

**MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION,
JANUARY - 2022**

SECOND SEMESTER

PAPER MCA 204: ADVANCED DATABASE MANAGEMENT SYSTEMS

(Under C.B.C.S. New Regulations w.e.f. 2020-2021 and 2016-2017)

(Common paper to University and all Affiliated Colleges)

Time : 3 Hours

Max. Marks : 70

PART - A

(Compulsory)

Answer any **Five** of the following questions. Each question carries **4** marks. **(5×4=20)**

1. a) What is the purpose of Database Systems?
- b) Define Data Model. List the categories of data models.
- c) What is the use of SQL DDL?
- d) Define Embedded SQL.
- e) Define structured types. Give an example.
- f) List few applications of XML.
- g) Briefly discuss the steps involved in query processing.
- h) Write about Hybrid Merge Join.
- i) List the properties of the transactions.
- j) Write about deadlock detection and recovery.

PART - B

Answer Five questions, choosing **One** question from each Unit. Each question carries 10 marks. (5×10=50)

UNIT - I

2. a) What do you mean by database design? Illustrate how a database for a university college could be designed.
- b) Discuss the design issues in Entity Relationship database schema.

(OR)

3. a) Explain with examples the structure of relational databases.
- b) How to represent weak entity sets? Discuss.

UNIT - II

4. a) Explain with suitable examples the queries on a single relation and multiple relation.
- b) Explain with examples the mechanism of nested subqueries.

(OR)

5. a) How many aggregate functions are supported in SQL? List them and specify the purpose.
- b) Define integrity constraint. Give examples.

UNIT - III

6. a) With examples explain object identity and reference types in SQL.
- b) Explain about XPath and XQuery language.

(OR)

7. a) What is the purpose of persistent programming languages? How it can be distinguished from languages with embedded SQL?
- b) Briefly discuss the commonly used API's for XML and specify the purpose of it.

UNIT - IV

8. a) Explain with an example External sort-merge algorithm.
b) Give pictorial representation of equivalences.

(OR)

9. a) Explain with an example Nested loop join operation.
b) Write about join size estimation.

UNIT - V

10. a) Explain about transaction atomicity and durability.
b) What is multi-version schemes? Explain briefly Multiversion timestamp ordering and multiversion two phase locking.

(OR)

11. a) Briefly discuss about lock based protocols.
b) How to handle deadlocks? Explain in detail.
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**MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION
NOVEMBER -2022**

SECOND SEMESTER

MCA 204 - ADVANCED DATABASE MANAGEMENT SYSTEMS

(Under C.B.C.S. Revised Regulations W.e.f. 2020-2021)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours

Max. Marks :70

**PART - A
(Compulsory)**

Answer any FIVE of the following questions. Each question carries 4 marks. (5×4= 20)

1. a) With the help of a diagram show the levels of abstraction.
- b) What is the purpose of Data Manipulation Language? -
- c) List the basic data types supported in SQL. Specify the purpose of them.
- d) Define Dynamic SQL.
- e) Give example for table inheritance.
- f) What is the purpose of DTD?
- g) What is the advantage of query optimization? Discuss.
- h) Write short notes on Hybrid Hash Join.
- i) List the different states of transaction.
- j) Write about two-phase locking protocol.

PART - B

Answer FIVE questions, choosing ONE question from each Unit. Each question carries 10 marks. (5×10=50)

UNIT - I

2. i) Explain the purpose of DDL with examples.
- ii) What do you mean by database design? Illustrate how a database could be designed for a banking enterprise.

(OR)

3. i) Explain ER Model with a diagram.
- ii) Explain with examples the relational algebra operations.

UNIT - II

4. i) Illustrate union and intersect operation with examples.
- ii) Write a simple PL/SQL program to compute the average of three numbers.

(OR)

5. i) Explain with an example of how aggregation can be done using group clause.
- ii) Discuss the concept of cursors and triggers with examples.

UNIT - III

6. i) With examples explain array and multiset types in SQL.
- ii) Discuss the purpose of XML Schema.

(OR)

7. i) How Oriented databases Object is different from object relational databases? Discuss.
- ii) Explain about data meditation.

UNIT - IV

8. i) Explain merge join algorithm.
ii) Write the procedure to generate all equivalent expressions.

(OR)

9. i) Explain with an example block nested-loop join operation.
ii) Write about selection size estimation.

UNIT - V

10. i) Explain about transaction isolation.
ii) Explain multiple granularities with suitable examples.

(OR)

11. i) Explain about validation based protocols.
ii) How to recover from deadlocks? Discuss.
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UNIT - IV

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION,
JANUARY - 2022

SECOND SEMESTER

PAPER :MCA 205B - CYBER SECURITY

(Under C.B.C.S. New Regulations w.e.f. 2020-2021 and 2016-2017)

(Common paper to University and all Affiliated Colleges)

Time : 3 Hours

Max. Marks : 70

PART - A

(Compulsory)

Answer any Five of the following questions. Each question carries 4 marks. (5×4=20)

1. a) What is Cybercrime? Who are Cybercriminal? Explain.
- b) Discuss Vulnerability assessments in cyber security. *Denial, Worm, Bot*
- c) Explain about Denial of service security attacks.
- d) What is Cyber warfare?
- e) Why is CIA Triad important for Cyber security?
- f) What is access management in cyber security?
- g) What is meant by VPN? Explain.
- h) Write short notes on Antivirus.
- i) Explain organizational implications of Cyber Security.
- j) Discuss about Forensic best practices for organization.

