

# Bihar Engineering University, Patna

## B.Tech 2<sup>nd</sup> Semester Examination, 2025

Course: B.Tech

Code: 100218

Subject: Python Programming

Time: 03 Hours

Full Marks: 70

### Instructions:-

- (i) The marks are indicated in the right-hand margin.
- (ii) There are NINE questions in this paper.
- (iii) Attempt FIVE questions in all.
- (iv) Question No. 1 is compulsory.

### Q.1 Choose the correct option / answer the following (Any seven question only):

[2 x 7 = 14]

- (a) Which of the following is a valid variable name in Python?
  - (i) 2value
  - (ii) value2
  - (iii) value-2
  - (iv) value 2
- (b) Which symbol is used for comments in Python?
  - (i) //
  - (ii) <!-- -->
  - (iii) #
  - (iv) /\* \*/
- (c) Which function is used to take input from the user?
  - (i) scanf()
  - (ii) gets()
  - (iii) read()
  - (iv) input()
- (d) Which of the following will create an empty dictionary?
  - (i) {}
  - (ii) []
  - (iii) dict()
  - (iv) set()
- (e) What is the correct syntax to define a function in Python?
  - (i) function fun():
  - (ii) def fun():
  - (iii) def fun[]:
  - (iv) define fun():
- (f) "Hello"[1] gives:
  - (i) H
  - (ii) e
  - (iii) l
  - (iv) o
- (g) Which method is used to find length of a string?
  - (i) length()
  - (ii) size()
  - (iii) count()
  - (iv) len()
- (h) Lists in Python are
  - (i) Mutable
  - (ii) Immutable
  - (iii) Constant
  - (iv) None
- (i) Which method removes the last element from a list?
  - (i) remove()
  - (ii) pop()
  - (iii) clear()
  - (iv) delete()
- (j) Which of the following is used to open a file in Python?
  - (i) file()
  - (ii) open()
  - (iii) read()
  - (iv) fopen()

Q.2 (a) Explain Identifiers, Keywords, Statements, and Expressions in Python. [7]  
(b) Explore the working of while and for loop with examples. [7]

Q.3 (a) Explain Assignment and Relational operators in python with program? [7]  
(b) What is type conversion? Explain with example? [7]

Q.4 (a) Explain elseif ladder in python programming with suitable example. [7]  
(b) Write a Python program to count how many numbers in a given list are even and how many are odd. [7]

Q.5 (a) Explain the scope and lifetime of variables with examples. Also demonstrate how the global keyword is used to modify global variables inside a function. [7]  
(b) Write a function factors (N) that returns a list of all positive divisors of N ( $N \geq 1$ ). [7]  
For example:  
factors (6) returns [1,2,3,6]  
factors (1) returns [1]  
factors (13) returns [1,13]

Q.6 (a) Explain concatenation, comparison, and length operation. Support your explanation with suitable example programs. [7]  
(b) Explain commonly used string methods such as upper(), lower(), strip(), find(), replace(), split(), join(), etc. Write example code demonstrating at least five string methods. [7]

Q.7 (a) Explain operations such as *concatenation*, *repetition*, *membership*, and *length* in list with program? [7]  
(b) Explain indexing and slicing in lists with examples. Discuss: Positive and negative indexing, Accessing single elements, Slicing formats: list[start:end], list[start:end:step]. [7]

Q.8 (a) What are nested loops? Write a program to print the following pattern using nested for loops:  
\*  
\*\*  
\*\*\*  
\*\*\*\*  
(b) Explain commonly used methods like add(), update(), remove(), discard(), union() in set with program? [7]

Q.9 (a) How to perform read operation in text file explain with example? [7]  
(b) Write a Python function to count the frequency of each character in a given a string and return the output in a dictionary. Example: char\_frequency ("HELLO") returns {"H":1, "E":1, "L":2, "O":1} [7]