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**INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2023
COMPUTER SCIENCE(083)**



CLASS : XI
DATE: 20.09.2023

TIME ALLOTTED : 3 HRS.
MAXIMUM MARKS: 70

GENERAL INSTRUCTIONS:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each.
8. All programming questions are to be answered using Python Language only.

Q.NO.	SECTION- A	Marks
1.	Which of the following is an invalid variable? (a) python1 (b) true (c) 2Two (d) Basic_Pay	1
2.	Which of the following symbol is used for comments in Python? (a) ** (b) // (c) # (d) %	1
3.	What will be printed when the following code executes? str = "His shirt is red" pos = str.find("is") print(pos) (a) 6 (b) 1 (c) Error (d) 10	1
4.	The range(9, 3, -1) will generate values (a) 9,8,7,6,5,4,3 (b) 9,6,3 (c) 9,8,7,6,5,4 (d) 3,4,5,6,7,8,9	1
5.	What is the size of the string constant "Veena\s" ? (a) 8 (b) 7 (c) 6 (d) 5	1

6. Consider the following expression: 1
 $51 + 4 - 3 ** 3 // 8 - 3$
 Which of the following will be the correct output if the expression is evaluated?
 (a) 31 (b) 49 (c) 50 (d) 51
7. Find the correct corresponding Python expression (after import math statement) for the 1
 following mathematical expression:
 $(\cos x / \tan x) + 2x$
 (a) $(\text{math.cos}(x) / \text{math.tan}(x)) + 2x$
 (b) $(\text{math.cos}(x) / \text{math.tan}(x)) + 2*x$
 (c) $(\text{math.cos}(x) / \text{math.tan}(x)) + 2$
 (d) $(\text{math.cos } x / \text{math.tan } x) + 2x$
8. What will be the output of the following expression? 1
 $x=(10<25) \text{ and } (50<19) \text{ or } (10<25) \text{ and not } 14 < 34$
 $\text{print}(x)$
 (a) 15 (b) True (c) None (d) False
9. Which one of the following is not a Python legal string operation? 1
 (a) $'abc' * 3$
 (b) $'abc' + 3$
 (c) $'abc' + 'abc'$
 (d) $'abc'.upper()$
10. Predict the output: 1
 $x, y = 8, 5$
 $x, y, x = x+1, y+3, x+10$
 $\text{print}(x, y)$
 (a) 19 6 (b) 20 5 (c) 18 8 (d) 3 19
11. Which of the following is an input device? 1
 (a) Plotter (b) Speaker (c) Scanner (d) monitor
12. Encoding system which include all the languages of the world 1
 (a) ISCII (b) ASCII (c) UNICODE (d) CODE POINT
13. Convert: 1
 20 Peta Byte(PB) = _____ Giga Byte(GB)
14. Fill in the blank: 1
 _____ is a program which acts as an interface between hardware and user.
 (a) Operating System (b) Packages (c) Utilities (d) Application software

15. Out of these which one is a Utility program? 1
(a) Spreadsheets
(b) Desktop Publishing Software
(c) Word Processing software
(d) Disk Defragmenter

16. Fill in the blank: 1
_____ are set of prewritten code/functions/classes etc. available to programmers for use in the development of new code.

Q17 and 18 are ASSERTION AND REASONING 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
17. Assertion (A):- Empty statement in python is written by using keyword – pass. 1
Reasoning(R):- Whenever python encounters pass, it does nothing and moves to next Statement in flow of control.
18. Assertion (A):- Keywords are the reserved words and have special meaning for python 1
Interpreter.
Reasoning (R):- Keywords can be used as variable names.

