Total No. of Questions : 5]

SEAT No. : ____

PC-3244

[Total No. of Page :3

[6383]-1001
M.C.A. (Management)
IT-11 : PYTHON PROGRAMMING
(2024 Pattern) (Semester -I)

Time : 2½ Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) **Solve any Two :** **[2 × 5 = 10]**

a) Create a dictionary containing any 5 elements in the form of key, value pair, and write python code to perform the following operations on it.

i) To display all the keys.

ii) To add new key value pair.

iii) To delete specific element from the dictionary.

iv) To modify value of a particular key.

b) Write a program which swap every odd - even position character in the string (e.g.Input: 'abcdef' out put: 'badcfe').

c) Write a program to create the separate list by taking the first letter of each word from the original string using list comprehension.

Input list : ['Ajay', 'Vijay', 'Ganesh', 'Paresh', 'Mahesh']

Out put list : ['A', 'V', 'G', 'P', 'M']

d) Write a program to create a set by accepting n elements (0-9 or A-Z or a-z) input from the user.

i) Display the set elements

ii) Length of set

iii) Count number of digits, lowercase letters, upper case letters in a set.

P.T.O.

Q2) **Solve any Two :** **[2 × 5 = 10]**

a) Write a function to accept string from user and it will return reverse each word of string.

b) Write a generator function my - range (start, stop, step) which will accept three arguments as start, stop, and step and generate a given range.

c) Write user defined exception program in python which will find the factorial of a number. If number is less than zero it should raise the exception as 'Invalid Input'.

d) Explain the use of any five functions from the random module with suitable example.

Q3) **Solve any Two :** **[2 × 5 = 10]**

a) Create a class student having attributes 'First Name', 'Last Name', 'Qualification' and methods 'update Qualification', 'Display details', and a constructor to initialize the values. Write main program to demonstrate the use of student class.

b) Describe the concept of Delegation and containership with suitable example.

c) Write a program to validate email address using regular expression.

d) Write a multitreaded program, where one thread prints square of a number and another thread prints cube of numbers. Make use of thread synchronization.

Q4) **Solve any One :** **[1 × 10 = 10]**

a) Write a mongo DB program to create a "Books" collection having fields : Title, Author, Publisher, Price. Write a code to proform following operations :

i) Insert 5 documents into Books collection.

ii) Retrieve books whose publisher is 'pearson'.

iii) Retrieve books whose price is between 400 to 600.

iv) Retrieve books in the descending order of price.

v) Update the price of book by 10% whose title is 'Python'.

vi) Update the title of a book whose author is 'Guido' and publisher is 'BPB'.

vii) Delete books whose price is greater than 500.

b) Write a mongo DB program to create a 'student' collection having fields : Roll No, Name, Course, Marks, Grade point. Write a code to perform following operations:

i) Insert 5 documents into Student collection.

ii) Find students having marks between 80 to 90.

iii) Update name of a student whose roll no.is 5.

iv) Display top 3 students according to their grade points.

v) Display students having highest grade points.

vi) Find all students having course 'MCA'.

vii) Display all student's in the descending order of marks.

Q5) **Solve any Two :** **[2 × 5 = 10]**

a) Design Django web page for student registration to a course and display it.

b) Write a code to send Date and Time from views py to template file.

c) Write a short note on Django Rest Framework (DRF).

d) How do you map a view to a URL in Djargo. Explain with suitable example.

❖ ❖ ❖

Total No. of Questions : 5]

SEAT No. : ____

PC-3245

[Total No. of Pages : 2

[6383]-1002

M.C.A. (Management)

IT - 12 : DATA STRUCTURES AND ALGORITHMS

(2024 Pattern) (Semester - I)

Time : 2½ Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***

Q1) a) Write an algorithm to generate fibonaci series upto 5 number using array elements. **[6]**

b) Explain various 1D array applications. **[4]**

OR

c) Write an algorithm to insert elements at the last position of the list. **[6]**

d) Explain space matrix with example. **[4]**

Q2) a) Write an algorithm to print sum of alternate node elements in doubly linked list. **[6]**

b) Differentiate between Doubly linked list and Circular linked list. **[4]**

OR

c) Write an algorithm to reverse the singly linked list elements. **[6]**

d) Write an algorithm to delete node from beginning in singly linked list. **[4]**

Q3) a) Write an algorithm to perform all operations of Queue using linked list. (Insert, Delete, Peek and Traverse). **[6]**

b) Explain applications of stack with suitable example. **[4]**

OR

c) Convert the given Infix expression to post fix expression.
A+B* (C – D) / (E – F) using stack **[6]**

d) Explain Advantages of Queue over stack. **[4]**

P.T.O.

