

Total No. of Questions : 7]

SEAT No. :

PE-4838

[Total No. of Pages : 2

[6522]-1
First Year M.Sc.
COMPUTER APPLICATION
CA-501-MJ: Database Systems and SQL
(2023 Credit Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

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

Q1) Attempt any Five of the following :

[5 × 2 = 10]

- a) Explain primary key and foreign key.
- b) Enlist types of relationships in SQL.
- c) What is Entity and Attribute?
- d) Explain the use of COUNT () with example
- e) What is File? Enlist types of file
- f) What is Generalization? Give Example

Q2) Attempt all of the following :

[3 × 4 = 12]

- a) State the Applications of DBMS in details.
- b) What is Trigger? Explain with syntax.
- c) Explain the following aggregate functions:
 - i) SUM ()
 - ii) MIN ()

Q3) Attempt all of the following :

[3 × 4 = 12]

- a) Explain ERD. Which symbols are used to draw an ERP?
- b) What are the functions of Database Administrator?
- c) List and explain any two DML commands with example.

Q4) Attempt all of the following :

[3 × 4 = 12]

- a) Explain Basic structure of SQL with example.
- b) Define Specialization and Generalization with example.
- c) Differentiate between Triggers and Assertions.

P.T.O.

Q5) Attempt all of the following :

[3 × 4 = 12]

- a) What are the functions of Database Administrator?
- b) Write a PL/SQL block which accept a mobile number from user. If mobileno less than or more than 10 digits then raise a user defined exception “Invalid_Mobile No” otherwise display the “Correct input...!”
- c) **Consider the following Entities and Relationships and solve the queries:**
Customer (cust_no, cust_name, address, city)
Loan (loan_no, loan_amt)
Relation between Customer and Loan is Many to Many.
 - List all customers whose name starts with ‘sa’.
 - Display customer details having maximum loan amount.

Q6) Attempt all of the following :

[3 × 4 = 12]

- a) What is Exception? Explain types of exception with example.
- b) **Consider the following Entities and Relationships and solve the queries:**
Property (pno, desc, area, rate)
Owner (owner_name, addr, phno)
Relation between owner and Property is One to Many.
Constraint: Primary key.
 - Display property owned by ‘Mr.Patil’ having minimum rate.
 - Update the phone Number of “Mr Talure” to 9923323366.
- c) **Consider the following Entities and Relationships and solve the queries:**
Room (roomno, desc, rate)
Guest (gno, gname, no_of_days)
Relation between Room and Guest is One to One.
- d) Find the names of guest who has allocated room for more than 3 days.
- e) Display total amount for NON-AC rooms.

Q7) Write short notes on any two of the following :

[2 × 6 = 12]

- a) Define Natural join and Cartesian product with example.
- b) Define Cursor and its types.
- c) Define Architecture of DBMS.



Total No. of Questions : 7]

SEAT No. :

PE-4839

[Total No. of Pages : 2

[6522]-2

F.Y. M.Sc.

COMPUTER APPLICATION

CA - 502 MJ : Python Programming and Data Structure
(2023 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 Q.2 to Q.7 carry equal marks.

Q1) Solve any 5 of the following :

[5 × 2 = 10]

- a) List any two functions in math module?
- b) What is the difference between pop () and del in list.
- c) Compare list and tuple.
- d) List the syntax for handling exception?
- e) What is the use of array slicing?.
- f) Write code to print the elements of the list `l1 = [10, 20, 30, 40, 50]`

Q2) Attempt the following.

[3 × 4 = 12]

- a) Write down the Array Operations
- b) Explain Doubly Linked List and write down its function, insert, delete, reverse.
- c) Explain Breadth First Search

Q3) Attempt the following.

[3 × 4 = 12]

- a) Write a program to accept a string from user and display the string in reverse order eliminating the letter 's' from the string.
- b) Write a program to raise a user defined exception to check if age is less than 18.
- c) Explain Merge sort.

Q4) Attempt the following.

[3 × 4 = 12]

- a) What is an anonymous function? How to create it? Explain with example.
- b) What are the usage of dictionary copy(), gets(), items() and keys() methods.
- c) Write a Python function that accepts a string and counts the number of upper and lower case letters.

P.T.O.

Q5) Attempt the following.

[3 × 4 = 12]

- List features of Python.
- Write a Python program to extract year, month, date and time using Lambda.
- Write python program for insert node at start position of Linked List.

