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**MCA DEGREE EXAMINATION, MAY 2023**  
Second Semester

PCA20C04J – PYTHON PROGRAMMING  
*(For the candidates admitted during the academic year 2021-2022 onwards)*

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**  
Answer ANY FIVE Questions

Marks	BL	CO	PO
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- |   |                        |
|---|------------------------|
| 1. What is python programming? Mention its features and applications.                                 | 5      1      1      1 |
| 2. Differentiate between list and tuple.  | 5      2      1      1 |
| 3. Create a program to find the sum of all odd and even numbers up to a number specified by the user. | 5      4      2      3 |
| 4. List out various data types in python.   | 5      1      2      1 |
| 5. Why strings are immutable? Give example.   | 5      2      3      2 |
| 6. Give a short notes on socket in python.  | 5      1      4      1 |
| 7. What is lambda function? What are the characteristics of a lambda function?                        | 5      1      4      1 |
| 8. State a note on SQLite database.   | 5      2      5      1 |

**PART – B (5 × 15 = 75 Marks)**

Answer ALL the Questions

- |  |                        |
|--|------------------------|
| 9.a.i. List out various operators in python with their precedence. | 9      2      1      3 |
|--|------------------------|

- |   |    |   |   |   |   |    |   |   |   |  |
|---|----|---|---|---|---|----|---|---|---|--|
| ii. Discuss on “is” and “is not” operators and type( ) function.  | 6  | 3 | 1 | 3 | b.i. How to handle multiple clients in python socket?                     | 7  | 2 | 4 | 2 |  |
| <b>(OR)</b>   |    |   |   |   |   |    |   |   |   |  |
| b.i. Discuss the relation between tuples and lists, tuples and dictionaries in detail.  | 10 | 3 | 1 | 3 | ii. Explain about passing parameters in detail.                           | 8  | 2 | 4 | 2 |  |
| ii. Describe zip( ) function with an example.   | 5  | 3 | 1 | 3 | 13.a. Explain about dialogs, message and entry in tkinter.                | 15 | 3 | 5 | 2 |  |
| 10.a. Discuss inheritance in python programming language. Write a python program to demonstrate the use of super( ) function. |    |   |   |   |   |    |   |   |   |  |
| <b>(OR)</b>   |    |   |   |   |   |    |   |   |   |  |
| b. Write about built-in and user defined exception in detail. Explain with suitable examples.                                 | 15 | 2 | 2 | 3 | b. Discuss basic operations and table load scripts in python with SQLite. | 15 | 2 | 5 | 2 |  |
| 11.a. Explain the following methods of OS.path module   |    |   |   |   | *   |    |   |   |   |  |
| (i) isfile()  | 3  | 2 | 3 | 3 |   |    |   |   |   |  |
| (ii) abspath()  | 3  | 2 | 3 | 3 |   |    |   |   |   |  |
| (iii) walk()  | 3  | 2 | 3 | 3 |   |    |   |   |   |  |
| (iv) getcwd()   | 3  | 2 | 3 | 3 |   |    |   |   |   |  |
| (v) rmdir()   | 3  | 2 | 3 | 3 |   |    |   |   |   |  |
| <b>(OR)</b>   |    |   |   |   |   |    |   |   |   |  |
| b. Discuss the following  |    |   |   |   |   |    |   |   |   |  |
| (i) parallel system tools   | 8  | 3 | 3 | 3 |   |    |   |   |   |  |
| (ii) program exists   | 7  |   |   |   |   |    |   |   |   |  |
| 12.a. State the need for urllib in python in detail.  | 15 | 2 | 4 | 4 |   |    |   |   |   |  |

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### MCA DEGREE EXAMINATION, MAY 2023

Second Semester

PCA20C05J – COMPUTER NETWORKS  
*(For the candidates admitted during the academic year 2021-2022 onwards)*

Time: Three Hours

#### PART – A (5 × 5 = 25 Marks) Answer ANY FIVE Questions

	Max. Marks: 100			
	Marks	BL	CO	PO
1. Write short notes on multimedia applications.	5	1	1	1
2. What are Attenuation and Distortion?	5	1	2	1
3. Draw the importance of CRC in computer networks.	5	1	3	2
4. Why flow control is needed while data transmission?	5	1	3	1
5. State the term X.25 protocol.	5	1	4	1
6. Illustrate-Adaptive Routing.	5	1	4	2
7. Enumerate Frame Forwarding.	5	2	5	2
8. Expand the following term-SMTP.	5	2	5	1

