUTATIONAL STATISTICS

Day : Thursday

Date : 15/05/2025

S-25935-2025

Time : 10:00 AM-01:00 PM

Max. Marks : 60

N.B.:

1) Attempt ANY FIVE questions from Section – I and attempt ANY TWO questions from Section – II.
2) Answers to both the sections should be written in the SAME answer book.
3) Use of non-programmable CALCULATOR is allowed.
4) Figures to the right indicate FULL marks.

SECTION – I

Q.1 Calculate Mean, Median and Mode for given data: [08]

Class	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	12	18	27	20	17	6

Q.2 Calculate Bowley's coefficient of skewness for given data: [08]

Class	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	5	8	18	35	27	7

Q.3 Discuss Vector, List, Frame, Array and Matrix in R. [08]

Q.4 Calculate Standard Deviation and Variance for given data. [08]

Class	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	2	12	14	16	6

Q.5 Explain importance of statistics. Discuss scope of statistics. [08]

Q.6 Write short notes on ANY TWO of the following: [08]

a) Relative frequency distribution

b) Merits and demerits of Mean Deviation

c) Central Moments

SECTION – II

Q.7 Calculate Karl Pearson's coefficient of correlation for given data. [10]

X	10	12	8	15	20	25	40
Y	15	10	6	25	16	12	8

Q.8 For given data: [10]

X	15	16	18	21	20	22	26	27
Y	14	22	25	24	26	28	30	33

Calculate : a) Regression equation X on Y.

b) Regression equation Y on X.

Q.9 What is time series? Explain components of time series. [10]

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Day : Saturday
Date : 17/05/2025

S-25936-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.
1. Attempt ANY FIVE questions from Section – I and ANY TWO questions from Section II
2. Figures to the RIGHT indicate FULL marks.
3. Answers to both the sections should be written in SAME answer book.

SECTION – I

			CO	BL
Q.1	Explain the concept of management. What are the functions of management?	(08)	2	Comprehension
Q.2	Define planning and explain its role in setting objectives and policies.	(08)	2	Comprehension
Q.3	What do you mean by an organic organizational structure? Explain how flexibility and open communication define an organic structure.	(08)	3	Application
Q.4	Describe the advantages of training and development in the context of IT professionals.	(08)	2	Comprehension
Q.5	How does unclear authority affect employee responsibility in an organization? Give an example how confusion in roles can impact performance.	(08)	4	Analyze
Q.6	Write short note on ANY TWO of the following :	(08)		
	a) Leader Vs Manager		4	Analyze
	b) Planning Premises		2	Comprehension
	c) Systems approach to management		1	Remember

SECTION – II

			CO	BL
Q.7	Explain in the use of standard costing and MBO as non-budgetary control mechanism in an organization.	(10)	4	Analyze
Q.8	Analyze the use of data analytics in e-commerce.	(10)	4	Analyze
Q.9	A manufacturing company wants to integrate its various business functions such as procurement, production planning and sales to improve efficiency. How can SAP ERP system help the company achieve this goal?	(10)	5	Apply

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