Q6) Attempt the following.

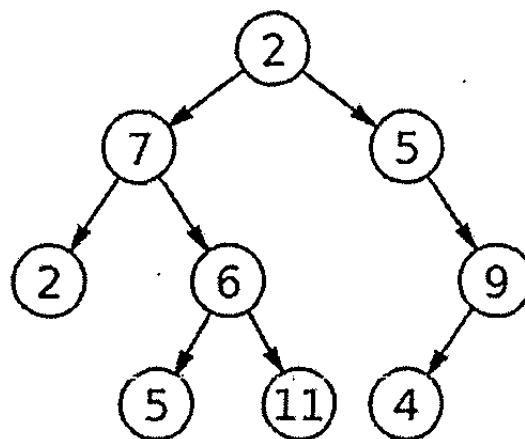
[3 × 4 = 12]

- Explain the following loops with example if.b) if else e) break d) continue
- How to convert prefix to postfix Expression of $A * B + C * D$.
- Write a program to display power of 2 upto a given number using anonymous function

Q7) Attempt any two of the following.

[2 × 6 = 12]

- What is stack? Write python program for stack using list.
- What is BST? How to convert inorder to postorder.
- Write the elements in inorder, preorder and postorder traversal of the following Binary Search Tree.



Total No. of Questions : 5]

SEAT No. :

PE-4840

[Total No. of Pages : 2

[6522]-3
F.Y.M.Sc. (Computer Application)
CA-503-MJ : OPERATING SYSTEMS
(2023 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 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve any 5 of the following:

[5]

- a) What is system call?
- b) List any four file attributes.
- c) What is swapping?
- d) Define Dynamic Loading.
- e) What is Fragmentation?
- f) Define Multithreaded Programming.

Q2) Attempt the following:

- a) Explain any two file allocation methods. **[2]**
- b) What are the various File Operations? Explain in detail. **[4]**
- c) Explain the difference between Logical and physical address space? **[4]**

Q3) Attempt the following:

- a) What is Directory? Explain different levels of directory. **[2]**
- b) Explain the deadlock detection technique- **[4]**
 - i) Single instance of each resource type.
 - ii) Several instance of a resource type.
- c) Explain the difference between paging and segmentation. **[4]**

P.T.O.

Q4) Attempt the following:

- a) List the condition that leads to deadlock. [2]
- b) What are the different Accessing Methods of a File? Explain in detail. [4]
- c) Explain the Scheduling algorithm: [4]
 - i) FCFS
 - ii) SJF

Q5) Attempt any two of the following:

- a) What is process? Draw & explain in detail process transition diagram of process. [5]
- b) Explain the following: [5]
 - i) Multiple Queues Scheduling
 - ii) Multilevel Feedback Queues Scheduling.
- c) Explain Banker's Algorithm in detail. [5]



Total No. of Questions : 5]

SEAT No. :

PE-4841

[Total No. of Pages : 2

[6522]-4
M.Sc. (Computer Application)
CA-510A-MJ: JAVA PROGRAMMING
(2023 Credit Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates :

- 1) Question No. 1 is Compulsory.
- 2) Solve any three Questions from Q2 to Q5.
- 3) Questions 2 to 5 carry equal Marks.

Q1) Solve any 5 of the following.

[5]

- a) Define “super” keyword.
- b) Explain the use of package in java.
- c) Which component is used to compile, debug and execute the java programs?
- d) Explain Inheritance with its types.
- e) Explain the use of JVM.
- f) What is MVC architecture?

Q2) Attempt the following:

[10]

- a) What is Hash Map? **[2]**
- b) What is the difference between String and StringBuffer? **[4]**
- c) Write a java program to check whether given number is armstrong or not. **[4]**

P.T.O.

Q3) Attempt the following. [10]

- a) What is the use of abstract class? [2]
- b) Write a program to create a set using Collections Framework. Store names of five countries in the set and then display them. [4]
- c) Explain access specifiers with its use in java. [4]

Q4) Attempt the following: [10]

- a) What is dialogs? [2]
- b) Explain keyboard and mouse event handling in Java. [4]
- c) What is package? Explain how we can use it in Java. [4]

Q5) Attempt any two the following: [10]

- a) How we can create user defined exception in java:
- b) What is meant by method overloading? Illustrate with a suitable example.
- c) Explain garbage collection with use and an example.



