Tsi12CS

Tenkasi District
First Revision Examination - 2024

Standard 12
COMPUTER SCIENCE
Part - I

Time: 3.00 Hours   Marks: 70

Choose the correct answer: 15x1=15

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: 6x2=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: 6×3=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)
>>> print (x, y, z, p)
```

Part - IV

Answer all the questions.   5×5=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 suitable example
   (OR)
   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.
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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12th Std Computer Science

Part–I

1. c) Definition
2. c) Abstract datatype
3. c) #
4. c) Tuple
5. a) Big O
6. a) 16
7. c) extend
8. d) Instantiation
9. 9 step
10. d) E R
11. b) σ
12. a) check
13. a) OS module
14. a) SELECT
15. b) getopt module

Part–II

16) **Interface**   **Implementation**

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

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.

18) Syntax

CSV.reader (file object, delimiter, fmtparams) — 1 mark

The reader function is designed to take each line of the file and make a list of all columns — 1 mark

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19. Create a connection using connect() method and pass the name of the database file. — 1 Mark

connection = sqlite3.connect("Academy-db")

OR any database. — 1 mark

20.   Compiler   —   Interpreter
1. It generates an intermediate   It generates machine code.
   code for compilation
2. It reads for entire for   It reads single statement
   compilation   at a time
3. Error deduction difficult   Error deduction easily.
4. Example: gcc, g++, Turbo c++   Python, Java
                                                    — 2 marks.

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 the 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 (. dot) operator
    Syntax: — 2 mark)
        object_name.class_member.

23. SQL (Structured query language) is a standard programming language to access and manipulate databases. — 2 marks.
            (OR)
    Structured query language is a language used for accessing databases.

24.   3   6   9   12   15   18   21   24   27
                                                    — 2 marks

Part-III

25. • A Variable with local scope can be accessed only within the function/block. that it 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   } 3 marks

26.
ceil()	floor()
Returns the smallest integer greater than or equal to x	Returns the largest integer less than or equal to x — 2marks
print(math.ceil(26.7)) →27	Print(math.floor(26.7)) → 26
Syntax (or) A Suitable Example	syntax (or) A Suitable Example
Math.ceil(x)	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 ½ marks

TNPL

Destructor:

　　　* It is also a special method gets executed automatically when an object exit from the scope. It is Just opposite to constructor. In Python, _ del _ () method is used as destructor.

　　　　　　　　　　　　— 1½ mark

29. The main difference between the csv.reader() and Dict Reader() is in simple terms csv.read@ CSV.write working with list/tuple. While csv.Reader and csv.Dict Writer work with dictionary.

　　　　　　　　　　　　— 3 marks

30) 　　* SQLite is a simple relational database system which saves its data in regular data files or even in internal memory of the computer — 1 mark
Advantages:
　　　* SQLite its fast, rigorously tosted, and flexible, making it easier to work
　　　* Python has a native library for SQLite.

　　　　　　　　　　　　— 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 bracket.

Dictionary element are a enclosed within curly braces

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

In Dictionary key represent index.

4. Lists are used to look up a value

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

　　　　　(Any three only)

33) 4　　5.666　　　1　　False.
　　　5.666666666666667
　　　　　　　　　　　　—3 marks.

34) a) Pure function:- * They do not modify the arguments when are passed to the —
* Pure functions are functions which will give exact result when the same arguments are passed
* It does not cause side effects to its output.
let square x := return $x*x$.

Impure function:　　　　　　　　　— 2½ marks
* The return value of the impure functions does not solely depend on its arguments passed.
* Impure functions cause outside effects its output.

Example let length S := is (<s>len(s)) then
　　　　　　i := 0　　　　+i.
* They may modify the arguments which are passed to them
　　　　　　　— 2½ marks

b) * Input 　* Definiteness 　* Simplicity 　* Portable
* Output 　* Effectiveness 　* Unambiguous 　* Independent
* Finiteness 　* Correctness 　* Feasibility

　　　　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 with in the function that it is create 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. 　— 1 mark
Syntax:
for counter_variable in sequence:
　　　Statement_block 1
　[else
　　　Statement_block 2] 　— 2marks
　　　Suitable example. 　— 2marks

　　　[INT]

26) a)
* