

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

B.Tech. SEMESTER-II, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1IT202

DATE: 07-01-2026

SUBJECT NAME: PYTHON FOR ENGINEERS

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 - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

	Marks	BL	CO
Q.1 Multiple-Choice Questions	[05]		
(a) Which of the following file modes is used to write binary data into a file in Python? <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(i) "w"</div> <div style="width: 45%;">(ii) "wb"</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(iii) "rb"</div> <div style="width: 45%;">(iv) "ab+"</div> </div>	1	R	4
(b) Which statement correctly explains the use of string slicing in Python? <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(i) It compares two strings</div> <div style="width: 45%;">(ii) It extracts a portion of a string using index values</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(iii) It converts a string to lowercase</div> <div style="width: 45%;">(iv) It matches patterns using regex</div> </div>	1	U	4
(c) Which method is most appropriate to read all lines from a text file into a list? <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(i) read()</div> <div style="width: 45%;">(ii) write()</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(iii) readline()</div> <div style="width: 45%;">(iv) readlines()</div> </div>	1	A	4
(d) Which library in Python is mainly used for numerical computing with arrays? <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(i) Pandas</div> <div style="width: 45%;">(ii) NumPy</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;">(iii) Matplotlib</div> <div style="width: 45%;">(iv) Seaborn</div> </div>	1	R	5

(e) Which SciPy function is used to compute definite integrals?	1	A	5
(i) quad()			
(ii) mean()			
(iii) interp()			
(iv) minimize()			

Q.2 Attempt Any Two	[10]		
(a) Describe the working of the map() function in Python.	5	U	3
(b) Explain the purpose of the filter() function.	5	U	3
(c) Explain the reduce() function and its role in data processing.	5	U	3
Q.3 Attempt Any Two	[10]		
(a) Write a Python program to traverse a string using a loop and extract a substring using string slicing.	5	A	4
(b) Explain the concept of regular expressions in Python.	5	U	4
(c) Discuss various string methods available in Python.	5	U	4
Q.4 Attempt Any Two	[10]		
(a) Explain NumPy arrays and their advantages over Python lists.	5	U	5
(b) Describe indexing and slicing in NumPy arrays with suitable examples.	5	U	5
(c) Create a Matplotlib program to plot multiple datasets using subplots.	5	A	5

(b) Write a Python program to demonstrate indexing and slicing in tuple. 5 A 2

(c) Explain a working of dictionary with any three methods. 5 U 2

Q.8 Attempt Any Two [10]

(a) Define: function. Enlist any four advantages of using functions in Python. 5 R 3

(b) Write a Python function that finds the square and cube of a given number. 5 A 3

(c) Differentiate local and global scope in Python functions with an example. 5 R 3
