

Class : 12

Register
Number

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COMMON HALF YEARLY EXAMINATION-2023-24

Time Allowed : 3.00 Hours]

COMPUTER SCIENCE

[Max. Marks : 70

PART - I**15X1=15**

Note : i) All the questions.

ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- The small sections of code that are used to perform a particular task is called
(a) Subroutine (b) Pseudo code (c) Files (d) Modules
- Bundling two values together into one can be considered as
(a) Pair (b) Triplet (c) Single (d) Quadrat
- Which scope refers to variables defined in current function?
(a) Local Scope (b) Global Scope (c) Module Scope (d) Function Scope
- Two main measures for the efficiency of an algorithm are
(a) Data and Space (b) Processor and Memory
(c) Complexity and Capacity (d) Time and Space
- What is the output of the following Python snippet?
a=5
print(a*2, a**2) (a) 10, 100 (b) 10, 10 (c) 10, 25 (d) Error
- What plays a vital role in Python programming?
(a) Statements (b) Control (c) Structure (d) Indentation
- Evaluate the following function and write the output
a = 14.4
print(math.floor(a)) (a) 13 (b) 14 (c) 15 (d) 14.3
- What is Stride?
(a) index value of slice operation (b) first argument of slice operation
(c) second argument of slice operation (d) third argument of slice operation
- What is the output of the following Python snippet?
setA={'A', 2, 4, 'D'}
setB={'A', 'B', 'C', 'D'}
print(setA ^ setB) (a) {2, 4, 'B', 'C'} (b) {'A', 'D'} (c) {2, 4} (d) {'B', 'C'}
- Which of the following data model represents parent - child relationship?
(a) Object Model (b) Hierarchical Model (c) Relational Model (d) Network Database Model
- In SQL, the _____ command helps to add new records to the table.
(a) ADD (b) APPEND (c) INSERT (d) NEW
- A CSV file is also known as a _____
(a) Flat File (b) 3D File (c) String File (d) Random File
- The module which allows you to interface with the Windows operating system is
(a) OS module (b) sys module (c) csv module (d) getopt module
- Which of the following keyword avoid the duplicate?
(a) Distinct (b) Remove (c) Where (d) Group By
- Which of the following feature is used to represent data and information graphically?
(a) Data List (b) Data Tuple (c) Classes and Objects (d) Data Visualization

PART - II

Note: Answer any six questions: Question No. 24 is compulsory.

6x2=12

- What is a subroutine?
- What is a scope?
- Evaluate the following Python statements and what will be the value of m?
a, b = 30, 20
m = a if a < b else b
- What is base condition in recursive function?
- Write the syntax of creating a tuple with 'n' number of elements.
- List some examples of RDBMS.
- Mention the two ways to read a CSV file using Python.
- What is the advantage of declaring a column as "INTEGER PRIMARY KEY"?
- Fill in the blank with suitable Python code to get the output: [12, 23, 36]
MyList=[36, 23, 12]
.....
print(MyList)

PART - III

Note: Answer any six questions:

6x3=18

Question No. 33 is compulsory.

- Differentiate Concrete data type and abstract datatype.
- What are the factors that influence time and space complexity?
- Write the syntax of a function has variable length arguments.
- What is the output of the following Python code?
s="ChennaiGHSS, Rotler"
print(s[...2])
- Explain the difference between del and clear() in dictionary with an example.
- Write a SQL query to edit a student's age as 20 whose admno is 1005 from studinfo table of School database.

31. Write about the steps of Python executing C++ program using control statement.

32. Draw the output of the following Python data visualization code

```
import matplotlib.pyplot as plt
plt.plot([0,2,3,4], [0,4,6,8])
plt.show()
```

33. What will be the output of the following Python Code?

```
class String:
    def __init__(self, str1):
        self.str1 = str1
        self.vowel = 0
    def count(self):
        for char in self.str1:
            if char in 'AEIOUaeiou':
                self.vowel += 1
        print("No. of vowels.", self.vowel)
S = String("Tamilnadu")
S.count()
```

PART - IV

5x5=25

Note: Answer all the questions.

34 (a) Identify in the following program

```
let rec gcd a b :=
if b <> 0 then gcd b (a mod b) else return a
```

- Name of the function
- Identify the statement which tells it is a recursive function
- Name of the argument variable
- Statement which invoke the function recursively
- Statement which terminates the recursion

(OR)

(b) Write any five benefits in using modular programming

(OR)

35 (a) Explain the different types of operators used in Python.

(b) Write the output for the following Python program.

```
(i) a=10
while a>=2:
    print(a, end='|')
    a=a-2
else:
    print("\n End of the loop")
```

```
(ii) b=1
while b<=5:
    for x in range(b):
        print(b, end=' ')
    print(end='\n')
    b=b+1
```

36 (a) Debug the following Python program to get the given output:

Output:

```
Inside add( ) function x value is: 10
In main x value is: 10
```

Program:

```
x=0
def add:
    globally x:
    x = x + 10
    print ("Inside add( ) function x value is.")
    add
    print("In main x value is.")
```

(OR)

(b) Write the output for the following Python commands:

```
s = "Rajendra Cholan"
```

- print(s)
- print(s[:8])
- print(s[9:-2])
- print(s[-3])
- print(s[-1])

37 (a) Explain the different set operations supported by Python with suitable example. (OR)

(b) Write a SQL statement to the followings:

- To create 'School' database.
- To create 'student' table with the following attributes.
 - Admno - Int(5) - Primary Key constraint,
 - SName - varchar(20) - Not null,
 - DOB - date,
 - City - varchar(15) - default - 'Chennai'
 - Marks - int(3)
- To add 3 students details for all the columns.
- To Change the column name 'City' as 'Town'.
- To view all the records in descending order.

38 (a) Differentiate Excel file and CSV file. (OR)

(b) What is the use of HAVING clause? Give an example python script