Printed Pages:02 **Sub Code: RCAI-801**

Paper Id: 236179 **Roll No.** | | | | | | | | | | |

MCA-INT
(SEM VIII) THEORY EXAMINATION 2022-23
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 x 7 = 14

(a) Define Python . Why python is called Dynamic typing Language?
(b) Write a program that swaps the values of variables a and b without using third variable.
(c) Write the program to remove the duplicate item in a list.
(d) Define frozenset.
(e) Explain the lambda function with suitable example.
(f) What is module and package in Python?
(g) What is Inheritance?

SECTION B

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

(a) Briefly explain the various type of operators in python with appropriate example.
(b) Briefly explain the various Sequence Operations in Python .
(c) What is a function? Discuss various types of function arguments in Python.
(d) Write a program to write all the contents of a given file to new file
(e) Write a program that uses date time module within a class, takes a birthday as input and prints the age.

SECTION C

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

(a) What are the salient features of python language? Define Basic Libraries in Python.
(b) What are the different flow control statements supports in python .

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

(a) What is Set. Describe union , intersection and difference set operation with suitable example .
(b) What is list? , What are the different methods supports in python List. Illustrate all the methods with an example.

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

(a) Define Recursion Function. Write a function that return factorial value of the given number.
(b) Define Python namespaces . describe Built-In ,Global ,Enclosing and Local types of namespaces in python.

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

(a) Explain in detail about Python Files and its types. Describe various access modes of the files.
(b) Explain about the different types of Exceptions in Python

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

(a) What is a class? How to initiate a class and how the class members are accessed in python ?
(b) Write Python Program to Simulate a Bank Account with Support for deposit Money, withdraw Money and show Balance Operations

Printed Pages:2 **Sub Code:RCAI-802**

Paper Id: 236330 **Roll No.** | | | | | | | | | | |

MCA - INT
(SEM VIII) THEORY EXAMINATION 2022-23
ADVANCED JAVA PROGAMMING

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 x 7 = 14

a. Illustrate two main advantages of RMI.
b. List out types of Enterprise Java Beans(EJB).
c. Explain MVC model of web development.
d. Explain difference between let and var in JavaScript.
e. Explain promises in the reference of JavaScript.
f. Explain Client and Server Response in JSP with neat and clean diagram
g. Differentiate between Context and Config in reference of the Servlet

SECTION B

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

a. Discuss the main advantages of EJB. Explain in details
b. Describe Session 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. Design a web page, which displays message "Welcome to JavaScript" whenever click on button.

SECTION C

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

a. Explain the uses of Message Driven Beans with proper example.
b. Examine the life cycle of JSP with proper diagram.

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

a. Write a JavaScript program to check whether a number is palindrome or not.
b. Describe JMS. Explain JMS Architecture with details.

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

a. Write JavaScript program to validate student registration form for annual football event.

b. Create a web application in JSP for sending user name and password from one page to another page using session variable.

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

a. Create a Servlet using Request Dispatcher Interface which will validate the username and password entered by the user, if the user has entered correct password, then he will be forwarded to "Welcome to Username" else the user will stay on the same page with an error message "Invalid Username or Password".

b. Explain Java Mail API with an example to send email to the specific user.

Printed Pages:1 **Sub Code:RCAI-803**

Paper Id: 236446 **Roll No.** | | | | | | | | | | |

MCA - INT
(SEM VIII) THEORY EXAMINATION 2022-23
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 x 7 = 14

(a) List the characteristics of MANETs?
(b) Classify the types of wireless networks.
(c) Define Ad-hoc Network?
(d) Mention the applications of Mobile computing.
(e) Define Bluetooth?
(f) List the advantages and disadvantages of mobile IP?
(g) Differentiate between Wired and Wireless Network?

SECTION B

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

(a) What is the role of Mobile Computing in current Scenario?
(b) List the Services of GSM?
(c) What is guard band? Explain Mobile agent and its advantages?
(d) Show the characteristics of 4G and 5G Cellular Networks.
(e) What is Mobility? Explain Distance vector protocol?

SECTION C

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

(a) Explain the merit and demerit of Mobile Computing?
(b) What do you meant by Hand-off and its types?

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

(a) Explain WAP Architecture with suitable diagram?
(b) What are the subsystems of GSM? Generalize the limitations of GPRS.

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

(a) Illustrate how a GSM network provides security to the customers.
(b) List the advantages in DSR over DSDV?

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

(a) Discuss about the constraints of Mobile OS.
(b) Explain the security issues and attacks in MANET.

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

(a) Explain AODV and On demand routing protocols?
(b) Discuss LLC in Mobile Computing? Explain Poll and Select with suitable diagram?

Printed Pages:01 **Sub Code: RCAI-804**

Paper Id: 236579 **Roll No.** | | | | | | | | | | |

MCA-INT

(SEM VIII) THEORY EXAMINATION 2022-23

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 x 7 = 14

(a) Define the term line configuration.
(b) List out various transmission modes.
(c) Justify "Piggybacking improves the bandwidth utilization"
(d) Explain signal distortion with respect to communication.
(e) Difference between bit oriented and character-oriented protocol.
(f) What do you understand by synchronous protocols?
(g) Explain the use of router in computer networks.

SECTION B

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

(a) Classify the networks based on geographical location.
(b) Discuss the Shannon Capacity for Noisy Channel.
(c) Explain working of TDM and FDM with diagram.
(d) Explain intra domain routing protocol with suitable example.
(e) Explain the objective network layer in ISO/OSI model. Also discuss design issues of Network-Layer in communication model.

SECTION C

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

(a) Discuss various layers of ISO-OSI models with suitable diagram.
(b) Discuss various network topologies used in computer networks.

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

(a) Write short note on:
  (i) Attenuation,
  (ii) Noise,
  (iii) Transmission time
(b) Explain the similarity and dissimilarity between data link layer and transport layer.

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

(a) Explain the benefits of sliding window protocol over stop and wait protocol.
(b) Differentiate between circuit switching and packet switching.

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

(a) Discuss the use of ISDN. Also explain various ISDN services.
(b) Explain Point to Point Protocol (PPP) in Computer Network.

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

(a) What do mean by congestion control? Discuss various congestion control methods.
(b) What do you mean by Quality of Service (QoS) in computer network?

Printed Pages: 2 **Sub Code: RCAIE-12**

Paper Id: | 2 | 3 | 6 | 7 | 1 | 1 | **Roll No.** | | | | | | | | | | |

MCA-INT
(SEM VIII) THEORY EXAMINATION 2022-23
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 Mining.
(b) What do you mean by Data cube?
(c) How missing values are treated during preprocessing of data?
(d) What do you mean by data loading?
(e) Why data is noisy?
(f) How supervised learning is different from unsupervised learning?
(g) Define outliner in data mining .

SECTION B

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

(a) Explain the component of Three-tier data warehouse architecture with a neat diagram.
(b) Compare OLTP and OLAP with suitable example.
(c) Discuss different phases of Back propagation algorithm in data mining.
(d) Demonstrate computation of the following measures for similarity/dissimilarity among data:
i) Cosine measure
ii) Euclidean distance
ii) Manhattan measure.
(e) 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) Explain the various applications of Data Mining.
(b) Write the differences between operational databases and data warehousing.

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

(a) Why is data transformation required? Discuss the various data transformation types.
(b) Write short notes on
i) Data Mart
ii) Snowflake Schema

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

(a) Why is data cleaning required? Discuss the various methods to clean data.
(b) What is Data reduction? Discuss in detail. How is Dimensionality reduction done?

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

(a) What are typical requirements of clustering in data mining? How does the PAM algorithm work? Explain.

(b) Define information gain and explain its importance in decision tree induction. Give the algorithm for decision tree induction.

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

(a) Write short notes on

(i) Multimedia Data Mining

(ii) Web Data Mining

(b) What do you mean by Data Visualization? Explain the different data visualization tools.

Printed Pages:1 **Sub Code:RCAIE14**

Paper Id: 236713 **Roll No.** | | | | | | | | | | |

MCA-INT
(SEM VIII) THEORY EXAMINATION 2022-23
ADVANCED COMPUTER ARCHITECTURE

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

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

a. Define the term parallel processing.
b. Explain concept behind pipelining.
c. Write down the CPU performance equation.
d. What do you mean by ILP?
e. What is a vector processor?
f. Define condition compilation.
g. Discuss MIPS processor.

SECTION B

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

a. Discuss various classifications of parallel processing mechanisms in uniprocessor computers.
b. Discuss about limitations of ILP with a special mention on realizable processors.
c. Discuss pipelining for a RISC processor with example.
d. Explain combined parallel work-sharing constructs in detail.
e. Write short note on MPI.

SECTION C

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

(a) What are static and dynamic data flow models? Discuss.
(b) Elaborate Flynn's classification in detail.

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

(a) Discuss various advanced pipelining techniques.
(b) Discuss the role of ILP in mobile applications.

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

(a) Discuss the functional architecture of SIMD multi-processor systems.
(b) Discuss the synchronization mechanisms for multiprocessors.

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

(a) Discuss PRAM algorithm to sort a given array of an element using bubble sort.
(b) Write short note on Parallel Reduction.

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

(a) Explain in detail Work sharing constructs.
(b) Explain parallel execution environment routines.