Q4) a) Create as AVL tree by inserting the values 48, 72, 36, 8, 79, 22, 84, 66. **[6]**

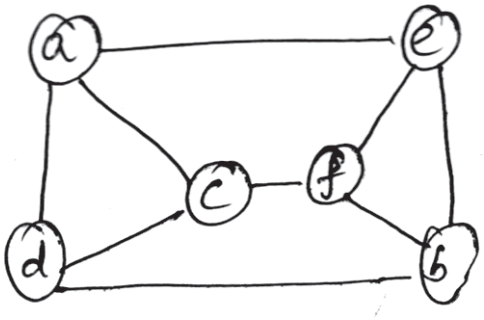
b) Draw a Binary Tree from the given traversal and print its pre-order traversal. **[4]**

Post-order = 4, 5, 2, 6, 3, 1

In-order = 4, 2, 5, 1, 3, 6

OR

c) Apply the BFS Algorithm to traverse the following graph's. **[6]**



d) Construct step-by-step Binary search tree for the following data: 12, 10, 17, 14, 15, 9, 11, 19, 22, 20, 6 **[4]**

Q5) a) Apply Binary search algorithm for the following data:

88, 12, 14, 26, 31, 41, 42, 53, 58, 71 Where search Key = 58 **[6]**

b) Explain Hashing with example. **[4]**

OR

c) Apply Quick Sort Algorithm to sort the given data :

5, 4, 2, 3, 6, 10, 8, 11, 7 **[6]**

d) Explain min heap and max heap with example. **[4]**

▽▽▽▽

Total No. of Questions : 5]

SEAT No. : ____

PC-3246

[Total No. of Pages :2

[6383]-1003

M.C.A. (Part - I)

IT - 13 : ADVANCED DBMS

(2024 Pattern) (Semester - I)

Time : 2½ Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figure to the right side indicates full marks.***

Q1) **Case Study :**

'Marriage place' is an online portal which provides matrimonial services for groom and bride. Interested person need to register online as a member. The members then need to create their profile along with a photograph. Members can specify their expectations about their partners in terms of academic qualilfications, salary, service, age, height, religion and caste along with brief information about family members. The member can subscribe for this service for a period of 3,6 or 12 months by paying respective fees. Member get a list of matches based on their expectations. This portal also provides facilities related to marriage hall, catering services etc.

a) construct the E-R diagram for following case study. **[7]**

OR

Design the normalised database upto 3 NF using above case study (Describe it structured and constraints) **[7]**

b) Attempt any one : **[3]**

i) Describe and explain codd's rule any three.

ii) Explain specialisation with example.

Q2) a) Explain the term transaction with ACID properties. **[5]**

b) Explain concurrency control with time stamp based ordering control. **[5]**

OR

c) What is dead lock? Explain method of Deadlock Handling. **[5]**

d) What is Schedule? Explain its types. **[5]**

P.T.O.

Q3) a) Write Mandatory access control and role-based access control with proper example. **[5]**

b) Explain Shadow paging in details. **[5]**

OR

c) Explain Recovery and Atomicity. **[5]**

d) Explain Database Backup and its types. **[5]**

Q4) a) Explain Inter operational & Intra operational parallelizm in details. **[5]**

b) Explain the term fragmentation & replication in DDBMS. **[5]**

OR

c) Explain need of parallel database with its architecture. **[5]**

d) Explain 2-pc commit protocol in DDBMS. **[5]**

Q5) **Attempt any two :**

a) Explain the term no SQL & Mongo DB. **[5]**

b) What is Fire Base & its uses? **[5]**

c) Author. (AID, name, city, No-of Books print) where AID - primary key.
Book (BID, name, publication - name, year) where BID - primary key
Relation between Book & Author is Many To Many. **[5]**

i) Display Book details published in 2021.

ii) Display Author name along with their book name.

iii) Display all author who stay in Amar's City.