Total No. of Questions : 5]

SEAT No. :

PE-4842

[Total No. of Pages : 2

[6522]-5

**F.Y. M.Sc. (Computer Application)
CA - 512B MJ : CLOUD COMPUTING
(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 5 of the following.

[5]

- a) What is cloud infrastructure management?
- b) What is a hybrid cloud?
- c) What is EBS?
- d) Define Multi-cloud.
- e) Which cloud platform is provided by Microsoft?
- f) Grid Computing Means what?

Q2) Attempt the following:

[10]

- a) Write a note on Azure App service. **[2]**
- b) What are the advantages & disadvantages of IaaS Services? **[4]**
- c) What is security governance? Explain its key objective to pursue a governance model for security in the cloud? **[4]**

P.T.O.

Q3) Attempt the following: [10]

- a) What is the role of Kubeproxy in slave nodes? [2]
- b) What are the application hosting options in Microsoft Azure? [4]
- c) List & define the services offered by Amazon Web Services. [4]

Q4) Attempt the following: [10]

- a) Write a note on Amazon Quantum ledger Database. [2]
- b) Explain a seven step model of the migration process? [4]
- c) Explain the challenges imposed by Multi cloud Environment. [4]

Q5) Attempt any two the following: [10]

- a) Describe the role of cloud for Backup and Recovery. [5]
- b) Explain the Component Node (Slave) in Kubernetes architecture. [5]
- c) Explain a seven step model of the migration process? [5]



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SEAT No. :

PE-4843

[Total No. of Pages : 2

[6522]-6

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

CA-531-RM: RESEARCH METHODOLOGY

(2023 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 2 to Q. 7 carry equal marks.*

Q1) Solve any five of the following :

[10]

- a) What is Quantitative Analysis?
- b) Describe Null Hypothesis with example.
- c) What is Primary Data? Give two examples of Primary Data.
- d) Describe Inductive Logic?
- e) What do you mean by Descriptive Research?
- f) Describe Historical Research with example.
- g) What is Plagiarism? Write names of any 2 plagiarism tools.

Q2) Attempt all :

[12]

- a) What is Hypothesis? Explain various types of hypothesis in detail? **[4]**
- b) Define research? Explain characteristics of good research. **[4]**
- c) Explain various measures of Central tendency. **[4]**

P.T.O.

Q3) Attempt all : [12]

- a) Explain in detail various types of Research? [4]
- b) What are various types of Data? Write its characteristics? [4]
- c) Explain various probability sampling methods? [4]

Q4) Attempt all : [12]

- a) What is Sampling? Explain characteristics of good sample? [4]
- b) What are the restrictions in research can be faced by researchers? [4]
- c) Write about any three visual aids of quantitative data analysis? [4]

Q5) Attempt all : [12]

- a) Explain in detail steps of Scientific Research? [4]
- b) What is questionnaire? Explain various types of questionnaire? [4]
- c) Write distinction between qualitative and quantitative data analysis? [4]

Q6) Attempt all : [12]

- a) What is observation? What are various methods of observation? [4]
- b) Write various methods or ways of plagiarism? [4]
- c) Write distinction between scientific and Non-scientific method? [4]

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

- a) Explain in detail various literature resources? [6]
- b) What is primary data? What are advantages of primary data? [6]
- c) What are the importance of formulating Research Problem? [6]



Total No. of Questions : 7]

SEAT No. :

PE-4844

[Total No. of Pages : 2

[6522]-21

F.Y. M.Sc.

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 five questions from Q.2 to Q. 7.
- 3) Questions Q.2 to Q.7 carry equal marks.

Q1) Attempt any Five of the following.

[5 × 2 = 10]

- a) What is CSS?
- b) Define class and object?
- c) What is \$ SERVER variable?
- d) What is the use of echo () in PHP?
- e) What is Encapsulation?
- f) List any four tags used in html.

Q2) Attempt all of the following.

[3 × 4 = 12]

- a) How can you insert inline style sheet in the HTML document? Discuss with example.
- b) Write Difference between GET and POST method.
- c) Write the JavaScript to calculate sum of 5 subjects and find percentage.

Q3) Attempt all of the following.

[3 × 4 = 12]

- a) Compare between indexed array and Associative arrays in PHP
- b) Explain print-r() and var-dump() in php.
- c) Write HTML code to display a simple form for student registration with S name, S mobile.No, S address, Username and password to login.

Q4) Attempt all of the following.

