

Tsl12CS

Tenkasi District
First Revision Examination - 2024



Time: 3.00 Hours

Standard 12
COMPUTER SCIENCE
Part - I

Marks: 70

$$15 \times 1 = 15$$

Choose the correct answer:

- 1) Which of the following is a distinct syntactic block?
a) Subroutines b) Function c) Definition d) Modules
- 2) The data type whose representation is unknown are called
a) Built - in data type b) Derived data type
c) Abstract data type d) Concrete data type
- 3) Which of the following character is used to give comments in Python Program?
a) \$ b) @ c) # d) &
- 4) A sequence of immutable objects is called
a) Built - in b) List c) Tuple d) Selectors
- 5) Which of the following is used to describe the worst case of an algorithm?
a) Big O b) Big A c) Big θ d) Big Ω
- 6) What is the output of the following code?

```
a = "Computer Science"
print(len(a))
```

a) 16 b) Computer Science c) 15 d) error
- 7) Which of the following python function can be used to add more than one element within an existing list?
a) append() b) append_more() c) extend() d) Insert()
- 8) The process of creating an object is called as:
a) Constructor b) Destructor c) Initialize d) Instantiation
- 9) Which one is optional part in range() function.
a) start b) stop c) step d) end
- 10) In which database model, the relationship are created by dividing the object into entity and its characteristics into attributes.
a) Hierarchical b) Relational c) Network d) ER
- 11) What symbol used for SELECT statement
a) Π b) σ c) Ω d) \$
- 12) Which constraint helps to set a limit value placed for a field?
a) Check b) Default c) Table d) Primary Key
- 13) The module which allows you to interface with the Windows operating system is
a) OS module b) getopt module c) sys module d) csv module
- 14) Which command is used to generate a Query
a) SELECT b) ORDER BY c) MODIFY d) ALTER
- 15) Which module of python helps to parse command-line options and arguments.
a) OS module b) getopt module c) sys module d) csv module

Part - II**Answer any 6 questions. Q.No.24 is compulsory:**

$$6 \times 2 = 12$$

- 16) Differentiate interface and Implementation.
- 17) Write a short note on Continue Statement.
- 18) Write the syntax and use of csv.reader() function.
- 19) Which method is used to connect a database? Give an example.
- 20) What is the difference between a compiler and interpreter.
- 21) How will you access the list elements in reverse order?

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- 22) What is the use of dot operator?
 23) What is SQL?
 24) What is the output of the following code?
- ```
for i in range(3, 30, 3):
 print(i, end=' ')
```

**Part - III****Answer any 6 questions. Q.No.33 is compulsory:** **$6 \times 3 = 18$** 

- 25) Write down the rules of Local variable.  
 26) Differentiate ceil() and Floor() function.  
 27) What is the use of format() function. Give an example.  
 28) Define Constructor and Destructor in Python.  
 29) What is the difference between reader () and DictReader class.  
 30) What is SQLite? What is its advantages?  
 31) List out the types of visualizations in Matplotlib  
 32) What is the difference between List and Dictionary.  
 33) What is the output of the following python code?  

$$> > > (x,y,z,p) = (2**2, 5/3+4, 15%2, 34 > 65)
> > > \text{print}(x, y, z, p)$$

**Part - IV****Answer all the questions.** **$5 \times 5 = 25$** 

- 34) a) Explain with example Pure and Impure Function.  
**(OR)**  
 b) Explain the characteristics of an Algorithm.
- 35) a) Explain the scope of variable in Python with example.  
**Explain for loop with examples**  
 b) What is an Array? Explain the 2-D array with example.
- 36) a) Write the features of Python over C++  
**(OR)**  
 b) Explain the characteristics of RDBMS
- 37) a) Explain the following Python Functions.  
 i) id() ii) type() iii) lower() iv) max() v) min()  
**(OR)**  
 b) Explain with example various string slicing methods using the slicing operator. (*String functions*)
- 38) a) Mylist = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
 Write the python commands for the above List.  
 i) display the all the elements of the list  
 ii) display the length of the above list  
 iii) Add the values [11, 12, 13] in the above list.  
 iv) Remove the elements from 4 to 7 in the above list.  
 v) Delete all the elements in the above list.  
**(OR)**  
 b) Explain the purpose of the following functions.  
 i) plt.title() ii) plt.legend() iii) plt.show() iv) plt.xlabel  
 v) plt.ylabel

