

SAMPLE PAPERS
DIPLOMA THIRD SEMESTER EXAMINATION 2025 (JUT)
ADVANCED PYTHON PROGRAMMING

DIPLOMA WALLAH

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Full Marks: 70 | **Time:** 3 Hours

Instructions: * Answer **five** questions in total.

- **Question No. 1** is compulsory.
- Answer any **four** questions from the remaining (Q2 to Q7).
- All questions carry equal marks.

Q1. Choose the correct alternative: ($2 \times 7 = 14$ Marks)

(i) $x = \{1, 2, 3\}$. What is the result of `x.add([4, 5])`?

- (a) $\{1, 2, 3, [4, 5]\}$
- (b) $\{1, 2, 3, 4, 5\}$
- (c) `TypeError`
- (d) `None`

(ii) Which module in Python supports Regular Expressions?

- (a) `regex`
- (b) `re`
- (c) `pyre`
- (d) `string`

(iii) What is the output of `print(0.1 + 0.2 == 0.3)`?

- (a) `True`
- (b) `False`
- (c) `Error`
- (d) `None`

(iv) The `seek()` method represents the offset from:

- (a) Start of file only
- (b) Current position only
- (c) End of file only
- (d) Start, Current, or End

(v) Which exception is raised when a function is called on an object of an inappropriate type?

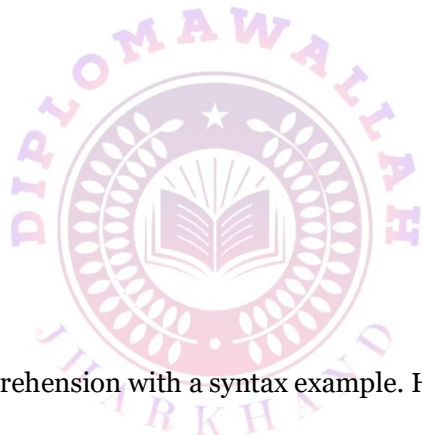
- (a) ValueError
- (b) TypeError
- (c) AttributeError
- (d) SystemError

(vi) In Turtle, turtle.setheading(90) points the turtle to:

- (a) East
- (b) North
- (c) West
- (d) South

(vii) pickle.dumps() returns:

- (a) A file object
- (b) A byte stream object
- (c) A string
- (d) A list



Q2. (Data Structures)

(a) Explain Dictionary Comprehension with a syntax example. How is it different from List Comprehension? (7 Marks)

(b) Write a Python program that accepts a string and counts the number of Vowels and Consonants in it using a dictionary.

- *Input: "Hello" --->Output: {'vowels': 2, 'consonants': 3}* (7 Marks)

Q3. (Modules & Packages)

(a) Explain the significance of the `__init__.py` file in a package. Can a package exist without it in newer Python versions? (7 Marks)

(b) Write a program using the `datetime` module to accept a birthdate (YYYY-MM-DD) from the user and calculate their current age in years. (7 Marks)

Q4. (Exception Handling)

(a) Differentiate between finally block and else block in exception handling. When is each executed? (7 Marks)

(b) Write a program to strictly accept an Integer between 1 and 100 from the user. Raise a `ValueError` if input is non-numeric and a custom `OutOfRangeException` if it is outside 1-100. (7 Marks)

Q5. (File Handling)

(a) Explain the with statement (Context Manager) for file handling. Why is it considered best practice? (7 Marks)

(b) Write a program to read a text file data.txt and display only those lines which have more than 5 words. (7 Marks)

Q6. (Turtle Graphics)

(a) Explain the difference between turtle.forward() and turtle.goto(). (7 Marks)

(b) Write a Turtle program to draw a Star of David (two inverted triangles overlapping) or a simple 6-pointed star. (7 Marks)

Q7. Write short notes on any four: ($3.5 \times 4 = 14$ Marks)

(a) sys.path vs sys.argv

(b) Mutable vs Immutable Types

(c) raise keyword

(d) Binary Mode (wb)

(e) Turtle speed()

