Midterm Question Paper

Course Title: Computer Programming - 1

Time Allowed: 2 hours

Marks: 30

Objective Questions:

1. - What is Python?
     - A. A snake
     - B. A programming language
     - C. A tool for data analysis
     - D. A database system

2. - In Python, which keyword is used for the "else if" condition?
     - A. elseif
     - B. elif
     - C. else if
     - D. elseif

3. - How do you concatenate two strings in Python?
     - A. `str1 + str2`
     - B. `str1 . str2`
     - C. `str1 : str2`
     - D. `str1 - str2`

4. - 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

5. - What is the result of `3 ** 2`?
     - A. 9
     - B. 6
     - C. 12
     - D. 27

6. - Which function is used to find the length of a list?
   - A. `len()`
   - B. `size()`
   - C. `count()`
   - D. `length()`

7. - 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))`

8. - 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

9. - Which of the following is not a valid Python data type?
   - A. int
   - B. float
   - C. char
   - D. str

10. - How is the ternary operator represented in Python?
    - A. `? :`
    - B. `if-else`
    - C. `?:`
    - D. `if-elif-else`

11. - What method can be used to convert a string to uppercase?
    - A. `toUpper()`
    - B. `uppercase()`
    - C. `upper()`
    - D. `caseUpper()`

12. - How do you remove an element by value from a list?
    - A. `remove(x)`
    - B. `pop(x)`
    - C. `delete(x)`
    - D. `discard(x)`

13. - What is the result of `10 / 3`?
    - A. 3.3333333333333335
    - B. 3
    - C. 3.0
    - D. 3.333

14. - Which function is used to find the maximum value in a list?
     - A. `max()`
     - B. `maximum()`
     - C. `largest()`
     - D. `top()`

15. - 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

16. - 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

17. - What is the result of `2 + '3'`?
     - A. 5
     - B. '23'
     - C. TypeError
     - D. '5'

18. - 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:`

19. - 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'):`

20. - 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

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:
```python

Sample Input 1
10
Sample Output 1
30

Sample Input 2
15
Sample Output 2
60
```

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:
```python
Sample Input 1
"Hello, how are you?"
Sample Output 1
5

Sample Input 2
"Python is amazing!"
Sample Output 2
6
```

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:

```python
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
16 36 64 100
```

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