Total No. of Questions : 5]

SEAT No. : ____

PC-3247

[Total No. of Pages : 2

[6383]-1004

M.C.A. (Part-I) (Management faculity)

IT-14: Software Engineering and Project Management

(2024 Pattern) (Semester - I)

Time : 2½ Hours] ***[Max. Marks : 50***

Instruction to the candidates:

1) ***Draw neat and labelled diagram wherever necessary.***
2) ***Non-programmable calculator is allowed.***

Q1) Air Traffic control (ATC) system will monitor and control the movement of aircraft in a given airspace. The system will provide real- time updates on aircraft positions, flight paths, and communicate instructions between air traffic controllers and pilots to ensure safety and efficiency in air traffic operations.

Prepare Software Requirement Specification (SRS) in detail as per IEEE format. **[10]**

Q2) Draw the use case diagram and class diagram for following case study.

ABC college has leave management system where employee fill the time sheet every day. When he/she wants to obtain leave they have to apply to the HOD.

HOD can cancel or recommend the leave. The leave is sanctioned by the Director according to HOD'S recommendation. The registrar manages the leaves and generates reports. **[10]**

OR

Draw the Activity diagram for following case study.

The DTE Maharastra CET cell administers Common Entrance Test (CET) for MCA course in Maharashtra. Following tasks are performed throughout the registration process.

- Candidate has to register on official website
- Candidate has to provide personal, academic, category details and upload necessary documents using login credentials.
- Candidate has to pay the application fee online through debit card, credit card or net banking.

P.T.O.

- After successful registration candidate will be notified about admit card.
- Candidate can download the admit card from CET cell website.
- CET cell display schedule of exam on website.
- Candidate attend the exam as per schedule.
- CET cell will also declare the result. **[10]**

Q3) a) Suppose a project was estimated to be 400 KLOC. Calculate the effort and development time of organic model, **[5]**

b) Explain Capability Maturity Mode (CMM) in detail **[5]**

OR

A software development company is responsible for developing a new mobile application for a client. However, during the course of project it experiences significant cost overruns, exceeding the inital budget.

As a project manager, you have been asked to suggest risk management strategy after identifying the risks. **[10]**

Q4) a) A startup named "Kissan" aims to develop a vegatable & fruits delivery application, The "Kissan" company itends to deliver fresh vegetables & fruits within specified time window, allowing customers to place the orders via mobile application.

Write the user stories for this scenario. **[5]**

b) Elaobrate Agile project life cycle with suitable diagram **[5]**

OR

a) 'Gofast' is a transportation company that provides ride sharing & ride booking services to the passangers. Passangers can book and share the rides through mobile application. The company rates frequent feedback & reviews from user (s). As a user discuss the user stories for the same.**[5]**

b) Explain GitHub in detail. **[5]**

Q5) **Write short note on (any 2) :** **[10]**

a) Agile manifesto

b) Team Management

c) Agile tools

d) SCTN

Total No. of Questions : 5]

SEAT No. :

PC3248

[Total No. of Pages :3

[6383]-1005

M.C.A. - I (Management)

MT 11 : BUSINESS STATISTICS

(2024 Pattern) (Semester- I)

Time : 2½ Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Use scientific (Non - programmable) calculator.***
3) ***Figures to the right indicate full marks.***

Q1) a) Solve any one: **[5]**

i) Write a note on characteristics and functions of statistics.

ii) Write a note on limitations of statistics.

b) Solve any one. **[5]**

i) Use a double bar graph to illustrate the below information.

Class	9A	9B	9C	9D	9E
Number of students who score a distinction in science	11	11	15	12	20
Number of students who score a distinction in Mathematics	12	13	12	11	15

ii) The table shows the distribution of ages of 100 people attending a school concert. The ages are given correct to the last birthday.

Age (Years)	0-20	20-40	40-60	60-80	80-100
Frequency	43	24	17	10	6

Construct a histogram to illustrate the data.

Q2) a) Solve any one: **[5]**

i) From the following information on the number of defetive components in 1,000 boxes.

Number of defective components	0	1	2	3	4	5
Number of Boxes	25	306	402	200	51	10

Calculate the arithmetic mean of defective components of the whole of the production line.

P.T.O.

ii) The following distribution gives the pattern of overtime work per week done by 100 employee of a company. Calculate first quartile Q_1, seventh decile D_7 and sixteenth percentile P_{60}.