SECTION-B

19. Write the output of the following code: 2

```
str = "CBSE EXAM 2023"  
print(str[0:4])  
print(str[-4:-1])  
print(str[0:7:3])  
print(str[::-1])
```

20. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 2

```
30=Total  
for VAL in range(0,Total)  
    if VAL%4=0:  
        print (VAL*4)  
    elif VAL%5==0:  
        print (VAL+3)  
    Else:  
        print(VAL+10)
```

21. Write a python program to input a number and print whether the number is even or odd. 2

22. Write a program in python to print the following pattern using nested loop. 2
- ```

8
8 6
8 6 4
8 6 4 2

```
23. Explain about RAM and ROM. 2
24. What is the function of Control Unit (CU) and Arithmetic Logic Unit (ALU)? 2
25. Convert the following: 2
- (a)  $(2543)_{10} = (\quad)_{16}$
- (b)  $(651)_8 = (\quad)_{10}$

### SECTION-C

26. What is the difference between break and continue statements in python? Explain each with an example. 3
27. What do you mean by syntax error, Run time error and logical error? Explain each with an example. 3
28. Write a program in python to input a string and a character and check the frequency of that character in that string and print. 3
29. Find the output of the following program code: 3
- ```

i = 0
sum = 0
while i < 9:
    if i % 4 == 0:
        sum = sum + i
        i = i + 2
    else:
        print("Bye")
print(i)
print (sum)

```
30. What is the difference between an assembler, interpreter and compiler? 3

SECTION-D

31. (a) Write a program in python to display all even numbers from 60 to 20 using while.... loop. 2+3=5
- (b) Write a python program to input two numbers, find and print LCM and GCD of two numbers.
32. (a) Write a python program to input an integer N from the user. Print the multiplication table of N using loop. 2+3=5

(b) Write a program in python to input an integer N from the user. Check whether it is Palindrome or not and print it. (e.g. 121 number which reads the same from left to right & right to left)

33. (a) Write a python program to input the value of y and n and print the sum of the following series using loop: $2+3=5$

$1 + 2y + 3y + 4y + 5y + \dots$ upto n terms.

(b) Fill in the line of python code which inputs an integer num from the user and checks whether it is perfect number or not and print it. (e.g. $6 = 1+2+3$ (factors of the number other than the number itself)).

```
num = int(input("Enter an integer:"))
sum=0
for i in range(_____):          # To provide range
    if _____:                # to check the factors
        sum= sum + i
    if _____:                #To check the condition for perfect number
        print(num, " is a perfect number")
    else:
        print(num, " is not a perfect number")
```

SECTION-E

34. A clothing company is giving discounts on garments. The following discount rates are given on different range of amount spent. Input the amount and find the net price after discount on a purchase. (Netprice = Amount - Discount). Print Amount and the Netprice. 4

Amount	Discount Rate
≥ 10000	20%
< 10000 and ≥ 5000	10%
< 5000	5%

35. Write a python program to input the value of n and find the sum of the following series and display the sum. 4

$\frac{1}{1!} + \frac{2}{2!} + \frac{3}{3!} + \frac{4}{4!} + \dots$ upto n terms.

OR

Write a program in python to input a string and then count and display the number of vowels, consonants, uppercase and lowercase characters in the string.

******END OF THE QUESTION PAPER******



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8. All programming questions are to be answered using Python Language only.

SECTION- A

Marks

- | | | |
|----|--|---|
| 1. | Which of the following is an invalid variable?
(a) Total_marks (b) Day1 (c) False (d) Age | 1 |
| 2. | Which of the following symbol is used for comments in Python?
(a) ** (b) // (c) # (d) % | 1 |
| 3. | What will be printed when the following code executes?
s1 = "alphaBET"
s1 = s1.capitalize()
print(s1.lower ())
(a) error (b) alphaBET
(c) alphabet (d) Alphabet | 1 |
| 4. | The range(8, 4, -1) will generate values
(a) 8,7,6,5 (b) 8,6,4 (c) 8,7,6,5,4 (d) 4,5,6,7,8 | 1 |
| 5. | What is the size of the string constant "Raveena\s" ?
(a) 8 (b) 7 (c) 10 (d) 9 | 1 |

