2026

COMPUTER SCIENCE

(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three hours

All the questions are compulsory.

The figures in the right margin indicate full marks for the questions.

Select the correct answers from each of the following and rewrite it.

1. Which of the following translators is used to convert the source code to machine code? 1

   (A) Assembler (B) Compiler

   (C) Interpreter (D) Memory

2. If you want to display Hindi text on a webpage, which encoding schemes would be the most appropriate to ensure proper representation? 1

   (A) ASCII (B) ESCII

   (C) UNICODE (D) BINARY CODE

3. A flowchart is used to – 1

   (A) Design hardware (B) Represen the logic of the problem

   (C) Write code (D) Show memory

4. You don't have to pay for Python and you can view its source code too. It means Python is – 1

(A) Free and open source (B) Freeware

(C) Open source (D) Shareware

5. The extension for a Python file is – 1

(A) .txt (B) .py

(C) .exe (D) .htmt

6. Which operator is used to concatenate two strings in Python? 1

(A) * (B) +

(C) & (D) =

7. Suppose L = [10,20,30,40,50] what will L[1:4] return? 1

(A) [10,20,30,40] (B) [20,30,40,50]

(C) [20,30,40] (D) [30,40,50]

8. On cloud computing, data is stored on – 1

(A) Local hard only

(B) Remote servers accessed via the internet

(C) USB drive

(D) Mobile devices only

Question Nos. 9 and 10 are Assertion (A) and Reason (R) types. Each question consists of two statements, namely Assertion (A) and Reason (R). Select the most suitable option considering the Assertion and Reason.

9. **Assertion (A)** : Python supports multiple execution modes. 1

   Reason (R) : Interactive mode allows execution of individual statement while script mode allows the user to write more than one instruction in a file.

   (A) Both A and R are true and R is the correct explanation of A.

   (B) Both A and R are true but R is not the correct explanation of A.

   (C) A is true but R is false.

   (D) A is false but R is true.

10. **Assertion (A)** : Tuples in Python are immutable. 1

    Reason (R) : Once a tuple is created, its elements cannot be changed, added or removed.

    (A) Both A and R are true and R is the correct explanation of A.

    (B) Both A and R are true but R is not the correct explanation of A.

    (C) A is true but R is false.

    (D) A is false but R is true.

Answer queations 11 to 17 in a single word or a sentence.

11. Convert $(10101100)_2$ to octal number. 1

12. Why do we need an algorithm? 1

13. Which keyword is used to define a function in Python? 1

14. Find the output : 1

```
state = 'MANIPUR'

for i in state :

    print (i)
```

15. Can a tuple hold elements of different data types? Give an example. 1

16. What is cyber crime? 1

17. You receive an email asking for your bank account details to "verify your identity". What type of threat is this? 1

Give short answer of the following questions:

18. Draw a neat diagram of data transfer between components through system bus. 2

19. Write a program logic to check whether a character is uppercase or lowercase using ASCII Values. 2

20. Draw a flowchart to display the sum of three numbers entered by user. 2

21. Given the assignment statements below. What will be the output of the following? 2

    (a) Assign the average values of variables length and breath to a variable X.

    (b) Assign the strings 'Mohandas', 'Karamchand' and 'Gandhi' to variables first, middle and last.

22. Explain default arguments with an example in Python. 2

23. Differentiate the math. pow( ) function and the built -in- pow( ) function in Python. 2

24. Name two built -in- functions that can be used with string in Python. 2

25. If str1 = 'Helloworld', what will str1.isalnum( ) and str1. startswith ('Hee) return? 2

26. State the difference between append ( ) and extend ( ) function of list. 2

27. What is the primary purpose of the Indian Information Technology Act, 2000? 2

Give answer of the following questions :

28. Explain the types of Memory in computer system. 3

Or

Explain the following terms :

(a) Data capturing

(b) Data storage

(c) Data retrieval

29. What are the main steps in problem solving? 3

Or

Write pseudocode to accept numbers till the user enters O and then find their average.

30. State the basic rules for naming an identifiers in Python. 3

31. Compare the three types of errors occurring in Python program. 3

32. Predict the output : 3

```
for i in range (1, 6):
    for j in range (1, i + 1):
        print (j, end = " ")
    print ( )
```

33. A school introduces AI powered tools that track student's performance. Suggest personalized study material and provide automatic grading of assignments, how would you approach the following tasks? 3

(a) Which areas of AI are applied in this system?

(b) Name any two AI powered applications.

(c) Do you think AI will replace teachers? Justify your answer.

Or

Students use fitness bands smartwatches and connected devices that track steps, sleep cycles and calories burned. The information is synced to their smartphones.

(a) Identify the role of IOT in wearable technology.

(b) How do these devices use sensors to collect data?

(c) State any one advantage of IOT in personal health tracking.

Give answer of the following questions:

34. Illustrates the various types of operators in Python. 5

Or

Explain the working of the for loop in Python. Compare it with the while loop and state situations where one is prefered over the other.

35. Write a Python program to check if a number is prime or not. 5

Or

Write a Python program to calculate the factorial of a given number.

36. Write a Python program to input names of n students and store them in a tuple. Aslo, input a name from the user and find if this student is present in the tuple or not. 5

Or

Write a Python program to input marks of five subjects in a dictionary and find the average.