

Seat No. : \_\_\_\_\_

# AK-102

April-2025

Int. M.Sc., (CA & IT), Sem.-IV

## Advance Programming

Time : 1:00 Hour]

[Max. Marks : 25

1. Answer the following : 10
  - (1) (a) Explain the concept of Object-Oriented Programming in Python. Describe class, object, constructor, and method overriding with a suitable example. 5

**OR**

  - (b) What is Exception Handling ? Explain the use of try, except, else, and finally with an example. Also, describe how custom exceptions are created. 5
  - (2) What are Function Decorators in Python ? Illustrate their use with an example. 3
  - (3) What is Web Scraping ? How is the requests module used to retrieve HTML content from a webpage ? 2
  
2. Answer the following : 10
  - (A) Attempt any **two** of the following : 2 × 2 = 4
    - (1) Explain the difference between lists and tuples. Provide examples of their typical use cases.
    - (2) What are Higher-Order Functions ? Demonstrate the use of map( ) and filter( ) with appropriate examples.
    - (3) What is a Context Manager ? Create a user-defined context manager class using `_enter_` and `_exit_`.
  
  - (B) Attempt any **two** of the following : 2 × 3 = 6
    - (1) What are Generators ? Write a generator function to produce Fibonacci numbers.
    - (2) Explain how to handle CSV files using the CSV module in Python. Show file reading with an example.
    - (3) What is Pandas ? Describe how it is used for reading data and cleaning null values using `dropna( )` and `fillna( )`.
  
3. Short answer type questions : (Any **five**) 5 × 1 = 5
  - (1) What does the yield keyword do in a function ?
  - (2) What is the output of `type([])` and `type(())` ?
  - (3) What does the `open()` function return in Python ?
  - (4) Write a regular expression pattern to extract all email addresses from a string.
  - (5) Name two useful functions from the `math` or `datetime` module.
  - (6) Mention one difference between `set` and `frozenset` in Python.