Total No. of Questions : 7]

SEAT No. : ____

PD3746

[Total No. of Pages : 3

[6488]-101
First Year M.Sc. (Computer Application)
CA - 501 - MJ : DATABASE SYSTEM AND SQL
(2023 Credit Pattern) (Semester - I)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Solve any Five questions from Q.2 to Q.7.***
3) ***Questions from Q.2 to Q.7. carry equal marks.***

Q1) Solve any five of the following: **[10]**

a) What is Generalization? Give Example.

b) What is RDBMS?

c) Explain Logical Data Independence.

d) What is Decomposition?

e) What is procedure?

f) Define Super Key

Q2) Attempt all. **[12]**

a) Explain aggregate function in SQL with example.

b) Explain Set Operation in RDBMS

c) What is exception handling? Explain predefined exceptions.

Q3) Attempt all. **[12]**

a) State Advantages and Disadvantages of RDBMS.

b) What is PL/SQL? Explain Block Diagram?

c) Explain Primary key and Foreign key with Suitable example

P.T.O.

Q4) Attempt all. **[12]**

Consider the following entities and their relationships.

Client (client_no, client_name, address, birthdate)

Policy_info (policy_no, desc, maturity_amt, prem_amt, date)

Relation between Client and Policy_info is Many to Many

Constraint: Primary key, prem_amt and maturity_amt should be > 0.

Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:

a) Write a procedure which will display all policy details having premium amount less than 5000. **[4]**

b) Write a trigger which will fire before insert or update on policy_info having maturity amount less than premium amount. (Raise user defined exception and give appropriate message) **[4]**

c) Write a function which will return total maturity number of policies of a particular client **[4]**

Q5) Attempt all. **[12]**

a) Consider the following entities and their relationships.

Sales_order (ordNo, ordDate)

Client (clientNo, ClientName, addr)

The relationship between Client & Sales_order is one-to-many.

Constraints: - Primary Key, ordDate should not be NULL.

i) Delete sales order details of client whose name is “Patil” and order date is “09/08/2019”.

ii) Change order date of client_No ‘CN001’ to ‘18/03/2019’

b) Consider the following entities and their relationships.

Patient (PCode, Name, Addr, Disease)

Bed (Bed_No, RoomNo, loc)

Relationship: - There is one-one relationship between patient and bed.

Constraints: - Primary key, RoomNo must be greater than Bed_No, Addr should not be null.

i) Display the disease of patient whose bed_No is 1.

ii) Display the room_no and bed_no of patient whose name is “Mr Roy”.

c) In a nursery, the plants are sold to the customers, these plants are flowering and non-flowering only. Nutrients are given to the plant with some quantity. Nutrients include pesticides, watering.

Identify and list all entities and Draw ERD

Q6) Attempt all. **[12]**

a) Distinguish between network model and hierarchical model

b) What is trigger? Describe type of Trigger?

c) Explain users of DBMS

Q7) Write short notes on any Two of the following. **[12]**

a) Normalization

b) Control Statements in PLSQL.

c) Functional Dependency

Total No. of Questions : 7]

SEAT No. :

PD3747

[Total No. of Pages : 2

[6488]-102

First Year M.Sc. (Computer Applications)

CA 502 MJ : PYTHON PROGRAMMING AND DATA STRUCTURES

(2023 Credit Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any five questions frm Q.2 to Q.7.***
3) ***Questions to 2 to 7 carry equal marks.***

Q1) Attempt any five of the following : **[5×2=10]**

a) List some popular applications of Python programming language.

b) What is the difference between a Mutable datatype and an Immutable data type?

c) What are local variables and global variables in Python?

d) List any four sorting algorithms.

e) Write difference between Linear and Non-linear Data Structures.

f) What is Binary Search Tree?

Q2) Attempt all of the following : **[3×4=12]**

a) Explain various operators in Python programming.

b) What is the difference between a Set and Dictionary?

c) Explain any two array operations.

Q3) Attempt the following : **[3×4=12]**

a) Explain how to create class and object in Python.

b) What is List. State any four built-in list function with their use.

c) Write a Python program to print factorial of a given number.

Q4) Attempt the following : **[3×4=12]**

a) What are Python's parameter passing modes?

b) What is Queue? Explain types of Queue.

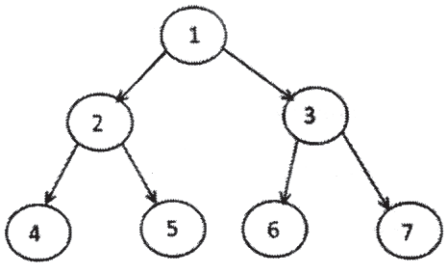
c) Write Prefix and Postfix Expression of P * Q + R * S.

P.T.O.

Q5) Attempt the following : **[3×4=12]**

a) What is stack? Explain any four stack operations in data structure using python.