Overtime hours	10-15	15-20	20-25	25-30	30-35	35-40
Number of Employees	11	20	35	20	8	6

b) Solve any one. **[5]**

i) Find out Standard Deviation for the following data.

Wage upto (Rs.)	10	20	30	40	50	60	70	80
Number of workers	12	30	65	107	157	202	222	230

ii) Find mean Deviation about Median.

Consumption (Kilowatt hour)	0-10	10-20	20-30	30-40	40-50
No. of Users	6	25	36	20	13

Q3) a) Solve any one: **[5]**

i) The probability that the two newly released films X and Y will succeed at the box - office are 0.6 and 0.7 respectively. What is the probability that,

1) Only X will succeed

2) At least one will succeed.

ii) A man tosses two fair coins. What is the conditional probability that he has tossed two heads given that he has tossed at least one head?

b) Solve any one. **[5]**

i) If 10% of bolts produced by a machine are defective, calculate the probability that out of a sample selected at random of 7 bolts, not more than one bolt will be defective.

ii) In a Poisson distribution $3P(X = 2) = P(X = 4)$. Find the parameter 'm'.

Q4) Solve any one: **[10]**

a) Plot the scatter diagram for the following data and find the type of correlation. Also find Karl Pearson's correlation coefficient of the following data.

X_i	10	20	30	40	50	60	70	55	35
Y_i	60	58	40	35	30	25	34	32	45

b) Find two regression equations for the following two series, what is most likely value of X when Y = 20 and most likely value of Y when X = 22.

X:	35	25	29	31	27	24	33	36
Y:	23	27	26	21	24	20	29	30

Q5) Solve any one: **[10]**

a) What are the components of Time series. Find the trend using 4 years moving average.

Year:	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Production:	464	515	518	467	502	540	557	571	586	612

b) Compute the seasonal averages, seasonal variations and seasonal indices for the following time series.

	2005	2006	2007
Jan.	15	23	25
Feb.	16	22	25
March	18	28	35
April	18	27	36
May	23	31	36
June	23	28	30
July	20	22	30
Aug.	28	28	34
Sept.	29	32	38
Oct.	33	37	47
Nov.	33	34	41
Dec.	38	44	53

Total No. of Questions : 5]

SEAT No. :

PC3249

[Total No. of Pages :1

[6383]-1006

F.Y. M.C.A. (Management)

EC11 - 1 : FUNDAMENTALS OF CLOUD COMPUTING

(2024 Pattern) (Semester- I)

Time : 2½ Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***

Q1) a) Define cloud computing and it's characteristics. **[5]**

b) Compare IAAS, PAAS and SAAS service models. **[5]**

Q2) a) What is virtual machine? Discuss it's advantages in cloud computing. **[5]**

b) Explain Service Level Agreement (SLA) in detail. **[5]**

OR

a) What is Multi Cloud Environment? What are it's characteristics? **[5]**

b) What is sales force? Explain in detail. **[5]**

Q3) a) What is cloud storage? Discuss the role of Block storage and file storage in detail. **[5]**

b) Explain IBM cloud in detail. **[5]**

OR

a) What is hypervisor? Name two types of Hypervisors. **[5]**

b) Define Edge computing. Explain how it's differ from traditional cloud computing. **[5]**

Q4) a) Discuss pros and cons of virtualization in a cloud Environment. **[10]**

OR

b) Explain cloud computing Architecture in details. **[10]**

Q5) Write short Notes (Any Two) **[10]**

a) Database as a service

b) Microsoft Hyper - V

c) Amazon Web Services

Total No. of Questions : 5]

SEAT No. :

PC3250

[Total No. of Pages :2

[6383]-1007

F.Y. M.C.A. (Management)

EC - 11 - 2 : WEB DEVELOPMENT

(2024 Pattern) (Semester- I)

Time : 2½ Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***

Q1) a) Demonstrate the use of <canvas> element to draw following shape. **[5]**

b) Using CSS3, demonstrate following with example **[5]**

i) Hover
ii) Scale of element
iii) Line - through
iv) Active
v) Focus

OR

c) Write HTML5 code to demonstrate the usage of the draggable attribute for enabling drag - and - drop functionality. **[5]**

d) Using CSS3, apply a gradient text effect on a heading. The text should transition smoothly from blue to purple. **[5]**

Q2) a) Why Icon fonts are important in responsive design. Discuss with suitable example. **[5]**

b) What is the significance of testing a responsive website on multiple devices? **[5]**

OR

c) Design a responsive three - column layout that collapses into a single column on Mobile device. **[5]**

d) Write the CSS code using media queries to achieve following layout
You have a that takes up 100% width on small screens (less than 600 px) but only 50% width on larger screens. **[5]**

P.T.O.