6. Consider the following expression: 1
`19 // 9 + 10 - 3 ** 2 + 8 % 5`
Which of the following will be the correct output if the expression is evaluated?
(a) 38 (b) 49 (c) 6 (d) 11
7. Find the correct corresponding Python expression (after import math statement) for the following mathematical expression: 1
 $(\cos x / \tan x) + 2x$
(a) `(math.cos(x) / math.tan(x)) + 2x`
(b) `(math.cos(x) / math.tan(x)) + 2*x`
(c) `(math.cos(x) / math.tan(x)) + 2`
(d) `(math.cos x / math.tan x) + 2x`
8. What will be the output of the following expression? 1
`x=(30<65) and (80<17) or (12<33) and not 18 < 38`
`print(x)`
(a) 15 (b) True (c) None (d) False
9. Which one of the following is not a Python legal string operation? 1
(a) `'abc' * 5`
(b) `'abc' + 'abc'`
(c) `'abc' + 5`
(d) `'abc'.upper()`
10. Predict the output: 1
`x, y = 15, 8`
`x, y, x = x+1, y+3, x+10`
`print(x, y)`
(a) 25 6 (b) 20 5 (c) 18 7 (d) 25 11
11. Fill in the blank: 1
_____ are set of prewritten code/functions/classes etc. available to programmers for use in the development of new code.
12. Encoding system which include all the languages of the world 1
(a) ISCII (b) ASCII (c) UNICODE (d) CODE POINT
13. Convert: 1
10 Tera Byte(TB) = _____ Kilo Byte(KB)
14. Fill in the blank: 1
_____ is a program which acts as an interface between hardware and user.
(a) Operating System (b) Packages (c) Utilities (d) Application software

15. Software is a set of programs, which is designed to perform a well-defined function and there are two types of software, application and system. The following are all application software except for 1
- (a) Microsoft Excel (c) Microsoft Power Point
(b) Microsoft Word (d) Microsoft Windows

16. Which of the following is an input device? 1
- (a) Plotter (b) Speaker (c) Scanner (d) monitor

Q17 and 18 are ASSERTION AND REASONING 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
17. Assertion (A):- Empty statement in python is written by using keyword – pass. 1
Reasoning(R):- Whenever python encounters pass, it does nothing and moves to next statement in flow of control.
18. Assertion (A):- Keywords are the reserved words and have special meaning for python interpreter. 1
Reasoning (R):- Keywords can be used as variable names.

SECTION-B

19. Write the output of the following code: 2

```
str = "TERM EXAM 2023"  
print(str[0:4])  
print(str[-4:-1])  
print(str[0:7:3])  
print(str[::-1])
```

20. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 2

```
60=NUM  
for VAL in range(0,NUM)  
    if VAL%7=0:  
        print (VAL*4)  
    elif VAL%10==0:  
        print (VAL+3)  
    Else:  
        print(VAL+10)
```

21. Write a python program to input a number and print whether the number is even or odd. 2

22. Write a program in python to print the following pattern using nested loop. 2
- ```
A
A B
A B C
A B C D
A B C D E
```
23. What do you mean by utility software? Give two examples of utility software. 2
24. Explain about RAM and ROM. 2
25. Convert the following: 2
- (a)  $(3619)_{10} = (\text{_____})_{16}$
- (b)  $(11011101)_2 = (\text{_____})_{10}$

### SECTION-C

26. What is the difference between an assembler, interpreter and compiler? 3
27. What do you mean by syntax error, Run time error and logical error? Explain each with an example. 3
28. Write a program in python to input a string and a character and check the frequency of that character in that string and print. 3
29. Find the output of the following program code: 3
- ```
i = 0
sum = 0
while i < 20:
    if i % 5 == 0:
        sum = sum + i
        i = i + 2
    else:
        print("End")
        print(i)
        print (sum)
```
30. What is the difference between break and continue statements in python? Explain each with an example. 3

SECTION-D

31. (a) Write a program in python to display all odd numbers from 51 to 11 using while.... loop. 2+3=5
- (b) Write a python program to input two numbers, find and print LCM and GCD of two numbers.
32. (a) Write a python program to input an integer N from the user. Find and print Factorial of N. 2+3=5

(b) Write a program in python to input an integer N from the user. Check whether it is Armstrong number or not and print it. (e.g. $153 = 1^3 + 5^3 + 3^3$ sum of the cubes of the digit of the number is equal to the number itself).