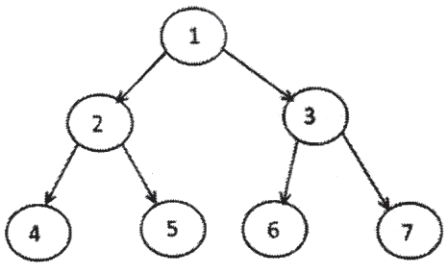
b) Write the elements in BFS and DFS of the following Binary Tree.



c) Write python program for insert node at start position of Linked List.

Q6) Attempt the following : **[3×4=12]**

a) Write the elements in inorder, preorder and postorder traversal of the following Binary Search Tree.



b) Write python program for stack using list.

c) Explain any two ways of representation of graph.

Q7) Write short notes on any two of the following : **[2×6=12]**

a) What is Python? What are the benefits of using Python?

b) What are the common built-in data types in Python?

c) What is Linked List? Explain types of Linked List.

Total No. of Questions : 5]

SEAT No. :

PD3748

[Total No. of Pages : 2

[6488]-103
First Year M.Sc. (Computer Applications)
CA-503 MJ: OPERATING SYSTEMS
(2023 Credit Pattern) (Semester-I)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Attempt/solve any three questions from Q 2 to Q.5.***
3) ***Q.2 to Q.5 Carry Equal Marks.***
4) ***Figures to the right indicates full marks.***

Q1) Solve any 5 of the following : **[5]**

a) List the process creation system calls?

b) What is schedular?

c) What is paging?

d) What is meant by process termination?

e) Define Throughput time.

f) Define Process Control Block.

Q2) Attempt the following : **[10]**

a) Explain Process States. **[2]**

b) What are the various Directory types? Explain in detail. **[4]**

c) Explain the difference between preemptive and Non-Preemptive scheduling algorithm. **[4]**

Q3) Attempt the following : **[10]**

a) Write a short note on various file types. **[2]**

b) Explain services provided by the operating system. **[4]**

c) What is a deadlock? Explain how deadlock can be avoided. **[4]**

P.T.O.

Q4) Attempt the following : **[10]**

a) Write a short note on interprocess communication. **[2]**

b) Explain with example any three file access methods. **[4]**

c) Elaborate Multithreaded operating system. **[4]**

Q5) Attempt any two of the following : **[10]**

a) Explain the Architecture of the monolithic operating system **[5]**

b) Explain Memory Management Techniques. **[5]**

c) Considering a system with five processes P0 through P4 and three resources of type A, B, C. Resource type A has 10 instances, B has 5 instances and type C has 7 instances. Suppose at time t0 following snapshot of the system has been taken. **[5]**

Process	Allocation A B C	Max A B C	Available A B C
P0	0 1 0	7 5 3	3 3 2
P1	2 0 0	3 2 2	
P2	3 0 2	9 0 2	
P3	2 1 1	2 2 2	
P4	0 0 2	4 3 3	

i) What will be the content of the Need matrix?

ii) Is the system in a safe state ? If Yes, then what is the safe sequence?

iii) What will happen if process P1 requests one additional instance of resource type A and two instances of resource type C?

✪ ✪ ✪

Total No. of Questions : 5]

SEAT No. : ____

PD3749

[Total No. of Pages : 2

[6488]-104
First year M.Sc. (Computer Applications)
CA 510A MJ : JAVA PROGRAMMING
(2023 Credit Pattern) (Semester - I)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Attempt/Solve any three questions from Q.2 to Q.5.***
3) ***Q.2 to Q.5 carries equal marks.***
4) ***Figures to the right indicate full marks.***

Q1) Solve any five of the following. **[5]**

a) What is inner class?

b) What is a constructor?

c) What is the use of final keywords?

d) Write the syntax for creating a package.

e) List the keywords in Java.

f) What is Array?

g) What is use of Super keyword in Java?

Q2) Attempt the following **[10]**

a) Explain Features of Java **[2]**

b) What is Inheritance? Explain types of inheritance. **[4]**

c) Define an abstract class shape and calculate the area of circle and rectangle. Write a Java program to accept the values from the user. **[4]**

Q3) Attempt the following **[10]**

a) Write a note on garbage collection in Java. How can it be invoked? **[2]**

b) Explain HashMap Class with example. **[4]**

c) Define a class Student having a roll number, name and percentage. Define default and parameterized constructor. Accept the five students' details it. (Use this keyword) **[4]**

P.T.O.

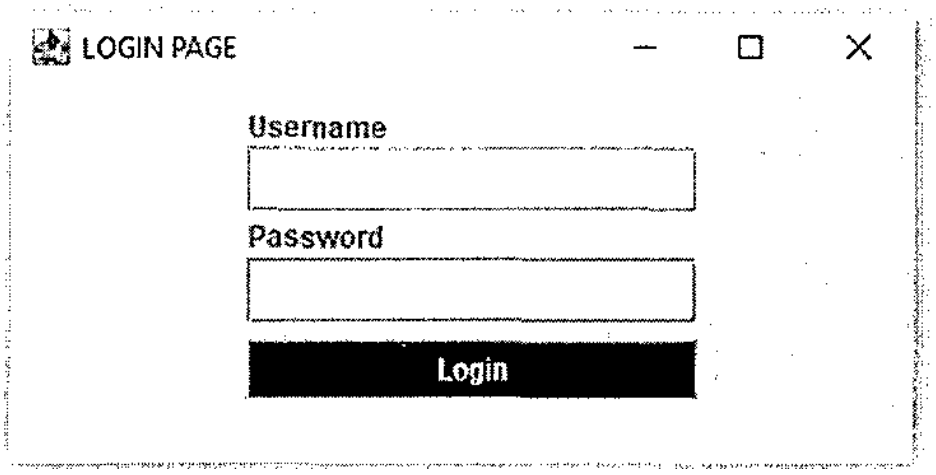
Q4) Attempt any two of following. **[10]**