Q3) a) Create page where user can download files from the server. **[5]**

b) Develop a blog where user can create & read posts. **[5]**

OR

c) Create a simple form in CodeIgniter that collects user's name & e - mail address. Implement validation. **[5]**

d) Demonstrate how to create a login system using CodeIgniter that sets session data for logged-in users. **[5]**

Q4) a) Write an SQL query to create employee table with suitable example, insert 10 employee records and display all records from table where salary is greater than 50,000/-. **[10]**

OR

b) Assume you have a "posts" & "users" table, with a foreign key in "posts" referencing "users". Write a query Builder method to retrieve all posts along with user names of the users who created them. **[10]**

Q5) Solve any two. **[10]**

a) What are the key differences between hosting a MySQL database on AWS & Google Cloud?

b) Discuss RESTless API integration.

c) Explain MVC architecture in CodeIgniter4.

d) Write a step for deployment an application.

Total No. of Questions : 5]

SEAT No. :

PC3251

[Total No. of Pages :3

[6383]-1008

F.Y. M.C.A. (Management)

EC - 11 - 3 : FUNDAMENTAL OF DATA SCIENCE

(2024 Pattern) (Semester- I)

Time : 2½ Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Each question carry equal marks.***

Q1) Solve any 2 (two): **[10]**

a) Explain the various method of data collection and data cleaning.

b) Explain the social and economic impact of data science in the field of health care industries.

c) Describe the data Discretization with an example.

d) What are the key components of data science.

Q2) Solve any 1 (one): **[10]**

a) To find a root of the equation $f(x) = x^3 - x - 1$ using the Bisection Method.

b) Consider the following matrix A:

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$$

i) Find the inverse of the matrix A.

ii) Verify your result by demonstrating that : $AA^{-1} = I$ where I is the identity matrix.

Q3) Solve any 2 (two): **[10]**

a) Propose a data processing model for the Financial Fraud Detection, detailing how data is collected, clean.

b) Explore challenges in data processing.

c) Describe key step involve in data validatin in data science.

d) Demonstrate the process of data transformation on a given dataset.

P.T.O.

Sales Performance Dataset

Salesperson-ID	Age	Years-of-Experience	Total-Sales (Rs.)	Region	Number-of-Clients
301	25	2	35,000	North	15
302	30	5	50,000	South	25
303	40	10	70,000	West	30
304	28	4	45,000	East	20
305	35	8	60,000	North	28
306	22	1	30,000	South	12
307	45	20	90,000	West	40
308	50	25	1,00,000	East	50
309	38	15	80,000	North	35
310	29	6	55,000	South	22

Q4) Solve any 1 (one): **[10]**

a) Sales data : rows represent products, columns represent months (Jan to Dec)

Month	Product A	Product B	Product C
1	1,500	1,200	900
2	1,800	1,300	950
3	1,700	1,250	900
4	1,600	1,350	1,000
5	1,900	1,400	1,100
6	2,000	1,450	1,200
7	2,100	1,500	1,150
8	2,200	1,550	1,300
9	2,300	1,600	1,400
10	2,400	1,650	1,450
11	2,500	1,700	1,500
12	2,600	1,750	1,600

For above sales data answer the following.

i) Read data as NumPy array.

ii) Calculate the total sales for each product over the year.

iii) Determine the average monthly sales for each product.

iv) Identify the month with the highest sales for each product.

v) Find the overall best - selling product for the year.

b) Analyse customer purchase behaviour using Pandas to derive insights on sales trends and customer preferences.

