

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-I : WINTER : 2024
SUBJECT: MANAGEMENT CONCEPTS & APPLICATIONS

Day : Wednesday
Date : 04/12/2024

W-25936-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.

- 1) Attempt ANY FIVE questions from Section – I. Each question carries 12 marks.
- 2) Attempt ANY TWO questions from 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.
- 5) Use of non-programmable calculator is ALLOWED.

SECTION – I

- Q.1** Define the term management. Discuss the key characteristics of the classical management theory. (12)
- Q.2** Identify and discuss the benefits and challenges associated with MBO in an organization. (12)
- Q.3** What is an organization chart and why is it important? (12)
- Q.4** Outline the steps involved in the selection of employee. (12)
- Q.5** Explain different types of control mechanisms used in organization. (12)
- Q.6** Write short notes on ANY TWO of the following : (12)
- a) e-commerce
 - b) Key features of SAP
 - c) Benefits of ERP

SECTION – II

- Q.7** Discuss the challenges and limitations of relying on computer based decision making systems. (20)
- Q.8** Analyze a real world case study of an IT organization and evaluate its leadership practices. (20)
- Q.9** Elucidate on how changes in planning premises can impact the effectiveness of plans. (20)

MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-I : WINTER : 2024
SUBJECT: APPLIED DATABASE MANAGEMENT SYSTEMS

Day : Monday
Date : 25/11/2024

W-25932-2024

Time : 10:00 AM-01:00 PM
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** Explain Three Tier Architecture of DBMS. (12)
- Q. 2** Explain different database languages with suitable example. (12)
- Q. 3** Explain different data models with example. (12)
- Q. 4** What is Decomposition? Explain lossy and lossless decomposition with example. (12)
- Q. 5** Explain different Relational Algebra Operators with example. (12)
- Q. 6** What is Recovery? Explain Log based recovery technique. How check-points are important in log-based recovery technique? (12)
- Q. 7** Write short notes on **ANY TWO** of the following: (12)
- a) Attributes Types
 - b) ACID properties
 - c) Data Dictionary

SECTION – II

- Q. 8** a) Explain different types of joins with suitable example. (10)
b) What is transaction? Explain transaction states. (10)
- Q. 9** Normalize the following table up to 3NF: (20)
Table Structure: **Student_Grade_Report**

Student No.	Course No.	Student Name	Course Name	Grade	Instructor Name	Instructor Code
111	SG101	Suresh	DBMS	A	Dipali	2600120
111	SG103	Suresh	APD	B	Swati	2302520
205	SG101	Sagar	DBMS	A	Dipali	2600120
308	SG101	Harish	DBMS	B	Dipali	2600120
409	SG103	Seeta	APD	A	Swati	230520
409	SG101	Seeta	DBMS	B	Dipali	2600120

- Q.10** a) Explain any two functionalities of MongoDB. (10)
- b) Differentiate between Primary Key, Unique Key, Candidate Key, Composite Key. Illustrate with suitable example. (10)

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-I : WINTER : 2024
SUBJECT: JAVA PROGRAMMING

Day : Wednesday
Date : 27/11/2024

W-25934-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N.B.:

- 1) Attempt any **FIVE** questions form section-I. and any **TWO** questions form Section-II.
- 2) Both sections should be written in same answer book.
- 3) Figures to the **RIGHT** indicate full marks.

Section-I

- Q.1** Why is the need of JVM in execution of any Java program? Discuss the structure of any Java program. (12)
- Q.2** What is exception? What are the different type of exceptions in Java? (12)
- Q.3** What is stream? Explain the input stream and data output stream with example. (12)
- Q.4** a) What is Inheritance? Write a program in Java to illustrate single inheritance. (06)
b) Explain various logical operators in Java. (06)
- Q.5** a) Broadly explain the concept of constructor in Java with a program. (06)
b) How Java is important to internet? Explain. (06)
- Q.6** Write short notes on (ANY TWO) (12)
a) Interface
b) Thread class
c) Linked Hashmap