a) What is JVM? **[2]**

b) Differentiate between Abstract class and interface. **[4]**

c) Write a java program to design following GUI. **[4]**

[Correct Program]



Q5) Attempt any two of following. **[10]**

a) Define Exception. State purpose of try, catch and throw blocks with example. **[5]**

b) Write a java program to implement a simple arithmetic calculator. Perform appropriate operations. **[5]**

c) Explain DataInputStream and DataOutputStream class. **[5]**

Total No. of Questions : 5]

SEAT No. : ____

PD3750

[Total No. of Pages : 2

[6488]-105
First Year M.Sc. (Computer Applications)
CA 512B MJ : CLOUD COMPUTING
(2023 Credit Pattern) (Semester - I)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any 3 questions from Q.2 to Q.5.***
3) ***Question No. 2 to 5 carry equal marks.***

Q1) Solve any five of the following: **[5×1=5]**

a) Who is responsible to run virtual machine?

b) Write full form of GCP.

c) What is AWS?

d) Define the term Migration.

e) What is Hybrid Cloud?

f) Which cloud platform is provided by Amazon?

Q2) Attempt the following. **[10]**

a) What are the benefits of Cloud? **[2]**

b) Explain important services offered by AWS. **[4]**

c) Explain Load balancing technique. **[4]**

Q3) Attempt the following. **[10]**

a) What is Microsoft Azure? **[2]**

b) Explain Cloud Deployment Model. **[4]**

c) Explain the term Kubernetes. **[4]**

P.T.O.

Q4) Attempt the following. **[10]**

a) Explain the term Containers. **[2]**

b) Explain Google App Engine. **[4]**

c) Explain Cloud Security Challenges. **[4]**

Q5) Attempt any two of the following. **[2×5=10]**

a) Write a note on Cloud Migration.

b) Write a note on virtual machine.

c) Write a note on security architecture design in cloud.

Total No. of Questions : 7]

SEAT No. :

PD3751

[Total No. of Pages : 2

[6488]-106

First Year M.Sc. (Computer Applications)

CA-531-RM : RESEARCH METHODOLOGY

(2023 Credit Pattern) (Semester-I)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any five questions from Q.2 to Q.7***
3) ***Questions 2 to 7 carry equal marks.***

Q1) Solve any five of the following: **[5×2=10]**

a) List the methods used for secondary data collection.

b) Define Qualitative Research.

c) What is Research?

d) Define Statistical method.

e) List sources of hypothesis.

f) List the E-resources for research.

g) Write down the merits and demerits of sampling.

Q2) Attempt the following: **[3×4=12]**

a) Write the importance of ethics in publication.

b) Explain Chi-Square test & Z-test with example.

c) What is Research Design. What are the features of good Research design?

Q3) Attempt the following: **[3×4=12]**

a) Write a short note on characteristics of Research.

b) What are the different methods of Data Collection?

c) Write a note on Sampling with aims & characteristics.

P.T.O.

Q4) Attempt the following: **[3×4=12]**

a) Explain objectives of research.

b) Differentiate between quantitative and qualitative research.

c) What is Interpretation? What are the different techniques of Interpretation?

Q5) Attempt the following: **[3×4=12]**

a) Explain Report Writing with the layout & Diagram

b) Explain different steps in report writing in research.

c) Differentiate between Research methods and methodology

Q6) Attempt the following: **[3×4=12]**

a) What is a Research Problem? Explain Components of Research Problem.

b) Distinguish between primary data and secondary data.

c) Write a note Measures of Central tendency with example.

Q7) Attempt the following:(any 2) **[2×6=12]**

a) Define Plagiarism. Explain different types of plagiarism in details.

b) Write a detailed note on sampling and its design.

c) What kinds of precautions are necessary for writing research report?

Total No. of Questions : 7]

SEAT No. : ____

PD3752

[Total No. of Pages : 2

[6488]-201

M.Sc. - I (Computer Application)
CA-551-MJ: WEB TECHNOLOGIES
(2023 Credit Pattern) (Semester-II)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any 5 questions from Q.2 to Q.7.***
3) ***Questions 2 to 7 carry equal marks.***
4) ***Figures to the right indicate full marks.***

Q1) Solve any five of the following. **[10]**

a) What is anonymous function?

b) Give the features of php.

c) Explain the types of website.

d) What is the use of PHP global Keyword?

e) What is serialization?

f) Differentiate between HTML and XML.

