ANANDALAYA
PERIODIC TEST-2
Class: XI

Subject: Computer Science (083)   MM: 70
Date   : 12-09-2025   Time: 3 Hrs

General Instructions:
1. This question paper contains 37 questions.
2. All questions are compulsory.
3. The paper is divided into 5 Sections- A, B, C, D and E.
4. Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
5. Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
6. Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
7. Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
8. Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
9. All programming questions are to be answered using Python Language only.
10. In-case of MCQ, text of the correct answer should also be written.

SECTION A

1. State True or False: (1)
   "Identifiers are names used to identify a variable, function in a program."

2. What will be the output of the following code? (1)
   print(25 - 3**2**2 + 64//4)
   (A) -56   (B) -40   (C) 105   (D) 89

3. Which of the following is not a valid Python identifier? (1)
   (A) _value   (B) 2ndNumber   (C) Student_name   (D) total_marks

4. What will be the output of the following code? (1)

   text = "Python Programming"
   print(text[7:14])

   (A) Program   (B) Programm   (C) Program   (D) rogramm

5. Which technology uses distributed ledger for secure transactions? (1)
   (A) Artificial Intelligence   (B) Machine Learning
   (C) Blockchain   (D) Internet of Things

6. What will be the output of the following code? (1)

   ```
   x = 15
   print(x, end='@@')
   def change():
       global x
       x = x + 10
       print(x, end='##')
   change()
   print(x)
   ```

   (A) 15@@25##25   (B) 15@@10##15   (C) 15@@25##15   (D) 25@@25##25

7. Which of the following is not a Python keyword? (1)
   (A) elif   (B) switch   (C) continue   (D) lambda

8. Find the error in the following Python code: (1)
   ```
   for i in range(10)
       if i % 3 == 0: print(i)
   ```
   (A) Missing colon after range(10)   (B) Incorrect indentation
   (C) Invalid variable name   (D) Wrong operator used

9. What does IoT stand for in emerging technologies? (1)
   (A) Internet of Things   (B) Integration of Technology
   (C) Information Technology   (D) Interactive Online Tools

10. What will be the output of the following Python code? (1)

    numbers = [10, 20, 30, 40, 50]

    print(numbers[2:5])

    print(len(numbers))

    (A) [30, 40, 50] and 5   (B) [20, 30, 40] and 5   (C) [30, 40] and 5   (D) [20, 30, 40, 50] and 4

11. Which method is used to add an element at the end of a list in Python? (1)
    (A) insert()   (B) append()   (C) extend()   (D) add()

12. What will be the output of the following Python code? (1)

    print(18 + 6 * 2**3 - 15//3)

    (A) 61   (B) 65   (C) 192   (D) 187

13. Which of the following technologies is primarily used for creating immersive digital (1) environments?
    (A) Big Data   (B) Virtual Reality   (C) Cloud Computing   (D) Machine Learning

14. What will be the data type of the variable result after executing the following code? (1)
    result = 10 / 3
    (A) int   (B) float   (C) str   (D) complex

15. Find the error in the following Python code: (1)
    ```
    name = input("Enter your name: ")
    if name == "Admin"
        print("Welcome Administrator")
    ```
    (A) Missing colon after if condition   (B) Incorrect string comparison
    (C) Wrong input function   (D) Missing parentheses in print

16. Which of the following best describes Machine Learning? (1)
    (A) A method to store large amounts of data
    (B) A technique where computers learn patterns from data
    (C) A way to connect devices to the internet
    (D) A method to create virtual environments

17. What will be the output of the following code? (1)

    ```
    word = "Computer"
    print(word[-3:],end=" and ")
    print(word[:4])
    ```

    (A) ter and Comp   (B) ute and Compu   (C) ter and Compu   (D) ute and Comp

18 Which operator is used for floor division in Python?
   (A) /   (B) //   (C) %   (D) **

19. What is the primary advantage of Cloud Computing? (1)
    (A) Faster internet connection   (B) On-demand resource access
    (C) Better graphics processing   (D) Enhanced security only

Q20 and Q21 are Assertion (A) and Reason (R) based questions. Mark the correct choice as:
   (A) Both A and R are True and R is the correct explanation for A.
   (B) Both A and R are True and R is not the correct explanation for A.
   (C) A is True but R is False.
   (D) A is False but R is True.

