**[midterm-30marks.md](https://gist.github.com/amirkhan1092/92806ebb87e1c0feedee4bdcbe569fa1" \l "file-midterm-30marks-md)**

**Midterm Question Paper**

**Course Title:** Computer Programming - 1

**Time Allowed:** 2 hours

**Marks:** 30

**Objective Questions:**

* + What is Python?
    - A. A snake
    - B. A programming language
    - C. A tool for data analysis
    - D. A database system
  + In Python, which keyword is used for the "else if" condition?
    - A. elseif
    - B. elif
    - C. else if
    - D. elseif
  + How do you concatenate two strings in Python?
    - A. str1 + str2
    - B. str1 . str2
    - C. str1 : str2
    - D. str1 - str2
  + What does my\_list.append(5) do?
    - A. Adds 5 to the beginning of the list
    - B. Adds 5 to the end of the list
    - C. Removes the first occurrence of 5
    - D. Removes the last element in the list
  + What is the result of 3 \*\* 2?
    - A. 9
    - B. 6
    - C. 12
    - D. 27
  + Which function is used to find the length of a list?
    - A. len()
    - B. size()
    - C. count()
    - D. length()
  + How can you create a list of squares from 1 to 10 using list comprehension?
    - A. [x for x in range(1, 11)]
    - B. [x \* x for x in range(1, 11)]
    - C. [x \*\* 2 | x in range(1, 11)]
    - D. (x \*\* 2 for x in range(1, 11))
  + What does the map function do in Python?
    - A. Creates a map visualization
    - B. Applies a function to each item in an iterable
    - C. Filters elements based on a given condition
    - D. Sorts the elements of a list
  + Which of the following is not a valid Python data type?
    - A. int
    - B. float
    - C. char
    - D. str
  + How is the ternary operator represented in Python?
    - A. ? :
    - B. if-else
    - C. ?:
    - D. if-elif-else
  + What method can be used to convert a string to uppercase?
    - A. toUpper()
    - B. uppercase()
    - C. upper()
    - D. caseUpper()
  + How do you remove an element by value from a list?
    - A. remove(x)
    - B. pop(x)
    - C. delete(x)
    - D. discard(x)
  + What is the result of 10 / 3?
    - A. 3.3333333333333335
    - B. 3
    - C. 3.0
    - D. 3.333
  + Which function is used to find the maximum value in a list?
    - A. max()
    - B. maximum()
    - C. largest()
    - D. top()
  + What does [x for x in range(10) if x % 2 == 0] produce?
    - A. List of even numbers from 0 to 9
    - B. List of even numbers from 1 to 10
    - C. List of all numbers from 0 to 9
    - D. List of all numbers from 1 to 10
  + What is the purpose of the lambda function in the map function?
    - A. Defines a named function
    - B. Applies a function to each element in the iterable
    - C. Filters elements based on a condition
    - D. Sorts the elements of a list
  + What is the result of 2 + '3'?
    - A. 5
    - B. '23'
    - C. TypeError
    - D. '5'
  + How can you check if a number is negative in an if statement?
    - A. if num < 0:
    - B. if num is negative:
    - C. if num = negative:
    - D. if num == 0:
  + How do you check if a string starts with the word "Hello"?
    - A. if string.starts('Hello'):
    - B. if string[:5] == 'Hello':
    - C. if string.startsWith('Hello'):
    - D. if string.starts\_with('Hello'):
  + What is the difference between extend and append methods in lists?
    - A. They are used interchangeably
    - B. extend adds elements to the end, append adds a list to the end
    - C. extend adds a list to the end, append adds elements to the end
    - D. There is no difference

[**Coding Questions**](https://gist.github.com/amirkhan1092/92806ebb87e1c0feedee4bdcbe569fa1#coding-questions)

**Question 1: (5 Marks)**

Write a Python program that takes an integer n as input and prints the sum of all numbers from 1 to n that are divisible by both 2 and 3. Use a for loop for this task.

**Example:**

Sample Input 1

10

Sample Output 1

6

Sample Input 2

15

Sample Output 2

18

**Question 2: (7 Marks)**

You are given a string sentence containing words separated by spaces. Write a Python program that counts the number of vowels in the sentence and prints the result.

**Example:**

Sample Input 1

`Hello, how are you?`

Sample Output 1

7

Sample Input 2

`Python is amazing!`

Sample Output 2

5

**Question 3: (8 Marks)**

You are given a list of integers. Write a Python program that squares each element of the list and then filters out the even squared numbers. Finally, print the resulting squared and filtered list in a single line.

**Example:**

Sample Input 1

1 2 3 4 5

Sample Output 1

1 9 25

sample Input 2

2 4 6 8 10

Sample Output 2

None

**Note:**

* You may assume that the input data is valid for all questions.
* Properly comment your code.
* Partial credit will be given for partially correct answers.

**END OF QUESTION PAPER**