Q2) Attempt the following. **[12]**

a) Explain AJAX WEB APPLICATION MODEL in detail. **[4]**

b) Explain the concept of PEAR DB Basics. **[4]**

c) Explain div tag with id selector in CSS. **[4]**

Q3) Attempt the following. **[12]**

a) Explain the Java Script String methods in details. **[4]**

b) Explain Static Property and static function in php. **[4]**

c) Consider the following entities and their relationship Emp

(emp_no,emp_name,address,phone,salary) salary(em_pno, Basic, HR TA, DA) dept (dept_no,dept_name,location). Write a PHP script which will print a salary statement for specified emp_no with his details. **[4]**

P.T.O.

Q4) Attempt the following. **[12]**

a) Write a PHP program to update records in student table to set last_name= 'Jadhav' WHERE rollno=2. **[4]**

b) Explain SSL in detail. **[4]**

c) Explain setting Response Headers concept in php. **[4]**

Q5) Attempt the following. **[12]**

a) PHP program to create XML document using DOM. **[4]**

b) Explain the concept of processing forms. **[4]**

c) Write a program for introspection for examining object use predefined function. **[4]**

Q6) Attempt the following. **[12]**

a) Explain various PHP MySQLi functions in detail. **[4]**

b) Explain PHP Lexical structure in detail. **[4]**

c) Write a code to print date/month/year in javascript. **[4]**

Q7) Attempt any two of the following. **[12]**

a) Explain strings in php. **[6]**

b) Write AJAX program to read a text file and print the contents of the file when the user clicks on the print button. **[6]**

c) Write a program to create a two dimensional associative array of student subject and marks also display the marks of student. **[6]**

Total No. of Questions : 7]

SEAT No. : ____

PD3753

[Total No. of Pages : 2

[6488]-202

First Year M.Sc. (Computer Application)

CA 552 MJ : INTRODUCTION TO DATA SCIENCE

(Credit 2023 Pattern) (Semester -II)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Question 1 is Compulsory.***
2) ***Solve any five questions from Q.2 to Q.7.***
3) ***Questions 2 to 7 carry equal marks.***

Q1) Attempt any five of the following. **[5×2=10]**

a) Define data science.

b) Define Data Source.

c) Define interquartile range.

d) Define Data Quality.

e) What do you mean by wordcloud?

f) What is one hot encoding?

Q2) Attempt all of the following **[3×4=12]**

a) What are different applications of Data Science?

b) Explain Outlier detection methods.

c) Explain different types of an attribute.

Q3) Attempt all of the following. **[3×4=12]**

a) Explain data visualization libraries in Python.

b) Explain dissimilarity of numeric data.

c) Differentiate between pie chart and bar chart.

P.T.O.

Q4) Attempt all of the following. **[3×4=12]**

a) What are components of data scientist's toolbox? Explain two of them.

b) Explain Data Cube in detail.

c) Explain t test in detail.

Q5) Attempt all of the following. **[3×4=12]**

a) What is Venn diagram? How to create it? Explain with example.

b) Explain different data formats in brief.

c) What are different sources of data in data science? Explain in detail.

Q6) Attempt all of the following. **[3×4=12]**

a) Calculate the mean, mode, median, variance, IQR for the following data.

X : 7, 1, 5, 11, 12, 10, 6, 29, 2, 5, 15

b) Write a R program to compare two data frames to find the row(s) in first data frame that are not present in second data frame.

c) Explain Data Wrangling Operations in detail.

Q7) Write short notes on any two of the following. **[2×6=12]**

a) Role of statistics in Data Science.

b) Visual Encoding

c) Noisy Data

Total No. of Questions : 5]

SEAT No. : ____

PD3754

[Total No. of Pages : 2

[6488]-203

First Year M.Sc. (Computer Application)

CA 553 MJ : COMPUTER NETWORKS

(2023 Credit Pattern) (Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Questions 2 to Q.5 carry equal marks.***

Q1) Solve any Five of the following: **[5]**

a) What is the Bitrate?

b) What is Multiplexing and Demultiplexing?

c) What is connection oriented and connectionless services?

d) Define the term Protocol. Give one example.

e) What is the Nyquist's formula to calculate the data rate of communication channel which is noiseless channel?

f) List any two Framing methods at Data Link Layer.

Q2) Attempt the following. **[10]**

a) Explain the causes of transmission impairment. **[2]**

b) Draw the NRZ-L and NRZ-I encoding for the following data stream 01001110. **[4]**

c) Compare and contrast ISO-OSI and TCP/IP reference Models. **[4]**

Q3) Attempt the following. **[10]**

a) What is the role of User Agent, Message Transfer Agent in email architecture? **[2]**

b) What is Sub netting and Super netting? Explain in detail. **[4]**

c) Give Message 1101011011 and $G(x)=x^4+x+1$. Find CRC. **[4]**

P.T.O.