#### PART – B (5 × 15 = 75 Marks) Answer ALL the Questions

- 9.a. Describe in detail about Data Communication model with TCP/IP architecture. 15 2 1 1

#### (OR)

- b. List and explain the various layers involved in OSI reference model. 15 1 1 1

- 10.a. Write short notes on  
 (i) Frequency spectrum and bandwidth  
 (ii) Transmission impairments 8 1 2 3  
**(OR)**  
 b. Elaborate in detail about guided transmission medium and their types with suitable examples. 15 5 2 2
- 11.a. Discuss with examples and diagrams of synchronous transmissions. 15 5 3 2  
**(OR)**  
 b. Summarize the concept of HDLC, and its characteristics, frame structure with neat diagram. 15 2 3 2
- 12.a. Categorize the various types of Multiplexing with suitable examples. 15 3 4 2  
**(OR)**  
 b. Differentiate in detail about Circuit Switching and Packet Switching with diagrams and examples. 15 4 4 2
- 13.a. Draw the various topologies used in Local Area Network with their features and diagrams. 15 1 5 4  
**(OR)**  
 b. Write short notes on  
 (i) MIME  
 (ii) Request messages and response messages 8 1 5 2  
 7

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**MCA DEGREE EXAMINATION, MAY 2023**  
Second Semester

PCA20D04J – ANDROID APPLICATIONS DEVELOPMENT  
(For the candidates admitted during the academic year 2021-2022 onwards)

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**  
Answer ANY FIVE Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. What is android and versions of android?                  | 5     | 1  | 1  | 1  |
| 2. Write short notes on returning results form an intent.    | 5     | 2  | 1  | 4  |
| 3. Write short notes on scroll view in view group.           | 5     | 2  | 2  | 3  |
| 4. What is difference between picker views and list views?   | 5     | 1  | 2  | 3  |
| 5. Write short notes on saving and loading user preferences. | 5     | 2  | 3  | 3  |
| 6. How to receiving and updating SMS messages in android?    | 5     | 1  | 4  | 2  |
| 7. What are the location-based services in android?          | 5     | 1  | 5  | 1  |
| 8. What are SQLite database and SQLite commands in android?  | 5     | 1  | 3  | 1  |

**PART – B (5 × 15 = 75 Marks)**

Answer ALL the Questions

- 9.a. Briefly explain the features of the Android, architecture of android.

15 2 1 1

- b. Write short notes on the working procedure for networking and downloading the text data.

15 1 4 2

**(OR)**

- b.i. How to create Android Virtual Device (AVDs)?

8 1 1 1

- 13.a. Briefly explain displaying the map and displaying zoom control.

15 2 5 1

- ii. Write short notes on the anatomy of an Android Applications.

7 2 1 3

- (OR)**  
b. Briefly explain  
(i) Changing views  
(ii) Satellite view and  
(iii) Navigating to a specific location

15 2 5 1

- 10.a. Briefly explain

15 2 2 4

\* \* \* \*

- (i) Linear layout
- (ii) Absolute layout
- (iii) Table layout
- (iv) Relative layout and
- (v) Frame layout

**(OR)**

- b. Briefly explain the basic views and use them to design the UI of your android applications.

15 2 2 5

- 11.a. Briefly explain getSharePreferences ( ) and getPreferences ( ).

15 2 3 1

**(OR)**

- b. What are content providers and how it is used for sharing data in Android?

15 1 3 1

- 12.a. Explain the following:

15 2 4 3

- i) SMS messaging
- ii) Sending SMS messages using Intent

**(OR)**

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### MCA DEGREE EXAMINATION, MAY 2023

Second Semester

PCA20D05J – PROGRAMMING USING C#  
(For the candidates admitted during the academic year 2021-2022 onwards)

Time: Three Hours

Max. Marks: 100

#### PART – A (5 × 5 = 25 Marks) Answer ANY FIVE Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. Explain the scope of variables.                 | 5     | 2  | 1  | 1  |
| 2. Explain about arrays and its types.             | 5     | 2  | 1  | 1  |
| 3. Write about creating classes and objects in C#. | 5     | 2  | 2  | 3  |
| 4. Explain about indexers and properties.          | 5     | 2  | 2  | 2  |
| 5. Explain about console input methods in C#.      | 5     | 2  | 3  | 3  |
| 6. Explain multicast delegates in C# with example. | 5     | 2  | 3  | 2  |
| 7. Explain about text box control with example.    | 5     | 2  | 4  | 4  |
| 8. Write the advantages of ADO.NET framework.      | 5     | 2  | 5  | 1  |

