



PAPER ID-420078

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Subject Code: RCAI801

Roll No:

1800506033

MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
PROGRAMMING WITH PYTHON

Time: 3 Hours

Total Marks: 70

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2*7 = 14

- | | |
|----|--|
| a. | Discuss why Python is called as dynamic and strongly typed language? |
| b. | What is the difference between compiled and interpreted languages? |
| c. | How pass statement is different from a comment? |
| d. | What are mutable and immutable types? |
| e. | What is the purpose of global keyword in Python? |
| f. | Write a for loop that prints numbers from 0 to 57, using range function. |
| g. | Write python script to print current date and time. |

SECTION B

2. Attempt any three of the following:

7*3 = 21

- | | |
|----|---|
| a. | Give a note on each of the below Python language constructs:
(i) quotes (single, double and triple)
(ii) multiline statements
(iii) indentation |
| b. | Write Python Program to reverse a number and also find the Sum of digits in the reversed number. Prompt the user for input. |
| c. | Explain the use of join () and split () string methods with examples. Describe why strings are immutable with an example. |
| d. | What is lambda function? What are the characteristics of a lambda function? Give an example. |
| e. | Write a recursive Python function that recursively computes sum of elements in a list of lists.
Sample Input: [1, 2, [3,4], [5,6]] Expected Result: 21 |

SECTION C

3. Attempt any one part of the following:

7*1 = 7

- | | |
|----|--|
| a. | Explain the basic data types available in Python with examples. |
| b. | Discuss the relation between tuples, lists and dictionaries in detail. |

4. Attempt any one part of the following:

7*1 = 7

- | | |
|----|---|
| a. | Write Python program to swap two numbers without using Intermediate/Temporary variables. Prompt the user for input. |
| b. | Write a program that accepts a sentence and calculate the number of digits, uppercase and lowercase letters. |



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MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
PROGRAMMING WITH PYTHON

5. Attempt any *one* part of the following:

7*1 = 7

a.	Write Python Program to Demonstrate the Construction of Method Resolution Order in Python.
b.	Consider a Rectangle Class and Create Two Rectangle Objects. Write Python program to Check Whether the Area of the First Rectangle is Greater than Second by Overloading > Operator.

6. Attempt any *one* part of the following:

7*1 = 7

a.	What are different types of inheritance supported by Python? Explain.
b.	What is the difference between else block and finally block in exception handling? Explain with an example program.

7. Attempt any *one* part of the following:

7*1 = 7

a.	There is a file named Input.Txt. Enter some positive numbers into the file named Input.Txt. Read the contents of the file and if it is an odd number write it to ODD.TXT and if the number is even, write it to EVEN.TXT
b.	What is the significance of module in Python? What are the methods of importing a module? Explain with suitable example

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MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
ADVANCED JAVA PROGRAMMING

Time: 3 Hours

Total Marks: 70

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2*7 = 14

a.	Illustrate any two main advantages of EJB.
b.	List out types of Enterprise Java Beans (EJB).
c.	Explain MVC 2 model.
d.	Explain types of dialog box in JavaScript.
e.	Explain objects in the reference of JavaScript.
f.	Explain Request and Response Handling in JSP with neat and clean diagram
g.	Explain different between Context and Config in reference of the Servlet

SECTION B

2. Attempt any three of the following: 7*3 = 21

a.	What are the main advantages of EJB? Explain in details.
b.	Describe Message Driven Beans with in Lifecycle.
c.	Explain which action element is used to forward JSP page to another page.
d.	Explain JSTL functions and write the syntax to indicate JSTL function library in JSP
e.	Describe Document Object Model (DOM) in JavaScript.

SECTION C

3. Attempt any one part of the following: 7*1 = 7

a.	Explain the uses of Stateless Session Means with proper example.
b.	Examine the life cycle of Servlet with proper diagram.

4. Attempt any one part of the following: 7*1 = 7

a.	Explain the servlet hits example using Singleton Session Bean in detail with the help of program.
b.	Explain EJB life cycle with neat and clean diagram

5. Attempt any one part of the following: 7*1 = 7

a.	Write a JavaScript program to implement palindrome operations using an Array.
b.	What is JMS? Explain JMS Architecture with details.

6. Attempt any one part of the following: 7*1 = 7

a.	Write JavaScript program to validate student registration form for farewell event.
b.	Create a web application in JSP for sending some information to another page using session.