PART - B

Answer Five questions, choosing One question from each unit. Each question carries 10 marks. (5×10=50)

UNIT - I

2. Discuss about various types of Cyber-attacks.

(OR)

3. Discuss how critical thinking is important in Cyber Security.

UNIT - II

4. Describe Network Security model with neat sketch.

(OR)

5. In detail discuss about Internet Security Threats.

UNIT - III

6. What is CIA Triad? Explain the three components of CIA triad with examples.

(OR)

7. a) Discuss about incidence response in cyber security.

b) Briefly explain about cyber security frame works.

UNIT - IV

8. a) Discuss the use of Packet Filtering-Firewalls.

b) Briefly explain about Penetration test Methodologies.

(OR)

9. a) Explain the importance of XML Gateway Firewall in cyber security.

b) Discuss about Vulnerability Tests.

UNIT - V

10. In detail Discuss the Web Threats for Organizations with case studies.

(OR)

11. What is meant by Social Media Marketing? Explain different Social Media Marketing Tools.

**MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION
NOVEMBER -2022**

SECOND SEMESTER

MCA 203 - DATA COMMUNICATION AND COMPUTER NETWORKS

(Under C.B.C.S. Revised Regulations W.e.f. 2020-2021)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours

Max. Marks :70

PART - A

(Compulsory)

Answer any FIVE of the following questions. Each question carries 4 marks. (5× 4= 20)

1. a) List and define various components in a network.
- b) Differentiate circuit switched networks and datagram networks.
- c) What are Backbone Networks? What is the purpose of those?
- d) Describe the differences between PPP and HDLC.
- e) Differentiate broadcasting and flooding.
- f) Write a note on four types of characteristics of a Flow.
- g) Differentiate between TCP and UDP.
- h) What is a Digital Signature? What purpose it can be used?
- i) What is a Client-Server Model? What are its benefits.
- j) What is the header format of HTTP reply message?

PART - B

Answer FIVE questions,choosing ONE question from each Unit. Each question carries 10 marks. (5× 10=50)

UNIT - I

2. With a neat diagram explain the OSI reference model in detail? Explain the functions performed in each layer.

(OR)

3. What is multiplexing? Explain in detail about various types of multiplexing.

UNIT - II

4. Explain the CSMA Protocols with illustrations.
(OR)
5. i) What is Blue tooth? Describe its functionality.
ii) Briefly explain about Satellite networks.

UNIT - III

6. Explain ARP and RARP with examples.
(OR)
7. With an example explain any one of the multicasting routing algorithm.

UNIT - IV

8. With examples describe the three mechanisms by which congestion control is formulated in TCP.
(OR)
9. i) Explain the components involved in Cryptography.
ii) Describe the techniques to improve QoS.

UNIT - V

10. Elaborate on the design issues of Application layer.
(OR)
11. Describe the various parts of e-mail address and show the process of sending and receiving e-mails.

MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION,
JANUARY - 2022

SECOND SEMESTER

PAPER MCA 203 : DATA COMMUNICATION AND COMPUTER
NETWORKS

(Under C.B.C.S. New Regulations w.e.f. 2020-2021 and 2016-2017)

(Common paper to University and all Affiliated Colleges)

Time : 3 Hours

Max. Marks : 70

PART - A

(Compulsory)

Answer any FIVE of the following questions. Each question carries 4 marks.

(5×4=20)

1. a) List and define different network topologies.
- b) Define Logical, Physical and port addresses.
- c) What is Virtual LAN? What are its advantages?
- d) Write a brief note on ATM.
- e) Compare IPV4 and IPV6.
- f) Define Unicast routing and Multicast routing.
- g) Compare Flow control and Error control.
- h) Define a Public key and Private key.
- i) What is meant by Tunneling ? Explain.
- j) What is FTP? Explain it in brief.

PART-B

Answer **FIVE** questions, choosing **ONE** question from each Unit Each question carries **10 marks** (5×10 = 50)

UNIT-I

2. a) Describe the characteristics of layered architecture.
- b) Write a brief note on SONET.

(OR)

3. Describe about types of transmission media with their merits and demerits.

UNIT-II

4. What are the different types of error detection methods? Explain.

(OR)

5. What is high level data link control (HDLC)? Explain HDLC frame format in detail.

UNIT-III

6. Write a detailed note on services expected from the network layer.

(OR)

7. Describe in detail the operation of OSPF protocol by considering a suitable network.

UNIT-IV

8. a) Explain the features and applications of UDP.
b) Elucidate congestion control in datagram subnets.

(OR)

9. a) Write a note on Web security.
b) Explain any one of the Symmetric-key ciphers in brief.

UNIT-V

10. What is DNS? What is the purpose of it? Describe DNS in the internet.

(OR)

11. Explain about World wide Web Architecture in detail.
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