

PM SHRI KENDRIYA VIDYALAYA NO.1 ROORKEE

CLASS- XI CS

HOLIDAY HOMEWORK

General Instructions:

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- The paper is divided into five sections – A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 marks.
- Section C consists of 3 questions (29 to 31). Each question carries 3 marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 marks.
- Section E consists of 2 questions (36 and 37). Each question carries 5 marks.
- All programming questions are to be answered using Python language only.
- In case of MCQs, write the letter of the correct answer as well as the text.

Design of the Question Paper (Blueprint)

Unit	Topic	Marks
Unit 1	Computer Systems and Organisation	20
Unit 2	Computational Thinking and Programming – I	50
	Total	70

Section	Marks per Question	No. of Questions	Total Marks
A	1	21	21
B	2	7	14
C	3	3	9
D	4	4	16
E	5	2	10
		Total (37 Qs)	70

SECTION A (1 × 21 = 21 Marks)

1. Which component of the computer performs all arithmetic and logical operations?
(A) Control Unit (B) ALU (C) Cache (D) Register
2. Which of the following is a valid Python identifier?
(A) 3value (B) total-sum (C) _temp (D) class
3. 1 MB is equal to:
(A) 1024 bytes (B) 1024 KB (C) 1024 GB (D) 1000 bytes
4. Which of the following data types is immutable in Python?
(A) List (B) Dictionary (C) Tuple (D) Set
5. Which of the following is system software?
(A) MS Excel (B) Device driver (C) Tally (D) VLC Media Player
6. What will be the output of: `print(10 // 3)`
(A) 3.33 (B) 3 (C) 3.0 (D) 1
7. Which language translator converts source code line-by-line and stops at the first error?
(A) Compiler (B) Assembler (C) Interpreter (D) Linker
8. Which operator checks whether a value exists in a list?
(A) exists (B) has (C) in (D) within
9. The output of a NOR gate is 1 only when:
(A) both inputs are 1 (B) both inputs are 0 (C) any input is 1 (D) inputs are different
10. Which operator checks if two variables refer to the same object in memory?
(A) == (B) = (C) in (D) is
11. The hexadecimal equivalent of $(11101)_2$ is:
(A) 1D (B) 2E (C) 1C (D) 2D
12. Which of the following functions returns the length of a string?
(A) size() (B) length() (C) len() (D) count()
13. Which encoding scheme was specifically developed in India to represent Indian language scripts?
(A) ASCII (B) Unicode (C) ISCII (D) UTF-32
14. Identify the type of error in the following statement: `print("Result" + 5)`
(A) Syntax error (B) Logical error (C) Runtime/Type error (D) No error
15. Which of the following is the fastest form of memory?
(A) Cache memory (B) Primary memory (C) Secondary memory (D) Pen drive
16. Which list method arranges the elements of a list in ascending order, in place?
(A) sorted() (B) sort() (C) order() (D) arrange()
17. Simplify using De Morgan's Law: $(A.B)'$ =
(A) $A' + B'$ (B) $A' . B'$ (C) $A + B$ (D) $A . B$
18. Which keyword is used to iterate over a sequence in Python?
(A) loop (B) for (C) repeat (D) each
19. Which of the following is an input device?
(A) Plotter (B) Scanner (C) Monitor (D) Speaker
20. **Assertion (A):** Cache memory is used to speed up the overall processing of the CPU.
Reason (R): Cache memory is larger in size but slower in speed than primary memory.
(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.

21. **Assertion (A):** In Python, a list can store elements of different data types.

Reason (R): A list is a mutable sequence, so it can be modified after creation.

(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.

SECTION B (2 × 7 = 14 Marks)

22. Differentiate between primary memory and secondary memory (any two points).

23. Draw the truth table for the XOR gate and the NOR gate.

24. Convert the decimal number $(255)_{10}$ into its binary and hexadecimal equivalents.

25. The following Python code has errors. Rewrite the correct code, underlining each correction.

```
num = 10
if num > 0
    print('Positive')
Else:
    print("Non-positive")
```

26. Differentiate between a syntax error and a logical error, with one example of each.

27. What is the difference between the `append()` and `extend()` methods of a list? Illustrate with a suitable example.

28. State the data type of the result of each of the following expressions:

(i) $5 + 2.0$ (ii) $7 == 7.0$ (iii) `"5" + "2"` (iv) $10 / 2$

SECTION C (3 × 3 = 9 Marks)

29. Convert the following numbers from one base to another (attempt any three):

(i) $(101101)_2 = ()_{10}$

(ii) $(87)_{10} = ()_8$

(iii) $(2F)_{16} = ()_2$

(iv) $(144)_8 = ()_{16}$

30. Draw a flowchart to find the largest of three numbers entered by the user.

(OR)

Write an algorithm to check whether a number entered by the user is divisible by both 3 and 5.

31. Predict the output of the following Python code:

```
s = "COMPUTER"
res = ""
for i in range(0, len(s), 2):
    res = res + s[i]
print(res)
print(s[::-1])
```

SECTION D (4 × 4 = 16 Marks)

32. Write a Python program to generate the following pattern using nested loops:

```
1
1 2
1 2 3
1 2 3 4
```

33. Write a Python program to accept a string from the user and count the number of uppercase letters, lowercase letters and digits present in it. (OR) Write a Python program to find the factorial of a positive number entered by the user, using a loop.
34. Write a Python program to calculate the sum of the following series using a loop: $1 + 1/2 + 1/3 + 1/4 + \dots + 1/10$ (OR) Write a Python program to check whether a number entered by the user is divisible by both 4 and 6.
35. Write a Python program to accept a list of numbers from the user and display the frequency of each distinct element present in the list, without using the `count()` method.

SECTION E (5 × 2 = 10 Marks)

36. Consider the following list: `L = [15, 42, 8, 23, 42, 16, 9]` Write Python statements to perform the following operations:
 - (a) Count the number of times the value 42 appears in the list.
 - (b) Arrange the elements of the list in descending order.
 - (c) Remove the last element of the list.
 - (d) Insert the value 50 at index position 2.
 - (e) Find the sum and average of all the elements in the list.
 37. A teacher has stored the scores of six students in a list: `Scores = [45, 67, 23, 89, 56, 90]` Write Python code to:
 - (a) Find and display the maximum, minimum and mean of the scores. (2)
 - (b) Perform a linear search for a score entered by the user, and display whether it is Found or Not Found, along with its index if found. (2)
 - (c) Count and display how many scores are above the mean. (1)
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