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1. c) Definition
2. c) Abstract datatype
3. c) #
4. c) TUPLE
5. c) BIG O
6. a) 16
7. c) extend
8. d) Instantiation
9. c) Step
10. d) ER
11. b) O
12. a) check
13. a) os module
14. a) SELECT
15. b) GEOPYE module

Part-II

- 16) Interface

Interface just defines what an object can do, but won't actually do it.

## Implementation

Implementation carries out the instructions defined in the interface

- 2 marks

- 17) continue statement is used to skip the remaining part of a loop and start with next iteration

- 2 marks

Syntax:

Continue:

Syntax

- CSV-reader (file object, delimiter, fromParams) - 1 mark  
 The reader function is designed to take each line of the file and make a list of all columns. - 1 mark



19. Create a connection using connect() method and pass the name of the database file.
- ```
connection = Sqlite3.connect("Academy.db")
```
- 1 mark
- OR any database
- 1 mark
- Indo-Priory
- It generates machine code at a time
- Error deduction will be difficult
- Python, Java
- 2 marks
20. Compiler
- It generates an intermediate code.
- It reads for entire compilation.
21. Python enables reverse or negative indexing for the list elements.
- * Python lists index in opposite order.
 - * The Python sets -1 as the index value for the last element in list and -2 for ~~preceding~~ the preceding element and so on. This is called as Reverse indexing.
- 2 marks
22. Any class member or method can be accessed by using object with a (.) operator.
- Syntax:
- ```
Object_name.class_member.
```
- 2 marks
23. SQL (structured query language) is a standard programming language to access and manipulate databases.
- (OR)
- Structured query language is a language used for accessing databases.
- 2 marks
24. 3 6 9 12 15 18 21 24 27
- 2 marks

Part-II

25. \* A Variable with local scope can be accessed only with in the function/block that is is created in. — 1 mark
- \* When a Variable is created inside the function/block, the variable become local to it. — 1 mark
- \* A local variable only exists while the function is executing. — 1 mark

ceil()

Returns the smallest integer greater than or equal to  $x$

`print(math.ceil(26.7)) → 27`

Syntax (or) A Suitable Example

`Math.ceil(x)`

floor()

Returns the largest integer less than or equal to  $x$

`Print (math.floor(26.7)) → 26`

Syntax (or) A SuitableExample

`Math.floor(x)` — 1 marks

27. \* The `format()` function used with String is very versatile and powerful function used for formatting strings.
- \* The curly braces {} are used as placeholders or replacement fields which get replaced along with `format()` function. — 2 marks
- Any suitable example — 1 mark

28. Constructor:

- \* Constructor is the special function that is automatically executed when an object of a class is created.
- \* In Python, there is a special function called "init" which act as a constructor. It must begin and end with double underscore. — 1/2 marks



Destructor:

\* It is also a special method gets executed automatically when an object exits from the scope. It is just opposite to constructor.

In Python, `_del_()` method is used as destructor.

29) The main difference between the `csv.reader()` and `DictReader()` is in simple terms `csv.reader` or `CSVWriter` working with list/tuple. While `csv.Reader` and `CSV.DictWriter` work with dictionary.

30) \* SQLite is a simple relational system which saves its data in regular data files or even in internal memory of the computer.

**Advantages:**

- \* SQLite is fast, rigorously tested and flexible, making it easier to use.
- \* Python has a native library for SQL.