[3 × 4 = 12]

- a) What is an event in JavaScript? Explain any three types of events with examples.
- b) Explain the steps involved in establishing a connection to a MySQL database using PHP.
- c) Write a PHP script to Design a form to accept a number from the user to check whether number is Even or Odd. (Use the concept of self-processing page)

P.T.O.

Q5) Attempt all of the following.

[3 × 4 = 12]

- a) Define a script. Differentiate between client-side and server-side scripting languages with examples.
- b) Describe the basic structure of an XML document. Include elements, attributes, and nesting.
- c) Divide a screen in four equal part. Each frame shows: list of different activities conducted by your department.

Q6) Attempt all of the following.

[3 × 4 = 12]

- a) Write a PHP program to print factorial of a number.
- b) Write HTML code which generates the following output and display each element of list in different font, size. Use external CSS to format the list.
 - i) Arts
BA
MA
 - ii) Commerce
B.Com
M.Com
 - iii) Science
B.Sc.
M.Sc.
- c) What is a string object in Java Script? How to concatenate strings in Javascript?

Q7) Write short notes on any two of the following.

[2 × 6 = 12]

- a) Sticky Forms.
- b) Types of Websites
- c) DOM



Total No. of Questions : 7]

SEAT No. :

PE-4845

[Total No. of Pages : 2

[6522]-22
First Year M.Sc.
COMPUTER APPLICATION
CA-552-MJ: Introduction To Data Science
(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 Q.7 carry equal marks.*

Q1) Attempt any Five of the following :

[5 × 2 = 10]

- a) Define data science.
- b) Define Outlier.
- c) Define Data Visualization.
- d) Define Data Attribute.
- e) What is One hot encoding.
- f) List any two Social Media data sources.

Q2) Attempt all of the following :

[3 × 4 = 12]

- a) Explain 3V's of data science with diagram.
- b) What is data cleaning. Explain any two data cleaning method.
- c) Explain different strategies of data transformation.

Q3) Attempt all of the following:

[3 × 4 = 12]

- a) Explain Data Cube in detail.
- b) Explain in detail Data Similarity and Dissimilarity.
- c) What is Exploratory data analysis.

Q4) Attempt all of the following :

[3 × 4 = 12]

- a) Explain lifecycle of data science.
- b) Explain data visualization libraries of Python.
- c) What is Hypothesis testing. Explain with example.

P.T.O.

Q5) Attempt all of the following :

[3 × 4 = 12]

- a) What is Venn diagram? How to create it? Explain with example.
- b) Distinguish between structured and unstructured data.
- c) Write a R program to create a list containing a vector, a matrix and a list and give names to the elements in the list. Access the first and second element of the list.

Q6) Attempt all of the following :

[3 × 4 = 12]

- a) Calculate the mean, mode, median, range for the following data
X : 24, 29, 24, 25, 24, 27, 25, 32, 24
- b) What are different sources of data in data science? Explain in detail.
- c) Explain Data Wrangling Operations in detail.

Q7) Write short notes on any two of the following :

[2 × 6 = 12]

- a) Data Discretization.
- b) Data cube aggregation.
- c) Types of Inferential Statistics.



Total No. of Questions : 5]

SEAT No. :

PE-4846

[Total No. of Pages : 2

[6522]-23
M.Sc. (Computer Application)
CA-553-MJ : COMPUTER NETWORKS
(2023 Pattern) (Semester - II)

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 simplex transmission?
- b) Give one example of line coding scheme.
- c) Define framing.
- d) Define subnetting.
- e) What is HTTP?
- f) What is fragmentation?

Q2) Attempt the following:

- a) List any two features of IPv6. **[2]**
- b) Explain the types of data flow with examples. **[4]**
- c) Describe different classes of IPv4 addressing. **[4]**

Q3) Attempt the following:

- a) Define channelization. List its types. **[2]**
- b) Compare LAN, MAN and WAN. **[4]**
- c) Describe the working of web-based email using SMTP. **[4]**

P.T.O.

Q4) Attempt the following.

- a) Differentiate between TCP and UDP. [2]
- b) Compare IPv4 and IPv6 in detail. [4]
- c) Explain multiplexing and its types. [4]

Q5) Attempt any two of the following.