Q4) Attempt the following. **[10]**

a) Mention the working principle of Circuit switching and Message Switching. **[2]**

b) Explain in detail the simplex stop and wait protocol. **[4]**

c) Differentiate between IPV4 and IPV6. **[4]**

Q5) Answer any two of the following. **[10]**

a) Differentiate between TCP-Transmission Control Protocol and UDP-User Datagram Protocol.

b) What are different topologies? Explain concept, advantages and disadvantages of any 2 topologies with figure.

c) Explain in detail WWW [World wide web] and its architecture.

Total No. of Questions : 5]

SEAT No. : ____

PD3755

[Total No. of Pages : 2

[6488]-204

First Year M.Sc. (Computer Applications)

CA 560A MJ : ADVANCED JAVA PROGRAMMING

(2023 Credit Pattern) (Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Questions 2 to Q.5 carry equal marks.***

Q1) Solve any 5 of the following: **[5]**

a) What is the role of PreparedStatement?

b) What is Thread?

c) Write names of JSP Directives.

d) Explain use of sockets.

e) What is Cookie?

f) What is Hibernate?

Q2) Attempt the following. **[10]**

a) What is JDBC Driver? **[2]**

b) Write a Multithreading program in Java to display the numbers between 1 to 100 continuously in a TextField. by clicking on button. (use Runnable Interface). **[4]**

c) Explain JSP tags with example. **[4]**

Q3) Attempt the following. **[10]**

a) What is Multithreading? **[2]**

b) Explain the difference between TCP/IP and UDP. **[4]**

c) Write down the difference between doGet() and doPost()method. **[4]**

P.T.O.

Q4) Attempt the following. **[10]**

a) Explain use of socket class. **[2]**

b) Explain Servlet life cycle with suitable diagram. **[4]**

c) Write a JDBC program in Java to update an address of given customer (cid ,cname, address) and display updated details. **[4]**

Q5) Attempt any two of the following. **[10]**

a) What is Internet Addressing? Explain any four methods of InetAddress class. **[5]**

b) What is session tracking? What are the different ways of Session tracking in servlet. **[5]**

c) Write a JSP application to accept a user name and greet the user. **[5]**

Total No. of Questions : 5]

SEAT No. :

PD3756

[Total No. of Pages : 2

[6488]-205
First Year M.Sc. (Computer Applications)
CA 562B MJ :C# .NET
(2023 Credit Pattern) (Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Questions 2 to Q.5 carry equal marks.***

Q1) Solve any 5 of the following: **[5]**

a) List any 4 Data Types in VB.Net

b) Give any 2 properties of Button Control.

c) What is Boxing?

d) Write any 2 string functions in C#.

e) List any four common web controls.

f) What is ADO.Net?

Q2) Attempt the following. **[10]**

a) What is Web Form? **[2]**

b) Explain classes used in ADO.Net. **[4]**

c) Write a C#.Net program to calculate the sum of elements in an array. **[4]**

Q3) Attempt the following. **[10]**

a) Explain any 2 properties of Timer Control. **[2]**

b) Explain Constructor with Example. **[4]**

c) Write a VB.Net program to find factorial of a number. **[4]**

P.T.O.

Q4) Attempt the following. **[10]**

a) Explain the Functions. **[2]**

i) MessageBox()

ii) InputBox ()

b) Explain Loops in VB.Net. **[4]**

c) Explain MVC Framework . **[4]**

Q5) Attempt any two of the following. **[10]**

a) Explain Validation Control in ASP.Net. **[5]**

b) Explain Inheritance with Example. **[5]**

c) Write a C#.Net program to determine whether the given number is prime or not. **[5]**

Total No. of Questions : 7]

SEAT No. :

PD3757

[Total No. of Pages : 2

[6488]-301
S.Y. M.Sc. (Computer Applications)
CA-601-MJ : Artificial Intelligence
(2023 Credit Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

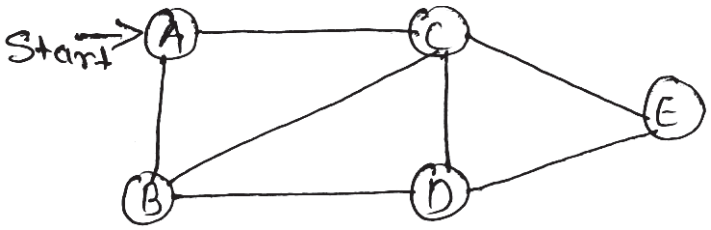
1) ***Question No. 1 is compulsory.***
2) ***Solve any five questions from Q.2 to Q.7.***
3) ***Questions from Q.2 to Q.7 carry equal marks.***
4) ***Figures to the right indicate full marks.***

Q1) Solve any five of the following : **[5×2=10]**

a) Define artificial intelligence and its main goal.
b) Explain the concept of Best-First search.
c) What is the role of modal logic in AI?
d) Define informed search.
e) What is an Agent?
f) What is propositional logic?

Q2) Attempt all of the following : **[3×4=12]**

a) Find the path using Depth first search Algorithm.



b) Explain Mini-max Algorithm in AI with the help of example.
c) Discuss the properties of knowledge representation.

Q3) Attempt all of the following : **[3×4=12]**

a) Explain knowledge representation using propositional logic with a suitable example.
b) What is means-End Analysis in AI search techniques.
c) Discuss the role of categories & objects in AI reasoning systems.