#### PART – B (5 × 15 = 75 Marks)

- 9.a. Discuss about various operators with example. 15 2 1 1

#### (OR)

- b. Discuss about for loop and while loop with examples. 15 2 1 3

- 10.a. Discuss various types of inheritance with example. 15 2 2 3

#### (OR)

- b. Elaborate different types of constructors with example. 15 2 2 3

- 11.a. Discuss about thread priorities and thread scheduling. 15 2 4 3

#### (OR)

- b. Discuss about handling and raising events in C#. 15 2 4 3

- 12.a. Discuss the following:

- i. Repeater data control 8 3 5 1  
ii. Form view data control 8 3 5 1

#### (OR)

- b. Discuss about various button controls with example. 15 3 5 3

- 13.a. Discuss various Data list controls. 15 3 5 3

#### (OR)

- b. Discuss about ADO.NET components model with neat diagram. 15 2 5 1

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**MCA DEGREE EXAMINATION, MAY 2023**  
Second Semester

PCA20D06J – SOFTWARE TESTING  
(For the candidates admitted during the academic year 2021-2022 onwards)

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**  
Answer ANY FIVE Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. Why do we need software testing? Mention its objectives.      | 5     | 1  | 1  | 2  |
| 2. Write a note on cause effect graphing.                        | 5     | 2  | 2  | 2  |
| 3. Compare white box testing and black box testing.              | 5     | 2  | 2  | 3  |
| 4. Briefly write about usability testing.                        | 5     | 2  | 3  | 1  |
| 5. What is automation testing? Write the use of test automation. | 5     | 2  | 4  | 2  |
| 6. Briefly write tracking test cases with example.               | 5     | 2  | 4  | 3  |
| 7. Write a note on regression testing.                           | 5     | 2  | 3  | 2  |
| 8. Describe about the browsers supported by Selenium.            | 5     | 2  | 5  | 3  |

**PART – B (5 × 15 = 75 Marks)**  
Answer ALL the Questions

- 9.a. Explain about water fall model and spiral model in software development life cycle models.

**(OR)**

- b.i. Compare verification and validation process. 8 2 1 4
- ii. Briefly explain software inspection process. 7 2 1 4
- 10.a. Discuss any two testing strategies in white box testing. 15 2 2 3
- (OR)**
- b. Describe the various testing methodologies in black box testing. 15 2 2 3
- 11.a. Discuss about integration testing. 15 2 3 3
- (OR)**
- b.i. Differentiate between incremental and non-incremental testing. 8 2 3 4
- ii. Write about website testing. 7 2 3 4
- 12.a. Explain about software automated testing and test tools. 15 2 4 3
- (OR)**
- b. Draw BUG's life cycle work flow of the system and explain. 15 3 4 4
- 13.a. Elaborate on Selenium tool set. 15 2 5 3
- (OR)**
- b. What are the different components in Selenium? And explain them. 15 2 5 3

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**MCA DEGREE EXAMINATION, MAY 2023**  
Second Semester

PCA20C06T – OPTIMIZATION TECHNIQUES  
(For the candidates admitted during the academic year 2021-2022 onwards)  
(Statistical table and Graph sheets may be given)

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**  
Answer ANY FIVE Questions

Marks	BL	CO	PO
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- |  |                  |
|--|------------------|
| 1. Write the role of Operations Research in computer science and its applications. | 5    1    1    1 |
| 2. Give the standard form of LPP and define slack and surplus variables.           | 5    2    1    1 |
| 3. Solve the following assignment problem  | 5    3    2    2 |

*Area*

Salesman	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
1	11	17	8	16
2	9	7	12	6
3	13	16	15	12
4	14	10	12	11

- |   |                  |
|---|------------------|
| 4. Solve the $2 \times 2$ game $\begin{pmatrix} 2 & 5 \\ 4 & 1 \end{pmatrix}$ . | 5    2    3    1 |
|---|------------------|

- |   |                  |
|---|------------------|
| 5. Solve the following game whose pay-off matrix is given below | 5    3    3    2 |
|---|------------------|

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

- |                                      |                  |
|--------------------------------------|------------------|
| 6. Distinguish between PERT and CPM. | 5    2    4    1 |
|--------------------------------------|------------------|

- |  |                  |
|--|------------------|
| 7. Draw the network for the following: | 5    3    4    2 |
|--|------------------|