Section-II

- Q.7** a) Write a Java program to convert binary to octal number. (10)
b) Write a Java program to find smallest and largest number of 1-D array. (10)
- Q.8** a) Write a Java program to show overriding of methods in classes. (10)
b) Write Java program to show use of static and non-static methods. (10)
- Q.9** Write a java program to create a new file and copy the content of a file into another file. (20)

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)
M.C.A. Sem-I : WINTER : 2024
SUBJECT: COMPUTER NETWORKS

Day : Friday
Date : 29/11/2024

W-25933-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 100

N. B. :

- 1) Attempt **ANY FIVE** questions from Section – I. Each question carries 12 Marks.
- 2) Attempt **ANY TWO** questions from Section – II. Each question carries 20 Marks.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q. 1** Discuss different applications of computer network. (12)
- Q. 2** Explain OSI reference model with the help of neat diagram. (12)
- Q. 3** Explain throughput, wavelength, frequency, bandwidth and spectrum. (12)
- Q. 4** Explain shortest path routing with the help of appropriate example. (12)
- Q. 5** What is mobile ad-hoc network? Explain destination sequenced distance vector protocol for MANET. (12)
- Q. 6** Write short notes on **ANY TWO** of the following: (12)
- a) Analog and Digital Signals
 - b) IP address
 - c) Mobile Generations

SECTION – II

- Q. 7** Find the class of each IP address given below; give the suitable explanation for your answer: (20)
- i) 224.16. 19. 25
 - ii) 198. 16. 240. 80
 - iii) 125. 250. 240. 70
 - iv) 135. 11. 78. 56
 - v) 134. 11. 78. 56
 - vi) 255. 255. 255. 255
- Q. 8** What is switching? Explain message switching, packet switching and circuit switching with its advantages and disadvantages. (20)
- Q. 9** What is congestion? What are the principles of congestion control? Explain congestion prevention policies in detail. (20)

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MASTER OF COMPUTER APPLICATIONS (CBCS - 2022 COURSE)**M.C.A. Sem-I : WINTER : 2024****SUBJECT: COMPUTATIONAL STATISTICS**

Day : Monday

Date : 02/12/2024

W-25935-2024

Time : 10:00 AM-01:00 PM

Max. Marks : 100

N.B.:

- 1) Attempt **ANY FIVE** questions from Section – I. Each question carries 12 marks.
- 2) Attempt **ANY TWO** questions from Section – II. Each question carries 20 marks.
- 3) Answers to both the sections should be written in **SAME** answer book.
- 4) Use of non-programmable calculator is allowed.

SECTION – I

- Q.1** Calculate mean ,median and mode for given data: (12)

Classes	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	3	4	7	6	5

- Q.2** Explain ungrouped frequency distribution and grouped frequency distribution (12)
with suitable example.

- Q.3** Calculate Quartile deviation for following distribution. (12)

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of Students	7	12	18	25	16	14	8

- Q.4** Calculate Karl Pearson's coefficient of correlation for given data: (12)

X	10	12	13	16	19	21	23
Y	7	8	12	14	10	13	6

- Q.5** What is R Programming? Explain the vector, list, frame, array and matrix in R (12)
programming.

- Q.6** Write short notes on any **TWO** of the following: (12)

- a) Harmonic Mean
- b) Characteristics of good measure of dispersion
- c) Moments

SECTION – II

- Q.7** In a beauty contest three judges have ranks 10 candidates as follows: (20)

Candidate	A	B	C	D	E	F	G	H	I	J
Judge I	6	1	4	8	7	5	3	10	9	2
II	3	5	6	1	8	2	4	10	9	7
III	1	2	3	4	5	6	7	8	9	10

Using Spearman's rank correlation method, find which pair of judges have nearest approach towards beauty.

P. T. O.

Q.8 a) What is Time Series Analysis? Explain various components of time series? (10)

b) Construct 3 yearly moving averages from the following data: (10)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Annual Sales in lakhs.	18	22	20	26	30	22	24	28	32

Q.9 For the data given: (20)

Marks in Economics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	43	46	49	41	36	32	31	30	33	39

Find:

- Two regression equations.
- Most likely marks in statistics when marks in economics are 33.
- Most likely marks in economics when marks in statistics are 40.

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