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BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – B.Tech.(BT)-2024/B.Tech.(BT)-2025

Course Name – Computer Fundamentals and Python

Course Code - BES00004

(Semester II)

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 components associated with executing arithmetic and logic operations.

- | | |
|---------------|------------|
| a) Hard Drive | b) RAM |
| c) ALU | d) Monitor |

(ii) Convert the decimal number 10 into binary.

- | | |
|---------|---------|
| a) 1010 | b) 1100 |
| c) 1001 | d) 1111 |

(iii) Recognize the correct symbol used for a decision in a flowchart.

- | | |
|------------|--------------|
| a) Oval | b) Rectangle |
| c) Diamond | d) Circle |

(iv) Identify the data type associated with whole numbers in Python.

- | | |
|-----------|---------|
| a) float | b) int |
| c) string | d) bool |

(v) Define the general syntax for creating a function in Python.

- | | |
|----------------------|-------------------|
| a) define function() | b) func() |
| c) def function(): | d) function def() |

(vi) Identify the arithmetic operators in Python.

- | | |
|---------------|-----------------|
| a) if, else | b) +, -, *, / |
| c) while, for | d) print, input |

(vii) Identify which statement is used to exit a loop prematurely.

- | | |
|-------------|-----------|
| a) continue | b) break |
| c) pass | d) return |

(viii) List the types of conditional statements in Python.

- | | |
|--------------------------------|-------------------------|
| a) If, If-else, Nested If-else | b) While, For, Loop |
| c) Def, Class, Object | d) Print, Input, Return |

(ix) State the function of elif in Python.

- a) Terminates a loop
- c) Repeats a loop
- (x) Identify the correct syntax for a nested if-else.
 - a) if condition: if condition: statement else: statement
 - b) if condition then if condition then else
 - c) if condition: nested if
 - d) if condition { if condition {}
- (xi) Select the method used to get all dictionary keys.
 - a) dict.values()
 - b) dict.keys()
 - c) dict.get_keys()
 - d) dict.all_keys()
- (xii) Identify an immutable dictionary key type.
 - a) List
 - b) Tuple
 - c) Set
 - d) Dictionary
- (xiii) Select the best way to merge two dictionaries d1 and d2.
 - a) d1 + d2
 - b) d1.update(d2)
 - c) d1.extend(d2)
 - d) d1.append(d2)
- (xiv) Indicate the correct way to handle exceptions.
 - a) Using if-else
 - b) Using try-except
 - c) Using while loop
 - d) Using assert
- (xv) Predict the behavior of importing a module multiple times.
 - a) Runs multiple times
 - b) Runs only once
 - c) Throws an error
 - d) Creates multiple copies

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Group-B

(Short Answer Type Questions)

3 x 5=15

2. Develop a summary of the differences between control statements like break, continue, and pass in Python. (3)
3. Develop code in Python to check if a string is a palindrome. Describe the logic used to determine if the string reads the same forwards and backwards. (3)
4. Identify scenarios where exception handling is necessary. (3)
5. Interpret how dictionary keys function and describe their significance in fast data retrieval. (3)
6. Differentiate between Von Neumann and Harvard architectures. (3)

OR

Analyze the impact of memory hierarchy on computer performance. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Develop a Python program using operators to perform arithmetic and logical operations on user inputs. (5)
8. Design a Python-based flowchart representation and construct a program that follows a structured algorithm. (5)
9. Calculate the computational complexity of nested loops and analyze their efficiency in processing large datasets. (5)
10. Associate string slicing with data extraction and describe its usefulness in handling text-based information. (5)
11. Compare file handling methods in Python for reading and writing data. (5)
12. Correlate the role of memory hierarchy with system performance and analyze how different types of memory contribute to efficient computing. (5)

OR

Analyze the impact of software and hardware integration in modern computing systems and correlate their interdependence in ensuring optimal performance. (5)