P.T.O.

Q4) Attempt all of the following : **[3×4=12]**

a) What are the different types of environments in which AI agents operate. Explain with example.

b) Explain ontological engineering & types of ontology knowledge models.

c) What are the approaches to knowledge representation. Explain in detail.

Q5) Attempt all of the following : **[3×4=12]**

a) Explain Alpha-Beta tree search Algorithm.

b) Consider the following english statement. If maid stole jewelry then Butler is not guilty. Either maid stole the jewelry or she milked the cow.

If maid milked the cow then butler got the cream. If butler is not guilty then he got the cream.

Convert the above statements in propositional logic & using resolution check the validity of "Butler got the cream".

c) Describe the simple Hill climbing algorithm and its limitation.

Q6) Attempt all of the following : **[3×4=12]**

a) Explain the A* Algorithm & its application in solving search problem.

b) Explain different inference rules in FOL with suitable example.

c) What is the role of stochastic games in AI? Provide an example.

Q7) Write short notes on any two of the following : **[2×6=12]**

a) Explain the benefits and limitation of Artificial Intelligence in real-world applications.

b) Discuss the Monte Carlo Tree search and its significance in game-playing AI.

c) Explain reasoning with default information and its application in AI systems.

Total No. of Questions : 7]

SEAT No. :

PD3758

[Total No. of Pages : 2

[6488]-302
S.Y. M.Sc. (Computer Applications)
CA-602-MJ : MACHINE LEARNING
(2023 Credit Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any five questions from Q.2 to Q.7.***
3) ***Questions from 2 to 7 carry equal marks.***
4) ***Figures to the right indicate full marks.***

Q1) Attempt any five of the following : **[5×2=10]**

a) State any one example of machine learning.

b) What is decision tree?

c) Give the meaning of MAE.

d) Define precision.

e) Write any one example of clustering.

f) Define ANN.

Q2) Attempt all of the following : **[3×4=12]**

a) Give your views about ML vs AI vs Data Science.

b) Write the steps used in DBSCAN algorithm.

c) Draw artificial Neuron model and label it.

Q3) Attempt all of the following : **[3×4=12]**

a) Discuss simple linear regression.

b) Differentiate between binary and multiclass classifications.

c) Explain any two activation functions of Neural Networks.

Q4) Attempt all of the following : **[3×4=12]**

a) Illustrate different types of machine learning.

b) What is classification? Explain any one algorithm of it.

c) Briefly explain SVM.

P.T.O.

Q5) Attempt all of the following : **[3×4=12]**

a) Write any four applications of machine learning.

b) Consider following data. Apply Naive Bayes algorithm and find the following tuple belongs to which class?

Chills	Runny Nose	Headache	Fever	Flu?
Y	N	Mild	Y	N
Y	Y	No	N	Y
Y	N	Strong	Y	Y
N	Y	Mild	Y	Y
N	N	No	N	N
N	Y	Strong	Y	Y
N	Y	Strong	N	N
Y	Y	Mild	Y	Y

Data sample X = {Chills = Y, Runny Nose = N, headache = Mild, fever = Y}

c) Write a short note on cross validation.

Q6) Attempt all of the following : **[3×4=12]**

a) Suppose we have following items to cluster {2, 4, 10, 12, 3, 20, 30, 11, 25} K = 2 (No. of clusters to be created). Use Euclidean distance formula and find out items belongs to which cluster?

b) Explain K-Nearest Neighbor algorithm with example.

c) Explain advantages of using the Backpropagation algorithm in Neural Networks.

Q7) Attempt all of the following : **[3×4=12]**

a) Summarize any two models of machine learning.

b) Explain any one ensemble learning technique.

c) What is an outlier? When to do outlier analysis?

Total No. of Questions : 5]

SEAT No. : ____

PD3759

[Total No. of Pages : 2

[6488]-303
S.Y. M.Sc. (Computer Applications)
CA-603 MJ: SOFTWARE ENGINEERING
(2023 Credit Pattern) (Semester - III)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Attempt/solve any three questions from Q 2 to Q.5.***
3) ***Q.2 to Q.5 Carry Equal Marks.***
4) ***Figures to the right indicates full marks.***

Q1) Solve any five of the following : **[5]**

a) Define software quality.

b) What is Decision Tree

c) State the limitations of SDLC.

d) Define Sprint.

e) What is Inception.

f) What is process model.

Q2) Attempt the following : **[10]**

a) Explain any two types of coupling. **[2]**

b) Explain iterative process model. **[4]**

c) Write a short note on questionnaire. **[4]**

Q3) Attempt the following : **[10]**

a) Which phases are included in validation phase in V and V model? **[2]**

b) List and explain any four tasks involved in Requirement Analysis. **[4]**

c) Write a short note on Extreme Programming values. **[4]**

P.T.O.