- a) Discuss different types of transmission modes. [5]
- b) Compare serial and parallel transmission with diagrams. [5]
- c) Explain Error control in Data Link Layer. [5]



Total No. of Questions : 5]

SEAT No. :

PE-5772

[Total No. of Pages : 2

[6522]-24
M.Sc. (Computer Application)
CA 560A MJ : Advanced Java Programming
(2023 Pattern) (Semester - II)

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 2 to Q5 carry equal marks.

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

- a) What is callable Statement?
- b) What is Synchronization?
- c) Write names of JSP Directives.
- d) What is JDBC in Java?
- e) What is Protocol?
- f) What is ORM?

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

- a) Define JDBC Driver **[2]**
- b) Explain the thread priorities with an example. **[4]**
- c) Explain JSP tags with example. **[4]**

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

- a) What is Thread? **[2]**
- b) Explain the difference between TCP/IP and UDP. **[4]**
- c) Write down the difference between Get () and post () method. **[4]**

P.T.O.

Q4) Attempt the following. [10]

- a) Explain use of socket class. [2]
- b) Explain HTTP Request and HTTP Response. [4]
- c) Write a Java program to display all the Ename from Emp table. Assume Emp(Eno,Ename,Salary) table is created. [4]

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

- a) Write a java program to receive UDP Packet. [5]
- b) What is session tracking? What are the different ways of Session tracking in servlet. [5]
- c) Explain the lifecycle of JSP in detail [5]



Total No. of Questions : 5]

SEAT No. :

PE-5412

[Total No. of Pages : 2

[6522]-25
M.Sc. (Computer Application)
CA 562 B MJ: C#.NET
(2023 Pattern) (Semester - II)

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) List any two control structures in VB.NET.
- b) What is an access modifier?
- c) List any two ASP.NET server controls.
- d) What is a Master Page in ASP.NET?
- e) Define Data Reader function
- f) Define data types in VB.NET.

Q2) Attempt the following:

- a) What is the use of Timer control in Windows Forms? **[2]**
- b) Explain Input Box () and Msg Box () with syntax and example. **[4]**
- c) Design a small MVC application and explain its components **[4]**

Q3) Attempt the following:

- a) What is a Data Set in ADO.NET? **[2]**
- b) Write a function in C# that returns a string. **[4]**
- c) Explain the architecture of ASP.NET. **[4]**

P.T.O.

Q4) Attempt the following:

- a) Differentiate between server controls and client controls. [2]
- b) Describe data binding with Data grid view including insert, update, delete operations. [4]
- c) Design a basic ASP.NET form using four different controls and describe each. [4]

Q5) Attempt the following:

- a) Write a note on Inheritance. [5]
- b) Write a note on method overloading and overriding with proper examples. [5]



Total No. of Questions : 7]

SEAT No. :

PE-4848

[Total No. of Pages : 2

[6522]-31

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

Q1) Solve any Five of the following :

[5 × 2 = 10]

- a) What are the key components of an AI system?
- b) What is Rational agents?
- c) What is Game Theory?
- d) What are stochastic games?
- e) What is knowledge representation in AI?
- f) Define Ontological Engineering.

Q2) Attempt all of the following :

[3 × 4 = 12]

- a) Explain informed search with AND-OR graph in detail.
- b) Explain the architecture of an intelligent agent with a suitable daigram.
- c) Explain the concept of backward chaining with an Example.

Q3) Attempt all of the following:

[3 × 4 = 12]

- a) Differentiate between Procedural knowledge and declarative knowledge with example.
- b) How is predicate logic used in AI? Provide an example.
- c) Discuss the role of unification in first-order Inference with a suitable example.

P.T.O.

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

- a) Discuss how events are represented and Reasoned about in AI system.
- b) What is the process of converting logical statements into clause form?
- c) Describe the concept of rationality in AI. How is it measured in intelligent agents?

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

- a) What are mental objects and how are they Represented in modal logic.
- b) What are the limitations of AI in game search algorithm?
- c) Discuss the monte Carlo Tree search and its significance in game playing AI.

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

- a) Translate the following statements into First Order Predicate Logic (FOPL)
 - i) Jisa likes all kind of Food.
 - ii) Grapes and Vegitable are Food.
 - iii) Anything anyone eats and not killed is Food.
 - iv) Neha eats almonds and still alive.
- b) Describe AO* search and its application in problem-solving.
- c) Differentiate between informed and uniformed search with the help of examples.

