

**R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT**  
(An Autonomous Institute U/s UGC Act 1956)

**IMSc-IT SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025**

**SUBJECT CODE: 1BS304**

**DATE: 23-12-2025**

**SUBJECT NAME: PYTHON PROGRAMMING**

**TIME: 11:00 AM to 01:30 PM**

**TOTAL MARKS: 70**

**Instructions**

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

**SECTION A**

	<b>Marks</b>	<b>BL</b>	<b>CO</b>
<b>Q.1 (a)</b> What is the difference between list and tuple?	<b>03</b>	<b>U</b>	<b>4</b>
<b>(b)</b> Write a short note on dictionary methods.	<b>04</b>	<b>R</b>	<b>4</b>
<b>Q.2 (a)</b> What is an ndarray?	<b>03</b>	<b>R</b>	<b>5</b>
<b>(b)</b> Explain the main features of NumPy.	<b>04</b>	<b>U</b>	<b>5</b>
<b>(c)</b> Write a Python program to plot a simple line graph showing the relationship between “Year” and “Sales”.	<b>07</b>	<b>A</b>	<b>5</b>
<b>OR</b>			
<b>Q.2 (a)</b> What is the function of plot() in Matplotlib?	<b>03</b>	<b>R</b>	<b>5</b>
<b>(b)</b> What are DataFrames and Series in Pandas?	<b>04</b>	<b>U</b>	<b>5</b>
<b>(c)</b> Write a program to demonstrate NumPy functions like reshape(), max(), min(), and sum() on a 2D array.	<b>07</b>	<b>A</b>	<b>5</b>
<b>Q.3 (a)</b> What is a module in Python?	<b>03</b>	<b>R</b>	<b>6</b>
<b>(b)</b> Explain how to create and access a user-defined package.	<b>04</b>	<b>U</b>	<b>6</b>
<b>(c)</b> Write a Python program to create a module named easy_math containing functions add and subtract.	<b>07</b>	<b>A</b>	<b>6</b>

**OR**

<b>Q.3</b>	<b>(a)</b> What is a package in Python?	<b>03</b>	<b>R</b>	<b>6</b>
	<b>(b)</b> Explain different ways to import modules in Python.	<b>04</b>	<b>U</b>	<b>6</b>
	<b>(c)</b> Write a program to demonstrate importing specific functions from a user-defined module.	<b>07</b>	<b>A</b>	<b>6</b>

### SECTION B

		Marks	BL	CO
<b>Q.4</b>	<b>(a)</b> Explain different types of operators available in Python with suitable examples.	<b>03</b>	<b>R</b>	<b>1</b>
	<b>(b)</b> Discuss various string functions and methods in Python with examples.	<b>04</b>	<b>R</b>	<b>1</b>
<b>Q.5</b>	<b>(a)</b> Differentiate between entry-controlled and exit-controlled loops with examples.	<b>03</b>	<b>U</b>	<b>2</b>
	<b>(b)</b> Differentiate between for and while loops with suitable examples.	<b>04</b>	<b>U</b>	<b>2</b>
	<b>(c)</b> Differentiate between if, if...else, and elif statements with suitable examples.	<b>07</b>	<b>U</b>	<b>2</b>

### OR

<b>Q.5</b>	<b>(a)</b> Discuss the role of initialization, condition, and increment/decrement in a while loop.	<b>03</b>	<b>U</b>	<b>2</b>
	<b>(b)</b> Write a Python program to print even numbers between 1 and 20 using a while loop	<b>04</b>	<b>A</b>	<b>2</b>
	<b>(c)</b> Explain the use of break, continue, and pass statements in Python with examples.	<b>07</b>	<b>U</b>	<b>2</b>
<b>Q.6</b>	<b>(a)</b> What is a class in Python? How is an object created from a class?	<b>03</b>	<b>R</b>	<b>3</b>
	<b>(b)</b> Explain the concept of exception handling in Python. Describe how try, except, and finally blocks are used with examples.	<b>04</b>	<b>U</b>	<b>3</b>
	<b>(c)</b> Explain the concept of Object-Oriented Programming (OOP) in Python. How are classes and objects created? Write an example program.	<b>07</b>	<b>A</b>	<b>3</b>

### OR

<b>Q.6</b>	<b>(a)</b> Discuss the importance of multiple except blocks in real-world programs with an example.	<b>03</b>	<b>U</b>	<b>3</b>
	<b>(b)</b> What is the role of the <code>__init__()</code> method in Python classes? Explain with examples.	<b>04</b>	<b>U</b>	<b>3</b>
	<b>(c)</b> Describe how data and behavior are represented using classes and objects in Python. Give suitable examples.	<b>07</b>	<b>A</b>	<b>3</b>

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