Activity	A	B	C	D	E	F	G	H	I	J	K
Immediate predecessor	-	-	-	A	B	B	C	D	E	H,I	F,G

- |  |                  |
|--|------------------|
| 8. Explain briefly the types of inventory. | 5    2    5    1 |
|--|------------------|

**PART – B (5 × 15 = 75 Marks)**

- |  |                   |
|--|-------------------|
| 9.a. Explain in detail the scopes and limitation of Operations Research. | 15    2    1    2 |
|--|-------------------|

(OR)

- b. Using simplex method to solve the following

$$\text{Maximize } Z = 4x_1 + 10x_2$$

Subject to

$$2x_1 + x_2 \leq 50$$

$$2x_1 + 5x_2 \leq 100$$

$$2x_1 + 3x_2 \leq 90;$$

and  $x_1, x_2 \geq 0$

15 3 1 2

- 10.a. Solve the following transportation problem

		Destination				Supply
		D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	
Source	S <sub>1</sub>	11	20	7	8	50
	S <sub>2</sub>	21	16	20	12	40
S <sub>3</sub>	8	12	18	9		70
Demand	30	25	35	40		

(OR)

- b. Solve the following assignment problem

Task

	A	B	C	D	E
M <sub>1</sub>	4	6	10	5	6
M <sub>2</sub>	7	4	—	5	4
M <sub>3</sub>	—	6	9	6	2
M <sub>4</sub>	9	3	7	2	8

15 3 2 2

- 11.a. Using the Dominance property, solve the following game

Player K

	I	II	III	IV
Player L	1	-5 3 1 20		
Player L	2	5 5 4 6		
Player L	3	-4 -2 0 -5		

(OR)

- b. Solve the following game graphically

Player B

Player A	2	-1	5	-2	6
	-2	4	-3	1	0

15 3 3 2

\* \* \* \*

- 12.a. Draw the network and determine the critical path for the given data

15 3 4 2

Jobs	1-2	1-3	2-4	3-4	3-5	4-5	4-6	5-6
Duration	6	5	10	3	4	6	2	9

Find the total float, free float and independent float of each activity.

(OR)

- b. The following table lists the jobs of a network along with their time estimates.

Jobs	1-2	1-3	2-4	3-4	4-5	3-5
Optimistic time	2	9	5	2	6	8
Most likely time	5	12	14	5	6	17
Pessimistic time	14	15	17	8	12	20

- i. Draw the network  
 ii. Calculate the length and variance of the critical path  
 iii. Find the probability that the project will be completed within 30 days

- 13.a. In a public telephone booth the arrivals are on the average 15 per hour. A call on the average takes 3 minutes. If there is just one phone. Find

- i. Expected number of callers in both system and queue at any time.  
 ii. The proportion of the time, both system and queue is expected to be idle.

- b. A manufacturer has to supply his customer with 600 units of his products per year. Shortage are not allowed and storage cost amounts to 60 paise per unit per year. The set up cost is ₹80,00. Find

- i. The economic order quantity  
 ii. The minimum average yearly cost  
 iii. The optimum number of orders per year  
 iv. The optimum period of supply per optimum order

15 3 5 2

(OR)

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**MCA DEGREE EXAMINATION, NOVEMBER 2022**

Second Semester

**PCA20C06T -- OPTIMIZATION TECHNIQUES**

(For the candidates admitted during the academic year 2021-2022 onwards)

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**

Answer ANY FIVE Questions

- |   |         |
|---|---------|
| 1. Write any five applications of operation research.                                   | 5 1 1 1 |
| 2. Write down the standard form of LPP.   | 5 1 1 1 |
| 3. State the difference between Transportation problem and assignment problem.          | 5 2 2 2 |
| 4. Find the optimal solution for the assignment problem with the following cost matrix. | 5 3 2 2 |

Area					
	W	X	Y	Z	
Sales man	A	11	17	8	16
	B	9	7	12	6
	C	13	16	15	12
	D	14	10	12	11

5. Solve the game whose pay off matrix is given by

*Player B*

$$\text{Player A} \begin{bmatrix} 1 & 7 & 3 & 4 \\ 5 & 6 & 4 & 5 \\ 7 & 2 & 0 & 3 \end{bmatrix}$$

6. Draw the network for the project whose activities and their predecessor relationship are given below.

Activity:	P	Q	R	S	T	U
Predecessor:	-	-	-	P,Q	P,R	Q,R

7. Define the following:

- i. Free float
- ii. Total float
- iii. Independent float

8. Explain briefly the types of inventory.

Marks BL CO PO

5 1 1 1

5 1 1 1

5 2 2 2

5 3 2 2

5 3 3 2

5 3 4 2

5 1 4 1

5 2 5 2

**PART – B (5 × 15 = 75 Marks)**

9.a. Explain in detail the scope and limitation of Operation Research.