7. Attempt any one part of the following: 7*1 = 7

a.	Create a Servlet using Request Dispatcher Interface which will validate the password entered by the user, if the user has entered "Servlet" as password, then he will be forwarded to "Welcome to Servlet" else the user will stay on the index.html page and an error message will be displayed.
b.	Explain Java Mail API and create a Java program to send mail to specific user using Java Mail API.



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Roll No:

1800506033

MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
MOBILE COMPUTING

Time: 3 Hours

Total Marks: 70

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2*7 = 14

- | | |
|----|---|
| a. | Illustrate the features of Mobile Networks over Wired Networks. |
| b. | Describe why "Ideally shape of a cell is Hexagonal". |
| c. | List the issues associated with wireless LAN. |
| d. | Explain the role of Vice and Virtue in Andrew File System |
| e. | Explain meaning of spectrum in mobile computing. |
| f. | List the advantages of mobile agents. |
| g. | List out the four properties of transaction. |

SECTION B

2. Attempt any three of the following:

7*3 = 21

- | | |
|----|--|
| a. | Define the Mobile Computing and differentiate between Wired and Mobile Networks? |
| b. | Discuss hidden and exposed terminal problem during accessing of wireless medium |
| c. | Discuss Layers in WAP architecture with their functions. |
| d. | Explain Adaptive Clustering with suitable example. |
| e. | Describe issues in designing MAC Protocol for Ad Hoc Wireless Networks. |

SECTION C

3. Attempt any one part of the following:

7*1 = 7

- | | |
|----|--|
| a. | Discuss GSM architecture with suitable diagram in reference to:
i. The Mobile Station (MS)
ii. The Base Station Subsystem (BSS)
iii. The Network Switching Subsystem (NSS)
iv. The Operation Support Subsystem (OSS) |
| b. | What is Data Replication and also explain its necessity and role in Mobile Computing? |

4. Attempt any one part of the following:

7*1 = 7

- | | |
|----|--|
| a. | Discuss registration process in Mobile IP with suitable diagram. |
| b. | Explain working of CODA file system with neat and clean diagram. |

5. Attempt any one part of the following:

7*1 = 7

- | | |
|----|--|
| a. | Illustrate the Mobile agent and Security issues in mobile computing. |
| b. | Compare AODV routing algorithm with DSR. |

6. Attempt any one part of the following:

7*1 = 7

- | | |
|----|---|
| a. | Describe various issues in CSMA/CD that stop direct implementation in wireless network and how these issues solved in wireless network? |
| b. | Show a neat diagram of Bluetooth protocol stack and state the functions of Radio Layer, Baseband Layer, and L2CAP layer |

7. Attempt any one part of the following:

7*1 = 7

- | | |
|----|--|
| a. | Identify resulting chip sequence if suppose that A, B, C are simultaneously transmitting 0 bits, using CDMA system with following chip sequences:
i. A = (-1 -1 -1 +1 +1 -1 +1 +1)
ii. B = (-1 -1 +1 -1 +1 +1 +1 -1)
iii. C = (-1 +1 -1 +1 +1 +1 -1 -1) |
| b. | Evaluate the performance of DSDV protocol in MANET. |



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Subject Code: RCAI804

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MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
COMPUTER NETWORKS

Time: 3 Hours**Total Marks: 70****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2*7 = 14**

a.	List out various components of communication.
b.	Discuss various transmission modes.
c.	Define Shannon capacity with respect to computer networks.
d.	Justify "Piggybacking improves the bandwidth utilization"
e.	What do you mean by flooding in computer networks?
f.	Differentiate between synchronous and asynchronous protocols.
g.	Discuss network layer design issues.

SECTION B**2. Attempt any three of the following:****7*3 = 21**

a.	Discuss various network topologies with suitable diagrams.
b.	What do you mean switching? Compare circuit switching with packet switching.
c.	A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is $x^3 + 1$. Show the actual bit string transmitted. Suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receiver's end.
d.	Consider a Network Address 198.77.11.0. An administrator needs 60 hosts per subnet to access web services. Find out the following: (i) Class of IP address (ii) Custom subnet mask (iii) Number of subnets (iv) Number of hosts per subnet (v) Number of usable hosts per subnet
e.	Define Quality of Service (QoS). Also discuss various parameters which are responsible for QoS.