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

- a) Define Constraint Satisfication Problem (CSP). How CSP is formulated as search problem.
- b) Compare and constrast Breadth-First search and Depth-First search with examples.
- c) Consider the following English statements.
 - i) If a triangle PQR is equilateral then it is isosceles.
 - ii) If a triangles is isosceles then two sides PQ and PR are equal.
 - iii) If two sides PQ and PR are equal then angle Q and angle R are equal.
 - iv) PQR is equilateral triangle.

Convert the above statements in propositional logic and using Resolution prove that angle to angle R.

Total No. of Questions : 7]

SEAT No. :

PE-4849

[Total No. of Pages : 3

[6522]-32

S.Y. M.Sc.

COMPUTER APPLICATION

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) Question from Q.2 to Q.7 carry equal marks.

Q1) Solve any five of the following :

[10]

- a) Define machine learning. List the different models of machine learning.
- b) What is Logistic Regression?
- c) State the meaning of MSE.
- d) Define Recall.
- e) Give the types of outliers.
- f) What is ANN?

Q2) Attempt the following :

[12]

- a) Compare machine learning with traditional programming.
- b) Explain Elbow method.
- c) What are the components of ANN?

Q3) Attempt the following :

[12]

- a) Discuss multiple linear Regression.
- b) Illustrate One vs One (OVO) types of multiclass classification.
- c) Describe the architecture of Artificial Neural Network.

P.T.O.

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

- a) Write any two models of machine learning.
- b) Explain the Bagging in details.
- c) Describe DBSCAN method.

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

- a) Give any four applications of machine learning.
- b) Consider the following data set. Find out whether the object with attribute confident = Yes, Sick = No will Fail or Pass using Bayesian classification.

Confident	Studied	Sick	Result
Yes	No	No	Fail
Yes	No	Yes	Pass
No	Yes	Yes	Fail
No	Yes	No	Pass
Yes	Yes	Yes	Pass

- c) Write a short note on Random forest algorithm.

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

- a) Find the line of best fit for the following data points using the least square method :
 $(x, y) = (1, 3), (2, 4), (4, 8), (6, 10), (8, 15).$
- b) Consider the data divide into clusters using k-medoids with $k = 2$.

	X	Y
0	8	7
1	3	7
2	4	9
3	9	6
4	8	5
5	5	8
6	7	3
7	8	4
8	7	5
9	4	5

- c) What are the advantages of ANN?

Q7) Attempt the following :

[12]

- a) What are the different types of machine learning?
- b) Discuss the cross - validation.
- c) Differentiate between partitional clustering and hierarchical clustering.



Total No. of Questions : 5]

SEAT No. :

PE-4850

[Total No. of Pages : 2

[6522]-33

S.Y. M.Sc.

COMPUTER APPLICATIONS

**CA-603-MJ: Software Engineering
(2023Pattern) (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) *Question 2 to Q.5 carries equal marks.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve any Five of the following :

[5]

- a) Define software engineering.
- b) List the activities of SDLC.
- c) What is Decision Table?
- d) List two phases of Adaptive Software Development Life Cycle.
- e) Define specification.
- f) State the names of layers of software engineering.

Q2) Attempt the following :

- a) Enlist the objectives of Input Design. **[2]**
- b) Write a short note on feasibility study. **[4]**
- c) Explain the generic-process model. **[4]**

Q3) Attempt the following :

- a) State two advantages of Incremental model. **[2]**
- b) Explain any four principles of Agile Process. **[4]**
- c) Differentiate between structured and unstructured interview. **[4]**

P.T.O.

Q4) Attempt the following :

- a) Define Agility. [2]
- b) What is Data Dictionary? Explain the importance of Data Dictionary.[4]
- c) Explain four Umbrella Activities. [4]

Q5) Attempt any two of the following :

- a) Differentiate between verification and validation. [5]
- b) Explain general principles of software engineering. [5]
- c) Draw context level and first level DFD for "Hostel Management system".[5]



Total No. of Questions : 5]

SEAT No. :

PE-4851

[Total No. of Pages : 2

[6522]-34
S.Y. M.Sc.
COMPUTER APPLICATIONS
CA-610 MJ: Mobile Application Development
(2023 Pattern) (Semester - III)

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 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve any five of the following :

[5]

- a) List the components of Android Application.
- b) What is Toast? Write its syntax.
- c) Define content provider.
- d) List different layouts in Android.
- e) What is key props in lists of React. JS
- f) Define the term cursor in SQLite.