15 1 1 2

**(OR)**

b. Using simplex method solve the following LPP

$$\text{Maximize } Z = 4x_1 + 10x_2$$

Subject to

$$2x_1 + x_2 \leq 50$$

$$2x_1 + 5x_2 \leq 100$$

$$2x_1 + 3x_2 \leq 90 \quad x_1, x_2 \geq 0$$

15 3 1 2

10.a. Solve the following transportation problem using MODI method

15 3 2 2

	To	Supply
From	1 2 3 4	6
	4 3 2 0	8
	0 2 2 1	10
Demand	4 6 8 6	

**(OR)**

b. Solve the following assignment problem

Table

	A	B	C	D	E
Machine	M <sub>1</sub>	4 6 10 5 6			
	M <sub>2</sub>	7 4	— 5 4		
	M <sub>3</sub>	— 6	9 6 2		
	M <sub>4</sub>	9 3	7 2 3		

11.a. Solve the following game using Dominance property

Player B

Player A	19 6 7 5		
	7 3 14 6		
	12 8 18 4		
	8 7 13 -1		

**(OR)**

b. Solve the following game and solve it by graphical method.

Player B

Player A	18 4 6 4		
	6 2 13 7		
	11 5 17 3		
	7 6 12 2		

12.a. Calculate the total float, free float and independent float for the project where activities are given below:

15 3 4 2

Activity:	1-2	1-3	1-5	2-3	2-4	3-4	3-5	3-6	4-6	5-6
Predecessor:	8	7	12	4	10	3	5	10	7	4

**(OR)**

b. Three time estimates of all activities of a project are as given below:

15 3 4 2

Activity	Time in months		
	1-2	2-3	3-4
1-2	0.8	1	1.2
2-3	3.7	5.6	9.9
2-4	6.2	6.6	15.4
3-4	2.1	2.7	6.1
4-5	0.8	3.4	3.6
5-6	0.9	1.0	1.1

- i. Find the expected duration and standard deviation of each activity.
- ii. Determine the critical path, expected project length and expected variance of the project length.
- iii. What is the probability that the project will be completed two months later than the expected?

13.a. Cars arrive at a petrol pump having one petrol unit, in Poisson fashion with an average of 10 cars per hour. The service time is distributed exponentially with a mean of 3 minutes. Find

15 2 5 2

- i. Average number of cars in the system
- ii. Average waiting time in the queue
- iii. Average queue length
- iv. The probability that the number of cars in the system is 2.

**(OR)**

b. The annual demand for an item is 3200 units. The unit cost is ₹6 and inventory carrying charges 25% per annum. If the cost of one procurement is ₹150 determine

15 5 5 2

- i. Economic order quantity
- ii. Number of orders per year
- iii. The optimal total cost
- iv. Time between two consecutive orders

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**MCA DEGREE EXAMINATION, MAY 2022**

Second Semester

**PCA20C06T – OPTIMIZATION TECHNIQUES**

(For the candidates admitted during the academic year 2020-2021 onwards)

Time: Three hours

Max. Marks: 100

**Answer Any Five Questions**

**PART – A (5 × 5 = 25 Marks)**

1. Explain briefly any three application of Operations Research.
2. Mention the basic assumption for all linear programming problems.
3. What is an assignment problem? Give its mathematical formulation?
4. Determine the initial basic feasible solution to the following transportation problem by least cost method.

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	Supply
S <sub>1</sub>	1	2	3	4	6
S <sub>2</sub>	4	3	2	0	8
S <sub>3</sub>	0	2	2	1	10
Demand	4	6	8	6	

5. Define
  - (i) Saddle point
  - (ii) Fair game
  - (iii) Strictly determinable game
6. Solve the game  $\begin{pmatrix} 1 & 3 & 1 \\ 0 & -4 & -3 \\ 1 & 5 & -1 \end{pmatrix}$ .
7. Distinguish between CPM and PERT.
8. Define Kendal's notation for representing queuing models.

**Answer ALL the questions**  
**PART – B (5 × 15 = 75 Marks)**

9. a. Use simplex method to solve the LPP

$$\text{Max } z = 4x_1 + 10x_2$$

subject to the constraints

$$2x_1 + x_2 \leq 50$$

$$2x_1 + 5x_2 \leq 100$$

$$2x_1 + 3x_2 \leq 90 \quad \text{and } x_1, x_2 \geq 0$$

(OR)

- b. Explain in detail the scope and limitations of operations research.

