18133

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Tech.(EE)-2024
Course Name – Applied Python Programming
Course Code - BES00016
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the keyword that defines a class template in Python.

a) class b) object
c) Class d) instance

(ii) Select the result of this expression. [i.lower() for i in "HELLO"]

a) ['h', 'e', 'l', 'l', 'o'] b) hello'
c) ['hello'] d) hello

(iii) Select the output of this code. x = [i**+1 for i in range(3)] print(x)

a) [0, 1, 2] b) [1, 2, 5]
c) Syntax error due to **+ d) Syntax error because of ;

(iv) Choose the correct syntax for a dictionary comprehension.

a) {x: x**2 for x in range(5)} b) [x: x**2 for x in range(5)]
c) (x: x**2 for x in range(5)) d) {x for x in range(5)}

(v) Select the following comprehension produce in python {x: x**3 for x in range(5) if x**3 % 4 == 0}

a) {} b) {0: 0, 2: 8}
c) {1:1, 2:8, 3:27, 4:64} d) Syntax error

(vi) Select the result of this code: l = "AB" d = {x: {y: x+y for y in l} for x in l} print(d)

a) {'A': {'A':'AA', 'B':'AB'}, 'B': {...}} b) A flat dict
c) Syntax error d) [('A','AA'), ...]

(vii) pairs = [(i, j) for i in range(3) for j in range(3)] res = {i + j for i, j in pairs if i != j} print(res)
Select the value of res from the given options.

a) {0, 1, 2, 3, 4} b) {1, 2, 3, 4}
c) {2, 4} d) Syntax error

(viii) Choose the reason why a generator expression over a list comprehension.

a) When you need random access indexing
b) When working with very large or potentially infinite sequences
c) When you want duplicates removed
d) When you need eager evaluation for speed

(ix) Choose the correct option for superclass (or base class) in Python.

a) A class that defines other classes
b) A class whose instances are other classes
c) A parent class from which attributes or methods are inherited
d) A function that overrides inheritance

(x) Select the primary purpose of using functions in Python.

a) To increase the complexity of the code
b) To hide the implementation details and expose only necessary parts
c) To make the code run faster
d) To reduce the number of lines in the code

(xi) def multiply(x, y=2): return x * y print(multiply(3)) Select the output.

a) 6
b) 5
c) 3
d) error due to missing parameter

(xii) def factorial(n): if n == 0: return 1 else: return n * factorial(n - 1) print(factorial(5)) Select the output of the code.

a) 5
b) 10
c) 120
d) none

(xiii) Select the output. for i in range(3): print(i)

a) 0,1,2
b) 1,2,3
c) 0,1,2,3
d) error

(xiv) Select the keyword that is used to skip the rest of the code inside a loop for the current iteration only.

a) break
b) continue
c) pass
d) skip

(xv) x = 2 for i in range(x): x += 1 print(x) Select the output.

a) 0 1 2 3
b) 0 1
c) 3 4
d) error

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define metaclass. (3)
3. Define tuple. (3)
4. Give a program of reverse of an array. (3)
5. Explain the difference between 'apply()', 'map()', and 'applymap()' in Pandas. (3)
6. Construct the advantage of NumPy array over a Nested list. (3)

OR

Compile the key library in python data analysis. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain any one paradigm of oop in python. (5)
8. Explain access specifier in python. (5)
9. Analyse abstraction. Explain abstract method in python with example. (5)
10. Explain recursion in python. (5)
11. Conclude a program to find whether a year is leap year or not. (5)
12. Analyse data encryption in python. (5)

OR

Analyse number system in python. (5)