SECTION C**3. Attempt any one part of the following:****7*1 = 7**

a.	Explain ISO-OSI model with functioning of each layer.
b.	Discuss various classification of networks based on geographical scale.

4. Attempt any one part of the following:**7*1 = 7**

a.	Discuss various guided media with their advantages and disadvantages.
b.	Write short notes on: (i) Attenuation, (ii) Distortion, (iii) Noise (iv) Throughput



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Subject Code: RCAI804

Roll No:

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MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
COMPUTER NETWORKS

5. Attempt any *one* part of the following: 7*1 = 7
- | | |
|----|---|
| a. | Discuss various techniques involved in Flow Control at data link layer. |
| b. | Explain various techniques to control Errors at data link layer. |
6. Attempt any *one* part of the following: 7*1 = 7
- | | |
|----|--|
| a. | What is ISDN? Discuss various ISDN channels and Interfaces with suitable diagram. |
| b. | Write short notes on:
(i) Link Control Protocol
(ii) Point-to-Point Protocol |
7. Attempt any *one* part of the following: 7*1 = 7
- | | |
|----|--|
| a. | Discuss various network connecting devices with suitable diagram. |
| b. | Discuss token bucket algorithm. A computer on a 10Mbps network is regulated by a token bucket. The token bucket is filled at a rate of 2Mbps. It is initially filled to capacity with 16Megabits. What is the maximum duration for which the computer can transmit at the full 10Mbps? |

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PAPER ID-420604

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Subject Code: RCAIE12

Roll No:

1800506033

MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
DATA WAREHOUSING & MINING

Time: 3 Hours

Total Marks: 70

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2*7 = 14

a.	Define the term Data Warehousing with supporting properties.
b.	What do you mean by Data Mart?
c.	How Operational Database is different from Informational Database?
d.	What stands for ETL?
e.	Why data is noisy?
f.	When will you say the classification or prediction model is robust?
g.	What do you mean by Meta Data?

SECTION B

2. Attempt any three of the following:

7*3 = 21

- What are warehouse schemas? Discuss various schemas used in data warehouse? Discuss advantages and disadvantages of each schema.
- Discuss the Decision Tree classification technique. Write an algorithm to generate a decision tree.
- What is OLAP? Discuss the operations in OLAP with suitable example.
- Suppose Height, weight, and T-shirt size of some customers given as follows

Height	Weight	T-shirt Size
160	60	M
163	60	M
163	61	M
160	64	L
163	64	L
165	61	L

Classify the T-shirt size of customer having Height = 161 and Weight = 61 using KNN algorithm ($k = 3$).

- How is data mining different from KDD? Discuss the key steps of KDD.

SECTION C

3. Attempt any one part of the following:

7*1 = 7

a.	Differentiate between the first generation client-server processing and second generation client-server processing.
b.	Draw a diagram of data warehouse environment and discuss its various functional units.



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Subject Code: RCAIE12

Roll No:

1800506033

MCAINT
(SEM VIII) THEORY EXAMINATION 2021-22
DATA WAREHOUSING & MINING

4. Attempt any *one* part of the following: 7*1 = 7

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|----|---|
| a. | Why is data transformation required? Discuss the various data transformation types. |
| b. | What is the multidimensional data model? How it is used data warehousing? |

5. Attempt any *one* part of the following: 7*1 = 7

- | | |
|----|--|
| a. | What do you understand by data cleaning in context of data warehousing? Discuss how data is cleaned. |
| b. | How clustering is different from classification? Discuss k-mean clustering method. |

6. Attempt any *one* part of the following: 7*1 = 7

- | | |
|----|--|
| a. | What is rule based classification? A rule R can be accessed by its coverage and accuracy. Justify your answer. |
| b. | Apply Apriori algorithm on the following data set and find the maximum frequent item set. (Min. support count is 2). Show two association rules that have a confidence 70% or greater. |

Transaction Id	Items Purchased
10	I1, I2, I4
20	I2, I7
30	I7, I5
40	I1, I2, I5
50	I6, I4
60	I6
70	I6, I7
80	I1, I2, I3, I4
90	I3, I5
100	I1, I2

7. Attempt any *one* part of the following: 7*1 = 7

- | | |
|----|--|
| a. | Write short notes on <ul style="list-style-type: none"> i. Data Visualization ii. Multimedia Data Mining |
| b. | Write short notes on <ul style="list-style-type: none"> i. Genetic Algorithm ii. Web Data Mining |