10. a. Solve the transportation problem with unit transportation costs, demand and supplies as given below

	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	Supply
S <sub>1</sub>	6	1	9	3	70
S <sub>2</sub>	11	5	2	8	55
S <sub>3</sub>	10	12	4	7	70
Demand	85	35	50	45	

(OR)

- b. Solve the following assignment problem to maximize the profit.

16	10	14	11
14	11	15	15
15	15	13	12
13	12	14	15

11. a. Solve the game

Player B

Player A	4	-2	3	-1
	-1	2	0	1
	-2	1	-2	0

(OR)

- b. Solve the game whose payoff matrix for player A is

Player B

Player A	2	-1	5	-2	6
	-2	4	-3	1	0

12. a. Calculate the total float, free float and independent float for the project whose activities are given below

Activity	1-2	1-3	1-5	2-3	2-4	3-4	3-5	3-6	4-6	5-6
Duration in days	8	7	12	4	10	3	5	10	7	4

(OR)

- b. The following table indicates the details of a project. The duration are in days 'a' refers to optimistic time, 'm' refers to most likely time and b refers to pessimistic time duration.

Activity	1-2	1-3	1-4	2-4	2-5	3-5	4-5
a	2	3	4	8	6	2	2
m	4	4	5	9	8	3	5
b	5	6	6	11	12	4	7

- (i) Draw the network  
(ii) Find the critical path  
(iii) Determine the expected standard deviation of the completion time.

13. a. In a railway marshalling yard, goods train arrive at a rate of 30 trains per day. Assuming that inter arrival time follows an exponential distribution and the service time distribution is also exponential, with an average of 36 minutes, calculate the following:

- (i) The mean queue size (line length)  
(ii) The probability that queue size exceeds 10  
(iii) If the input the train increases to an average 33 per day, what will be the changes in (i) and (ii)?

(OR)

- b. The annual demand for an item is 3200 units. The unit cost is ₹ 6/- and inventory carrying charges 25% per annum. If the cost of one procurement is ₹ 150 determine

- (i) Economic order quantity  
(ii) Time between two consecutive orders  
(iii) Number of orders per year  
(iv) The optimal total cost

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**MCA DEGREE EXAMINATION, NOVEMBER 2022**  
Second Semester

PCA20D04J – ANDROID APPLICATIONS DEVELOPMENT  
(For the candidates admitted during the academic year 2021-2022 onwards)

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**  
Answer ANY FIVE Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. What is an Activity in Android? How do you link activities with intent?       | 5     | 4  | 1  | 1  |
| 2. What is the difference between view and view group in Android? Give examples. | 5     | 4  | 2  | 3  |
| 3. How do you create and open SQLite database?                                   | 5     | 3  | 3  | 4  |
| 4. How do you analyse maketext() and show() methods usage in Toast message?      | 5     | 4  | 1  | 2  |
| 5. How do you share data in Android using content providers?                     | 5     | 4  | 4  | 5  |
| 6. How do you send SMS messages using Intent?                                    | 5     | 4  | 4  | 7  |
| 7. What is Geo coding? Where it is used?   | 5     | 1  | 5  | 8  |
| 8. What are the location based services in Android? Why is it important?         | 5     | 3  | 5  | 9  |

**PART – B (5 × 15 = 75 Marks)**

Answer ALL the Questions

- |  | 15 | 2 | 1 | 2  |
|--|----|---|---|----|
| 9.a. Explain about the two types of intents in Android and how android intents are used. |    |   |   |    |
| (OR)   |    |   |   |    |
| b. Draw the activity life cycle diagram and explain them.                                | 15 | 2 | 1 | 1  |
| 10.a. Discuss about view groups in Android.  | 15 | 2 | 2 | 3  |
| (OR)   |    |   |   |    |
| b. Write a program for creating context Menu and Optional menus.                         | 15 | 2 | 2 | 4  |
| 11.a. Develop an application for saving simple data using shared preferences.            | 15 | 3 | 3 | 5  |
| (OR)   |    |   |   |    |
| b. How do you create DB Adapter helps class? Explain it.                                 | 15 | 3 | 3 | 6  |
| 12.a. Explain the Downloading Binary data with an example program.                       | 15 | 2 | 4 | 7  |
| (OR)   |    |   |   |    |
| b. Explain about sending and receiving SMS messages in detail.                           | 15 | 2 | 4 | 7  |
| 13.a.i. Differentiate Geocoding and reverse Geocoding in Android.                        | 8  | 2 | 5 | 8  |
| ii. Briefly explain about Geolocation tracking.  | 7  | 2 | 5 | 8  |
| (OR)   |    |   |   |    |
| b. Simulate Paint Brush Application.   | 15 | 3 | 5 | 10 |