Q2) Attempt the following :

- a) What is difference between AsyncTask and Thread. **[2]**
- b) What is Activity? Explain Activity life cycle. **[4]**
- c) Explain different methods which are overridden while implementing an option menu in activity. **[4]**

P.T.O.

Q3) Attempt the following :

- a) List the components of React. [2]
- b) Explain Array Adapter with the help of example. [4]
- c) Create a Android application which read a number from the user and display sum of digits in another activity. [4]

Q4) Attempt the following :

- a) What are stateful component in React.JS [2]
- b) Write a short note on Broadcast receiver. [4]
- c) Write an Android application to send E-mail (using to, subject, message) with following view [4]

The image shows a simple Android application layout for sending an email. It consists of a container box with the following elements:

- A text label "To" above a rectangular text input field.
- A text label "Subject" above another rectangular text input field.
- A text label "Message" above a third, slightly wider rectangular text input field.
- A rectangular button labeled "Send" positioned below the "Message" input field.

Q5) Attempt any two of the following :

- a) Explain the syntax with example. [5]
 - i) Text Field
 - ii) Radio Button
 - iii) Check Box
- b) Explain any five features of Location Manager. [5]
- c) Explain Bound and unbound services with example. [5]



Total No. of Questions : 5]

SEAT No. :

PE-4852

[Total No. of Pages : 2

[6522]-35
S.Y. M.Sc. (Computer Application)
CA - 612 -MJ: SOFTWARE TESTING
(2023 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 2 to 5 carry equal marks.
- 4) Figures to right indicate full marks.

Q1) Solve any 5 of the following :

[5]

- a) Define software Testing.
- b) What is white Box Testing?
- c) Why acceptance Testing is important before deployment?
- d) What is the primary goal of Integration Testing.
- e) What is Defect Density Metric?
- f) What is the role of documentation in Testing activity?

Q2) Attempt the following :

[10]

- a) Elaborate the basic difference between verification and validation in software testing **[2]**
- b) What is the importance of code reviews in the context of white Box Testing **[4]**
- c) Discuss the advantages and disadvantages of Black Box Testing **[4]**

P.T.O.

Q3) Attempt the following : [10]

- a) How does system testing differs from Integration testing [2]
- b) Discuss the challenges in white Box Testing [4]
- c) What is Test Automation? Discuss the architecture for Automation. [4]

Q4) Attempt the following : [10]

- a) What is a Test Plan? List its primary objective [2]
- b) What is Boundary Value Analysis? Discuss its importance in Software Testing. [4]
- c) Discuss the testing life cycle in detail [4]

Q5) Attempt the following (Any 2) : [10]

- a) What is a Defect? List and explain the phases of Defect life cycle. [5]
- b) What is Mutation Testing? What are mutants? Discuss the working of mutation testing [5]
- c) What is Regression Testing? What are its types? Discuss the benefits of Regression Testing. [5]



Total No. of Questions : 5]

SEAT No. :

PE-4853

[Total No. of Pages : 2

[6522]-41

S.Y. M.Sc.

COMPUTER APPLICATION

CA-660A MJ : Management Information System
(2023 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) Question 2 to Q5 carry equal marks.
- 4) Figures to the right indicate full marks.

Q1) Solve any five of the following :

[5]

- a) Define Management Information System (MIS).
- b) What does GDSS stand for?
- c) What is the significance of managing information quality in MIS?
- d) What is Business Intelligence?
- e) Define RDBMS.
- f) What is Material Management?

Q2) Attempt the following :

[10]

- a) What is corporate planning? **[2]**
- b) Explain the development of long-range plans for MIS and why they are important? **[4]**
- c) What are the key characteristics and components of Decision Support System? **[4]**

P.T.O.

Q3) Attempt the following : [10]

- a) Explain the role of MIS in Marketing Management in Manufacturing. [2]
- b) Explain architecture and design of Data Warehouse. [4]
- c) Explain different types of analysis supported by DSS. [4]

Q4) Attempt the following : [10]

- a) What are the security issues in E-Business. [2]
- b) Describe the components and architecture of client server systems in MIS. [4]
- c) Explain different functions of the managers. [4]

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

- a) Explain different applications of MIS in the services sector. [5]
- b) Explain the main components of a Data Warehouse (DW). [5]
- c) Explain the essentiality of strategic planning in business and explain different types of Business strategies. [5]



Total No. of Questions : 5]

SEAT No. :

PE-4854

[Total No. of Pages : 2

[6522]-42

S.Y. M.Sc.