Given data set : Customer Purchase Data

Transaction ID	Date	Customer-ID	Product -ID	Quantity	Price	Total Sale
1	01-01-2023	C001	P001	2	15	30
2	01-01-2023	C002	P002	1	25	25
3	02-01-2023	C001	P003	3	10	30
4	02-01-2023	C003	P001	1	15	15
5	03-01-2023	C002	P001	5	15	75
6	04-01-2023	C001	P002	2	25	50
7	04-01-2023	C003	P003	4	10	40
8	05-01-2023	C004	P002	1	25	25
9	05-01-2023	C004	P001	2	15	30
10	06-01-2023	C005	P003	1	10	10

For the above given data set give answer of the following:

i) Read data as data frame using pandas.

ii) Calculate the total sales from the dataset.

iii) Determine the total sales for each product.

iv) Identify the top 3 customers based on their total spend.

v) Identify the product with the highest quantity sold.

Q5) Solve any 1 (one): **[10]**

Dataset : Iris Flower

Sepal Length	Sepal Width	Petal Length	Petal Width	Species
5.1	3.5	1.4	0.2	Setosa
4.9	3	1.4	0.2	Setosa
3.7	2	1.4	0.2	Setosa
7	3.2	4.7	1.4	Versicolor
6.4	3.2	4.5	1.5	Versicolor
6.3	3.3	6	2.5	Virginica
5.8	2.7	5.1	1.9	Virginica

a) Write a python code to draw Boxplot for visualizing above the data frame using Matplotlib.

b) Write a python code to draw Pie plot for Setosa species for above the data frame using Matplotlib.

Total No. of Questions : 5]

SEAT No. : ____

PC-5060

[Total No. of Pages : 2

[6383]-1009
M.C.A. (Management faculty)
EC 11- 4: Introduction to Cyber Security
(2024 Pattern) (Semester - I)

Time : 2½ Hours] ***[Max. Marks : 50***

Instruction to the candidates:

1) ***All Questions are compulsory.***
2) ***Draw neat labeled diagram wherever necessary.***

Q1) a) "Cyberspace and cybercrime are two sides of a coin". Explain. **[5]**

b) Discuss cyber bullying and cyberstalking with suitable examples **[5]**

OR

c) What is computer security? How to secure your computer? Explain. **[5]**

d) Differentiate between white, black and grey hat hacking **[5]**

Q2) a) Verizon Ltd. is a firm providing customer and internet banking facilities. Its main customers are some of the biggest banks of USA. Its employees, who have access to all the financial accounts, personal data and ATM card information of approximate 10 million clients of these banks. You have been deputed as Security Administrator and have been allocated the duty to examine the possible security breaches which might occur. What are the different types of threats and vulnerabilities you might identify?**[5]**

b) List out various web attacks. **[5]**

OR

c) The Starbuz corporation, is a global player in the e-commerce industry with several offices across the world. The breach resulted in a data compromise that impacted customer trust, led to financial losses, and highlighted several critical flaws in their network security. As an information security expert discover various network vulnerabilities. **[5]**

d) Demonstrate the use of botnets and distributed denial-of-service attacks in cyber-attacks. **[5]**

P.T.O.

Q3) a) John Doe, a 32-year-old software engineer, became the victim of a sophisticated identity theft scheme that took place over several months. John had always been cautious about his personal information, taking care not to share it online. However, despite his efforts, his personal and financial information was stolen and used by criminals to commit various fraudulent activities. Demonstrate the modus operandi behind this targeted attack. **[5]**

b) Illustrate medical identity theft and synthetic identity theft with suitable example. **[5]**

OR

c) In recent years, the rise of sophisticated cyber-attacks targeting the financial industry has highlighted the critical importance of robust cybersecurity measures. Financial fraud, often carried out through cyber-enabled attacks, is a growing concern for financial institutions, businesses, and consumers. Write in detail the impact of such a kind of fraud. **[5]**

d) Demonstrate following techniques of identity theft **[5]**

i) Skimming and Cloning ii) Phishing and Social engineering

Q4) a) Demonstrate various Legal issues in software piracy. **[5]**

b) Demonstrate features and objectives of IT Act 2000 **[5]**

OR

c) Highlight upon the challenges and ethical considerations in cyber security **[5]**

d) Demonstrate number of offences and penalties under IT Act 2000 **[5]**

Q5) **Write short note on (any 2) :** **[2 × 5 = 10]**

a) BS7799

b) NGS Auditor

c) Cyber security vs information security.

d) ISMS