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**MCA DEGREE EXAMINATION, MAY 2022**  
Second Semester

PCA20D04J – ANDROID APPLICATIONS DEVELOPMENT  
(For the candidates admitted during the academic year 2020-2021 onwards)

Time: Three hours Max. Marks: 100

Answer Any Five Questions  
**PART – A (5 × 5 = 25 Marks)**

1. Write a note on Toast message.
2. What is ADT? Enlist the use of ADT in Android.
3. Write a note on Date picker with example.
4. Explain briefly about Android data persistence.
5. Explain about table layout in Android and write the elements used to create row.
6. Write a note on Android Broad Cast Receiver.
7. Define Geocoding and explain how it is used in MapView.
8. List out the events of the Android Activity Life Cycle.

**PART – B (5 × 15 = 75 Marks)**

9. a. Explain in detail about the mechanism that is used to link between different activities.

**(OR)**

- b. List and explain the steps involved in installing Android studio.

10. a. Discuss about the view groups in Android with suitable example.

**(OR)**

- b. Describe about different menus in Android.

11. a. Describe the concept of content providers in Android.

**(OR)**

- b. Discuss about the creation, updation insertion and deletion of data in SQLite database in Android.

12. a. Explain about sending SMS messages in Android.

**(OR)**

- b. Demonstrate the use of Toast Message in Android.

13. a. Explain how to navigate to a specific location in Android Map View, with suitable example.

**(OR)**

- b. Demonstrate with the program the simulation of paint brush application in Android.

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**MCA DEGREE EXAMINATION, NOVEMBER 2022**  
Second Semester

PCA20C04J – PYTHON PROGRAMMING  
(For the candidates admitted during the academic year 2020-2021 onwards)

Time: Three Hours

Max. Marks: 100

**PART – A (5 × 5 = 25 Marks)**  
Answer ANY FIVE Questions

- |  | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 1. What is the difference between interactive and script mode? Give examples.                | 2     | 2  | 1  | 1  |
| 2. Write a short note on Python Dictionaries.  | 2     | 3  | 1  | 1  |
| 3. What are operators in Python? Describe specifically about identify membership operator.   | 2     | 2  | 1  | 1  |
| 4. Write about the identifiers, keywords and statements in Python programming with examples. | 2     | 2  | 1  | 1  |
| 5. Explain the use of join() and split() string methods with examples.                       | 2     | 3  | 2  | 2  |
| 6. Explain Python Built-in Exceptions.   | 2     | 3  | 2  | 2  |
| 7. Give a short note on tkinter.   | 2     | 3  | 2  | 2  |
| 8. Explain the basic data types available in Python with examples.                           | 2     | 3  | 2  | 2  |

**PART – B (5 × 15 = 75 Marks)**Answer **ALL** the Questions

- 9.a.i. Discuss the relation between tuples and lists, tuples and dictionaries in detail. 10 3 2 2

- ii. Discuss zip () function with an example. 5 3 2 2

**(OR)**

- b.i. Explain the need for continue and break statements. 7 3 2 2

- ii. Write a program to check whether a number is prime or not. Prompt the user for input. 8 3 3 3

- 10.a. Explain regular expression in detail. Discuss the following methods supported by compiled regular expression objects 15 3 3 3

- i. Search()
- ii. Match()
- iii. Findall()

**(OR)**

- b. Describe the different access modes of the files with an example. Discuss the methods associated with the file object. 15 3 4 3

- 11.a. Describe the difference between python OS and OS. Path modules. Also, discuss any five methods of OS module. 15 3 4 3

**(OR)**

- b. Explain thread in python and how to create a demon thread. 15 3 4 3

- 12.a. State the need for urllib in python in detail. 15 3 4 3

**(OR)**

- b.i. How to handle multiple clients in python socket? 8 3 4 3

- ii. Explain passing parameters in detail. 7 3 3 3

- 13.a. Explain about Radiobutton, List bokg and Scrdlbars widget in tkinter. 15 3 5 3

**(OR)**

- b. Explain event handling and menus in Python. 15 3 5 3

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### MCA DEGREE EXAMINATION, MAY 2022

Second Semester

PCA20D06J – SOFTWARE TESTING  
*(For the candidates admitted during the academic year 2020-2021 onwards)*

Time: Three hours

Max. Marks: 100

Answer Any Five Questions  
**PART – A (5 × 5 = 25 Marks)**

1. Define testing and mention its objectives.
2. Differentiate verification from validation.
3. Write a short note on loop testing.
4. Brief about the advantages of Boundary Value Analysis method.
5. Draw a cause-effect graph.
6. Compare top-down integration and bottom-up integration.
7. List out the benefits of testing tools.
8. Write about the browsers supported by selenium.

