

**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.

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

(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 `OutOfRangeError` 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()