Q4) Attempt the following : **[10]**

a) Which are the popular agile methodologies. **[2]**

b) Why there is need of software engineering. **[4]**

c) Write the advnatages and disadvantages of DFD. **[4]**

Q5) Attempt any two of the following : **[10]**

a) Explain the characteristics of software in detail. **[5]**

b) Explain the steps in Prototyping Model. **[5]**

c) Draw context level and first level DFD for "Airline Reservation System". **[5]**

Total No. of Questions : 5]

SEAT No. :

PD3760

[Total No. of Pages : 2

[6488]-304
S.Y. M.Sc. (Computer Applications)
CA-610-MJ : MOBILE APPLICATION DEVELOPMENT
(2023 Credit Pattern) (Semester - III)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Questions from 2 to 5 carry equal marks.***
4) ***Figures to the right indicate full marks.***

Q1) Solve any 5 of the following : **[5]**

a) What is the role of Dalvik in Android development?

b) Differentiate between Implicit and Explicit Intent.

c) Define the term thread.

d) List different methods used in SQ Lite.

e) What are the main advantages of React JS?

f) Which built in method is used to display zoom controls on Google maps?

Q2) Attempt the following : **[10]**

a) State the purpose of Image Switcher. **[2]**

b) Explain Android Architecture in detail. **[4]**

c) What is menu? Explain different types of menus with example. **[4]**

Q3) Attempt the following : **[10]**

a) List any two React JS Tools. **[2]**

b) What is Adapter? Explain different types of adapter. **[4]**

c) Create a Android application which read a number from the user and display factorial value in another activity. **[4]**

P.T.O.

Q4) Attempt the following : **[10]**

a) What are stateless component in React. JS? **[2]**

b) How to create database in SQLite? Explain with example. **[4]**

c) Write a Java Android program to create a push button by implementing onclicklistener. **[4]**

Q5) Attempt any two of the following : **[10]**

a) Write five arguments of the send text message method. **[5]**

b) Write a short note on runOnUiThread. **[5]**

c) Explain AsyncTask with example. **[5]**

Total No. of Questions : 5]

SEAT No. :

PD3761

[Total No. of Pages : 2

[6488]-305
S.Y. M.Sc. (Computer Applications)
CA-612-MJ : SOFTWARE TESTING
(2023 Credit Pattern) (Semester - III)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Questions from 2 to 5 carry equal marks.***
4) ***Figures to the right indicate full marks.***

Q1) Solve any 5 of the following : **[5]**

a) Black box testing is known as glass box testing. Justify T/F.

b) Define cyclomatic complexity.

c) List levels of testing.

d) Define the term errors.

e) What is stub?

f) Write a goal of unit testing.

Q2) Attempt the following : **[10]**

a) What is test case? Explain with example. **[2]**

b) What is defect life cycle? Outline the stages. **[4]**

c) Differentiate between test case design and test plan. **[4]**

Q3) Attempt the following : **[10]**

a) What are the types of functional software testing? **[2]**

b) Explain different levels of bug severities. **[4]**

c) Describe the use of website testing. **[4]**

P.T.O.

Q4) Attempt the following : **[10]**

a) Define test data. Why is it important? **[2]**

b) Differentiate between black box testing and white box testing. **[4]**

c) Compare verification & validation. **[4]**

Q5) Attempt any two of the following : **[10]**

a) Explain the concept of equivalence partitioning and how it is used in black box testing? **[5]**

b) Discuss importance of cause effect graph. **[5]**

c) Explain testing life cycle. **[5]**

Total No. of Questions : 5]

SEAT No. : ____

PD3762

[Total No. of Pages : 2

[6488]-401

S.Y.M.Sc. (Computer Application)

CA-660-A MJ : MANAGEMENT INFORMATION SYSTEM

(2023 Credit Pattern) (Semester - IV)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Q.2 to Q.5 carry equal marks.***
4) ***Figure to the right indicates full marks.***

Q1) Solve any 5 of the following: **[5]**

a) State the different types of information systems.

b) What is BPR?

c) List the various components of GDSS.

d) Give any one example of Explicit knowledge.

e) Write any two important properties of Data Warehousing.

f) Define MIS.

Q2) Attempt the following: **[10]**

a) What is Marketing MIS? **[2]**

b) Discuss the need of Information systems. **[4]**

c) Explain what if analysis. **[4]**

P.T.O.

Q3) Attempt the following: **[10]**

a) Write the different modes of knowledge conversion. **[2]**

b) Explain advantages and disadvantages of BPR. **[4]**

c) State various characteristics of MIS. **[4]**

Q4) Attempt the following: **[10]**

a) List the processes involved in BPR. **[2]**

b) With neat diagram explain architecture of data warehouse. **[4]**

c) Discuss various types of Decision support systems. **[4]**

Q5) Attempt any two of the following: **[10]**

a) Write a short note on MIS in Banking. **[5]**

b) Compare and contrast MIS and RDBMS. **[5]**

c) What are various benefits of DSS? **[5]**

Total No. of Questions : 5]

SEAT No. :

PD3763

[Total No. of Pages : 2

[6488]-402
S.Y.M.Sc.(Computer Applications)
CA-661-A-MJ : DIGITAL MARKETING
(2023 Credit Pattern) (Semester - IV)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Questions from Q.2 to Q.5 carry equal marks.***
4) ***Figure to the right indicates full marks.***

Q1) Solve any five of the following: **[5]**

a) What distinguishes traditional marketing from digital marketing?

b) List any two names used in mobile marketing.

c) What does the term “Ad Rank” refer to?

d) What is the purpose of using dashboards in Digital Analytics?

e) What does ‘on-page SEO’ refer to?

f) Which social media platform uses “Stories” and “3D posts” for marketing.