20. Assertion(A):   Python uses indentation to define code blocks. (1)
    Reason (R) :   Indentation makes Python code more readable and eliminates the need for curly braces.

21. Assertion (A) :   Big Data refers to datasets that are too large to be processed by traditional (1) methods.
    Reason (R):   Big Data is characterized by Volume, Velocity, and Variety.

SECTION B

22. Explain the difference between break and continue statements in Python with suitable (2) examples.

23. Find and correct the syntax errors in the following Python code: (2)

```
n = int(input("Enter a number: "))
sum = 0
for i in range(1, n+1)
    sum = sum + i
print("The sum of first" n "numbers is:" sum)
if sum % 2 = 0:
    print("The sum is Even")
else
    print("The sum is Odd")
```

24. What will be the output of the following code? (2)

```
count = 0
for i in range(1, 6):
  if i % 2 == 1:
    count += i
print("Total:", count)
```

25. Write a Python function check_even_odd() that takes a number as parameter and returns (2) "Even" if the number is even, "Odd" if the number is odd.

26. Explain Artificial Intelligence with two real-world applications. How is it different from (2) traditional programming?

27. What will be the output of the following code? (2)

```
data = [1, 2, 3, 4, 5]
data.append(6)
data.insert(2, 10)
print(data[1:5])
print(data[-2:])
```

28. Differentiate between tuples and lists in Python. Provide one example of when you would (2) prefer tuples over lists.

SECTION C

29. Write a Python program to find the largest and smallest numbers from a list of 5 numbers (3) entered by the user. Display both numbers with appropriate messages.

30. Predict the output of the following code with proper justification: (3)

```python
def mystery_function(lst):
    result = []
    for i in range(len(lst)):
        if lst[i] % 2 == 0:
            result.append(lst[i] * 2)
        else:
            result.append(lst[i] + 1)
    return result

numbers = [1, 2, 3, 4, 5]
output = mystery_function(numbers)
print(output)
```

31. Predict the output of the following Python code: (3)

```python
def string_transform(s):
    result = ""
    for i in range(len(s)):
        if s[i].lower() in "aeiou":
            result += str(i)
        elif i % 2 == 0:
            result += s[i].upper()
        else:
            result += s[i].lower() * 2
    return result

text = "BlockChain"
output = string_transform(text)
print(output)
```

SECTION D

32. Predict the output for the following program code. Explain the output. (4)

```python
def modify_list(lst):
    lst.append(100)
    lst[0] = 999
    return lst
original = [10, 20, 30]
modified = modify_list(original)
print("Original:", original)
print("Modified:", modified)
print("Are they same?", original is modified)
```

33. The following program to calculate average marks contains 8 syntax errors. Rewrite the corrected program, underline each correction done. (4)

```python
def calculate_average(marks
    total = 0
    for mark in marks
        total += mark
    if len(marks) = 0:
        return 0
    average = total / len(marks)
    return average
student_marks = [85, 90, 78, 92, 88
avg = calculate_average(student_marks))
print("Average marks:", avg
print('Done)
```

34. Write a Python function fibonacci_sequence(n) that returns a list containing the first n (4) numbers of the Fibonacci sequence. Also write a main program to test this function with user input.

35. Write a Python program to count the number of vowels and consonants in a string entered by (4) the user. The program should ignore spaces and special characters.

SECTION E

36. Write a Python program to simulate a simple library book management system with the (5) following features:
    ➢ Add a new book (title and author)
    ➢ Display all books
    ➢ Search for a book by title
    ➢ Remove a book by title

Use appropriate data structures and functions.

37. Create a Python program that implements a simple student grade calculator with the (5) following requirements:
    ➢ Function to calculate percentage from marks in 5 subjects.
    ➢ Function to determine grade based on percentage.

A	90 +
B	80 - 89
C	70 - 79
D	60 - 69
F	Below 60

    ➢ Main program to handle multiple students.
    ➢ Display student name, percentage, and grade.

Additionally, explain how Big Data analytics can help educational institutions improve student performance.