33. (a) Write a python program to input the value of y and n and print the sum of the following series using loop: $2+3=5$

$$1 + 2y + 3y + 4y + 5y + \dots \text{upto } n \text{ terms.}$$

(b) Fill in the line of python code which inputs an integer num from the user and checks whether it is perfect number or not and print it. (e.g. $6 = 1+2+3$ (factors of the number other than the number itself)).

```
num = int(input("Enter an integer:"))
sum=0
for i in range(_____):          # To provide range
    if _____:                # to check the factors
        sum= sum + i
if _____:                    #To check the condition for perfect number
    print(num, " is a perfect number")
else:
    print(num, " is not a perfect number")
```

SECTION-E

34. A clothing company is giving discounts on garments. The following discount rates are given on different range of amount spent. Input the amount and find the net price after discount on a purchase. (Netprice = Amount - Discount). Print Amount and the Netprice. 4

Amount	Discount Rate
≥ 30000	30%
< 30000 and ≥ 15000	20%
< 15000	10%

35. Write a python program to input the value of n and find the sum of the following series and display the sum. 4

$$\frac{1}{1!} + \frac{2}{2!} + \frac{3}{3!} + \frac{4}{4!} \dots \text{upto } n \text{ terms.}$$

OR

Write a program in python to input a string and then count and display the number of vowels, consonants, uppercase and lowercase characters in the string.

******END OF THE QUESTION PAPER******



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7. Section E has 02 questions carrying 04 marks each.
8. All programming questions are to be answered using Python Language only.

Q.NO.	SECTION- A	Marks
1.	Which of the following is a valid variable? (a) 2ndName (b) False (c) Avg_Marks (d) Ist&2nd	1
2.	What is the size of the string constant "Sarita\s" ? (a) 8 (b) 7 (c) 9 (d) 5	1
3.	What will be printed when the following code executes? str = "His shirt is red" pos = str.find("is") print(pos) (a) 6 (b) 1 (c) Error (d) 10	1
4.	The range(11, 3, -2) will generate values (a) 11,9,7,5,3 (b) 11,9,7,5 (c) 9,8,7,6,5,4 ,3 (d) 5,7,9,11	1
5.	Which of the following symbol is used for comments in Python? (a) ** (b) // (c) # (d) %	1

6. Consider the following expression: 1
`13 // 5 + 16 - 2 ** 3 + 8 % 3`
Which of the following will be the correct output if the expression is evaluated?
(a) 11 (b) 7 (c) 15 (d) 12
7. Find the correct corresponding Python expression (after import math statement) for the 1
following mathematical expression:
 $(\cos x / \tan x) + 2x$
(a) `(math.cos(x) / math.tan(x)) + 2x`
(b) `(math.cos(x) / math.tan(x)) + 2*x`
(c) `(math.cos(x) / math.tan(x)) + 2`
(d) `(math.cos x / math.tan x) + 2x`
8. What will be the output of the following expression? 1
`x=(99<16) or (40<38) and (20<78) and not 16 < 37`
`print(x)`
(a) 15 (b) True (c) False (d) None
9. Which one of the following is not a Python legal string operation? 1
(a) `'abc' * 6`
(b) `'abc' + 6`
(c) `'abc' + 'abc'`
(d) `'abc'.upper()`
10. Predict the output: 1
`x, y = 7, 4`
`x, y, x = x+1, y+3, x+10`
`print(x, y)`
(a) 17 7 (b) 20 5 (c) 18 8 (d) 3 19
11. Which among the following is an important circuitry in a computer system that coordinates 1
with the different units attached to computer system?
(a) Memory (b) Input unit (c) Control unit (d) Output unit
12. Encoding system which include all the languages of the world 1
(a) ISCI (b) ASCII (c) UNICODE (d) CODE POINT
13. Convert: 1
12 Giga Byte(GB) = _____ Kilo Byte(KB)
14. Fill in the blank: 1
_____ is a program which acts as an interface between hardware and user.
(a) Operating System (b) Packages (c) Utilities (d) Application software

15. Out of these which one is a Utility program? 1
(a) Spreadsheets
(b) Desktop Publishing Software
(c) Word Processing software
(d) Disk Defragmenter

16. Fill in the blank: 1
_____ are set of prewritten code/functions/classes etc. available to programmers for use in the development of new code.