— 3 marks  
Database

— 2 marks

31) \* Line Plot      \* Histogram      \* Bar chart  
 \* Scatter Plot      \* Box Plot      \* Pie chart  
 Any three points      — 3 marks

32) List

Dictionary

1. List is an ordered set of elements

Dictionary is a data structure that is used for matching an element with another.

2. List values are enclosed with square brackets.

Dictionary element also enclosed within curly braces

3. Index value can be used to access an element in a list.

In dictionary key represents index.

4. Lists are used to look up value

Dictionary is used to tie one value and another value. — 3 marks

(Any three only)

33) 4 ~~5.666~~ 1 False

— 3 marks

34) Q)

- \* Pure function:- \* They do not modify the arguments when they are passed to them.
- \* pure functions are functions which will give exact result when the same arguments are passed.
- \* It does not cause side effects to the output.

let square x = x \* x return x\*x

### Pure Function:

- \* The return value of the impure functions doesn't

So they depend on its arguments passed.

- \* Impure functions <sup>cause</sup> outside effects its output.

Example

- let length s = if (s.length) then 1 + i else 0 return i
- \* They may modify the arguments which are passed to them.

→ Q/V 2 marks

- b)
- \* INPUT & DEFINITION → IS IMPLICIT
  - \* OUTPUT & EFFECTIVENESS → NUMBER OF POSSIBILITIES
  - \* FINITENESS & CORRECTNESS → FEASIBILITY
  - \* INDEPENDENT

Explain Any 5 headings → 5 marks

- 35) a) \* Scope of Variables refers to the Part of the program where it is accessible. There are two types of SCOPES Local Scope and Global Scope. → 1 mark

Local Scope - A variable declared inside the function's body is known as local variable. It can be accessed only within the function that it is created in. → 1 mark

A Suitable Example → 1 mark

Global Scope - A variable with global scope can be used anywhere in program. It can be created by defining a variable outside the scope of any function/block.

The Global keyword is used to access a variable inside a function. → 1 mark

A Suitable Example → 1 mark

- b). The for loop is usually known as a definite loop, because the programmer knows exactly how many times the loop will be executed. → 4 marks

Syntax:

for counter\_variable In sequence:

Statement-block 1

[else

Statement-block 2] → 2 marks

Suitable Example. → 2 marks



- 26) a) \* Python uses automatic garbage collection \* In Python, there is no need declare  
 \* Python is a dynamic typed language. Is no need declare  
 \* " runs through a interpreter data types  
 \* " uses shorter program code \* A function may accept  
 (Any 5 Points) - 5 marks an argument of any type and return multiple values.

b) Ability to manipulate data Security

Reduced Redundancy - Supports Transactions.

Data Consistency

Support Multiple user

Query language - Explain any 5 headings - 5 marks

- 37) a) id() - Returns the identity of the object  
 type() - Returns the type of object for the given single object  
 lower() - Returns the exact copy of the string with all the letters in lower case  
 max() - Returns the maximum value in a list  
 min() - Returns sum of values in a list  
 (Any 5 Points) - 5 marks

b) Slice is a Substring of a MainString. A substring can be taken from the original string by using [] Operator and index or subscript values.

[] is also known as Slicing operator. Using slice operator, you have to slice one or more substrings from a main string.

Syntax: str[start: end] - 3 marks [4:7]

Any suitable example - 2 marks (iv) del mylist [E3:6]

- i) `>>> print(MYLIST)` (v) ~~MYLIST.clear()~~  
 ii) `>>> len(MYLIST)` del MYLIST  
 iii) `>>> MYLIST.extend([11,12,13])` - 5 marks  
 (opposite)

b) i) plt.title() - Specifies title to the graph

ii) plt.legend() - Invokes the default legend.

(iii) plt.show() - Displays the plot.

(iv) plt.xlabel - Specifies label for x axis

(v) plt.ylabel - Specifies label for y axis

- 5 marks

Ques 38) Python has many built-in modules.

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