Q2) Attempt the following: **[10]**

a) What are the advantages of investing in search Engine Advertising? **[2]**

b) Explain the steps involved in setting goals and formulating strategies for social media marketing. **[4]**

c) Write a short note on the role of performance reports and mobile marketing models in optimizing compaigns. **[4]**

P.T.O.

Q3) Attempt the following: **[10]**

a) Define social media marketing and Explain why active listening is crucial for brands? **[2]**

b) Explain the key phases of an SEO audit, discussing both on-page and off-page optimization. **[4]**

c) Write a short note comparing organic and paid marketing approaches on platform such as Facebook and Linkedin? **[4]**

Q4) Attempt the following: **[10]**

a) Write primary objective of search Engine optimization? **[2]**

b) Explain how Ad ranking influence the success of a Google Ad's Campaign? **[4]**

c) Explain the role of video marketing in digital strategy. How is video analytics used to assess it's success? **[4]**

Q5) Attempt any two of the following: **[10]**

a) What is an attribution model in digital marketing? Compare any two types of attribution models with examples. **[5]**

b) Describe the importance of data collection and highlight two key metrics used in digital analytics. **[5]**

c) Write a short note on the use of Twitter. Instagram and Pinterest in digital marketing. Highlignt one key feature or advantages of each platform?**[5]**

Total No. of Questions : 5]

SEAT No. : ____

PD3764

[Total No. of Pages : 2

[6488]-403

S.Y.M.Sc. (Computer Applications)

CA662B MJ : ERP

(2023 Credit Pattern) (Semester -IV)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is Compulsory.***
2) ***Solve any three questions from Q2. to Q5.***
3) ***Questions from Q.2 to Q.5. carry equal marks.***

Q1) Solve any 5 of the following. **[5]**

a) What is OLAP?

b) Mention the first step in ERP planning.

c) Explain legacy system in ERP migration.

d) Define data migration.

e) What is SOA in the context of ERP?

f) Give the definition of Business Intelligence.

Q2) Attempt the following. **[10]**

a) Differentiate between ERP and E-business. **[2]**

b) Illustrate the Business Analytics. **[4]**

c) Explain the stages of ERP implementation life cycle. **[4]**

Q3) Attempt the following. **[10]**

a) List any two types of ERP deployment model. **[2]**

b) How to manage ERP after GO Live? **[4]**

c) Compare traditional ERP deployment with the ASP model. **[4]**

P.T.O.

Q4) Attempt the following. **[10]**

a) What is meant by a "Performance Surprise" in ERP Projects? **[2]**

b) Describe the major risk factors associated with ERP implementation. **[4]**

c) Discuss the process of evaluating and selecting an ERP package. **[4]**

Q5) Attempt any two of the following: **[10]**

a) Write a note on Business Intelligence. **[5]**

b) Explan Application service provider model for ERP implementation. **[5]**

c) Briefly discuss cloud based ERP. **[5]**

Total No. of Questions : 5]

SEAT No. : ____

PD3765

[Total No. of Pages : 2

[6488]-404
S.Y.M.Sc.
COMPUTER APPLICATION
CA-663B-MJ : Information Security
(2023 Credit Pattern) (Semester -IV)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is Compulsory.***
2) ***Solve any three questions from Q2. to Q5.***
3) ***Questions from Q.2 to Q.5 carry equal marks.***

Q1) Solve any 5 of the following. **[5]**

a) What are the three main goals of information security?

b) Define "confidentiality" in the context of information security.

c) Name one type of Flooding attack.

d) What is primality testing methods.

e) Give the definition of cyber crime?

f) Find the output size of SHA-256 in bit?

Q2) Attempt the following. **[10]**

a) Explain one tool used for password cracking? **[2]**

b) Compare & contrast passive & active security attacks with examples. **[4]**

c) Explain the key generation process in the RSA algorithm. **[4]**

Q3) Attempt the following. **[10]**

a) State Euler's Theorem. **[2]**

b) Define honeypot? Explain the difference between a host-based honey pot and network based honey pot. **[4]**

c) What is the purpose of Primality testing? Name & briefly describe any two methods. **[4]**

P.T.O.

Q4) Attempt the following. **[10]**

a) Simplify the purpose of proxy server in network security? **[2]**

b) What is HTTPS? How does it ensure secure communication over the web? **[4]**

c) Explain key loggers & spy ware? **[4]**

Q5) Attempt any two of the following. **[10]**

a) Describe the basic steps involved in generating and verifying a digital signature. **[5]**

b) Discuss the general structure and purpose of MACs. **[5]**

c) What is a Virtual Private Network? Discuss how it ensures secure communication over an insecure network. **[5]**