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18. Assertion (A):- Keywords are the reserved words and have special meaning for python interpreter. 1
Reasoning (R):- Keywords can be used as variable names.

SECTION-B

19. Write the output of the following code: 2

```
str = "BOARD EXAM 2023"  
print(str[0:4])  
print(str[-4:-1])  
print(str[0:7:3])  
print(str[::-1])
```

20. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. 2

```
60=N  
for VAL in range(0,N)  
    if VAL%4==0:  
        print (VAL*4)  
    elif VAL%5=0:  
        print (VAL+3)  
    Else:  
        print(VAL+10)
```

21. Write a python program to input a number and print whether the number is even or odd. 2

22. Write a program in python to print the following pattern using nested loop. 2
- ```

1
1 3
1 3 5
1 3 5 7

```
23. Explain about primary memory and secondary memory. 2
24. What do you mean by application software? Give two examples of customized software? 2
25. Convert the following: 2
- (a)  $(7CA)_{16} = (\rule{1cm}{0.4pt})_{10}$
- (b)  $(359)_{10} = (\rule{1cm}{0.4pt})_8$

### SECTION-C

26. What is the difference between break and continue statements in python? Explain each with an example. 3
27. What do you mean by syntax error, Run time error and logical error? Explain each with an example. 3
28. Write a program in python to input a string and a character. Replace the character with '@' in the string and print. 3
29. Find the output of the following program code: 3
- ```

i = 0
sum = 0
while i < 20:
    if i % 7 == 0:
        sum = sum + i
        i = i + 2
    else:
        print("SIGN OUT")
print(i)
print(sum)

```
30. What is the difference between an assembler, interpreter and compiler? 3

SECTION-D

31. (a) Write a program in python to display all even numbers from 80 to 20 using while.... loop. 2+3=5
- (b) Write a program in python to print the first 10 numbers of the Fibonacci series.
(Fibonacci numbers are: 0 1 1 2 3 5 8.....)
32. (a) Write a python program to input an integer N from the user. Print the multiplication table of N using loop. 2+3=5

(b) Write a python program to input an integer N from the user. Find and print the reverse of the number. (e.g. if the number is 1257, Reverse is 7521)

33. (a) Write a python program to input the value of y and n and print the sum of the following series using loop: $2+3=5$

$1 + 2y + 3y + 4y + 5y + \dots$ upto n terms.

(b) Fill in the line of python code which inputs an integer num from the user and checks whether it is perfect number or not and print it. (e.g. $6 = 1+2+3$ (factors of the number other than the number itself)).

```
num = int(input("Enter an integer:"))
sum=0
for i in range(_____):      # To provide range
    if _____:            # to check the factors
        sum= sum + i
    if _____:            #To check the condition for perfect number
        print(num, " is a perfect number")
    else:
        print(num, " is not a perfect number")
```

SECTION-E

34. A clothing company is giving discounts on garments. The following discount rates are given on different range of amount spent. Input the amount and find the net price after discount on a purchase. (Netprice = Amount - Discount). Print Amount and the Netprice. 4

Amount	Discount Rate
≥ 15000	25%
< 15000 and ≥ 5000	15%
< 5000	5%

35. Write a python program to input the value of n and find the sum of the following series and display the sum. 4

$\frac{1}{1!} + \frac{2}{2!} + \frac{3}{3!} + \frac{4}{4!} + \dots$ upto n terms.

OR

Write a program in python to input a string and then count and display the number of vowels, consonants, uppercase and lowercase characters in the string.

END OF THE QUESTION PAPER

Shau Singh