**PART – B (5 × 15 = 75 Marks)**

9. a. Elaborate the principles of testing.  
**(OR)**  
 b. Illustrate software development life cycle model with suitable examples.

10. a. Exemplify white box testing technique with examples.

**(OR)**

- b. Write a detailed note on:
 

(i) Equivalence Partitioning	(7 Marks)
(ii) Boundary Value Analysis	(8 Marks)

11. a. Discuss about the levels of testing.

**(OR)**

- b. Elucidate the configuration testing and compatibility testing with examples.

12. a. Explain Bug's life cycle with neat diagram.

**(OR)**

- b. Illustrate writing and tracking test cases with an example.

13. a. Describe the important features of selenium.

**(OR)**

- b. Write a explanatory note on:
 

(i) Selenium IDE	(5 Marks)
(ii) Selenium RC	(5 Marks)
(iii) Selenium web driver	(5 Marks)

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### MCA DEGREE EXAMINATION, MAY 2022

Second Semester

PCA20C04J – PYTHON PROGRAMMING  
*(For the candidates admitted during the academic year 2020-2021 onwards)*

Time: Three hours

Max. Marks: 100

Answer Any Five Questions  
**PART – A (5 × 5 = 25 Marks)**

1. List out the features of python.
2. Explain different data types available in python.
3. Describe the access modes available in python.
4. Explain about creating classes and objects in python.
5. Describe the OS module in python.
6. Explain about parallel system tools.
7. Write about socket modules in python.
8. Explain tkinter methods for creating python application with GUI.

### **PART – B (5 × 15 = 75 Marks)**

9. a. Discuss various loop control statements with example.

**(OR)**

- b. Describe functions with function arguments using example.

10. a. Discuss about the file handling in python.

**(OR)**

- b. Explain the concept of inheritances and its types with example.

11. a. Explain about traverse a directory tree in python.

**(OR)**

- b. Explain process standard streams in python.

12. a. Discuss about server socket methods in python.

**(OR)**

- b. Describe python XML parser architectures with neat diagram.

13. a. Design a calculator app using tkinter.

**(OR)**

- b. Explain about SQLite database operations in python.

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**MCA DEGREE EXAMINATION, MAY 2022**  
Second Semester

PCA20C05J – COMPUTER NETWORKS  
(For the candidates admitted during the academic year 2020-2021 onwards)

Time: Three hours Max. Marks: 100

Answer ANY FIVE Questions  
**PART – A (5 × 5 = 25 Marks)**

1. What is mean by data communication?
2. What are the need for protocol architecture?
3. For n device in a network, what is the number of cable links required for a mesh and ring topology?
4. What is Error control? Explain briefly.
5. Write a short notes on packet switching.
6. Explain about ‘Flooding’.
7. What is the purpose of Frame forwarding?
8. Explain briefly about MIME.

**PART – B (5 × 15 = 75 Marks)**

9. a. Describe the TCP / IP protocol architecture in detail.

**(OR)**

- b. Discuss about the multimedia types, multimedia application and technologies.

10. a. How will you analyse the performance of various configurations and protocols in LAN using static routes in cisco packet tracer? Explain.

**(OR)**

- b. Discuss about the unguided transmission media with suitable diagram.

11. a. Elaborate the following:

- i. Stop-And-Wait flow control (8 Marks)  
ii. Sliding-Window-Flow control (7 Marks)

**(OR)**

- b. Explain the mechanism for error detection codes and error correction codes in data transmission.

12. a. Discuss the following

- i. Logical Link Control (8 Marks)  
ii. Media Access control (7 Marks)

**(OR)**

- b. Write a HTML code to implement google search in a web page.

13. a. Explain in detail about the IEEE 802 reference model with neat diagram.

**(OR)**

- b. Discuss the following:  
i. Distinguish between bus and star topologies. (5 Marks)  
ii. Distinguish between Hubs and switches. (5 Marks)  
iii. Discuss the functionality of the bridges. (5 Marks)

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