COMPUTER APPLICATION
CA-661A MJ : Digital Marketing
(2023 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 2 to 5 carry equal marks.*

Q1) Solve any five of the following :

[5]

- a) What is the role of TikTok in digital marketing?
- b) List any two types of digital marketing.
- c) How can you use social media for marketing?
- d) Define crawling.
- e) What are the most crucial features of an email design?
- f) What is data collection?

Q2) Attempt the following :

- a) What is a light box display Ad? **[2]**
- b) Explain in detail about on-page technique in SEO. **[4]**
- c) What is video marketing? Explain types of video marketing. **[4]**

Q3) Attempt the following :

- a) What is affiliate marketing? **[2]**
- b) How email is used with social media and mobile? **[4]**
- c) How digital marketing is differ from traditional marketing? **[4]**

P.T.O.

Q4) Attempt the following :

- a) List the few disadvantages of digital marketing. [2]
- b) Explain Google Analytics in Brief. [4]
- c) What is mobile marketing? Explain its importance in the digital marketing landscape. [4]

Q5) Attempt any two of the following :

- a) Explain the steps to build a brand with digital marketing. [5]
- b) Explain SEO advertising with example. [5]
- c) What is facebook marketing? Explain the types of facebook marketing. [5]



Total No. of Questions : 5]

SEAT No. :

PE-4855

[Total No. of Pages : 2

[6522]-43

S.Y. M.Sc.

COMPUTER APPLICATION

CA - 662B MJ : ERP

(2023 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) *Figures to the right indicate full marks.*

Q1) Solve any Five of the following :

[5]

- a) Define ERP.
- b) Name any one type of ERP deployment model.
- c) Give the meaning of Data Migration.
- d) Why regular maintenance is important in ERP systems?
- e) What does ASP stand for in the context of ERP Implementation?
- f) State the meaning of OLAP.

Q2) Attempt the following.

[10]

- a) What is Enterprise Application Integration (EAI)? **[2]**
- b) State various characteristics of ERP. **[4]**
- c) Discuss the role of top management commitment in the successful implementation of ERP systems. **[4]**

Q3) Attempt the following.

[10]

- a) With example explain ERP project. **[2]**
- b) Explain any two common strategies used for migrating to a new ERP System. **[4]**
- c) Discuss the significance of integrating ERP systems with e-business applications. **[4]**

P.T.O.

Q4) Attempt the following.

- a) Why is user training important even after the ERP system goes live?[2]
- b) Briefly explain the main phases of the ERP implementation life cycle.[4]
- c) Illustrate the concept of Business Intelligence. [4]

Q5) Attempt any two of the following.

- a) Write a short note on cloud ERP. [5]
- b) In simple words explain Extended ERP service - Customer Relationship management. [5]
- c) Write a short note on understanding organizational requirements for ERP. [5]



Total No. of Questions : 5]

SEAT No. :

PE-4856

[Total No. of Pages : 2

[6522]-44

S.Y. M.Sc.

COMPUTER APPLICATION

CA - 663B MJ : Information Security

(2023 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 Q.2 to Q.5 carry equal marks.
- 4) Figures to the right indicate full marks.

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

- a) What is information security?
- b) What is passive attack?
- c) Define access control?
- d) What is public key cryptography?
- e) Define the use of message Authentication Code?
- f) What is a key logger?

Q2) Attempt the following. [10]

- a) Write advantages of Elliptic curve cryptography over RSA. [2]
- b) Explain in detail OSI security architecture? [4]
- c) State and explain the Chinese Remainder theorem with a suitable example. [4]

Q3) Attempt the following. [10]

- a) What is the use of proxy servers and anonymizers in cybercrime? [2]
- b) Write a short note on clamAv antivirus engine and its use? [4]
- c) Describe the El Gamal encryption algorithm with an example. [4]

P.T.O.

Q4) Attempt the following. [10]

- a) What is the password cracking? List out the methods used for password cracking? [2]
- b) Describe the working of Digital Signature Standard (DSS) with its advantages? [4]
- c) What is PKI? Explain the structure and purpose of an X. 509 certificate? [4]

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

- a) Write a short note on MD4 and MD5 algorithms. [5]
- b) Explain the concept and use of DMZ network? [5]
- c) What are network security scanners? Explain their functions with an example. [5]

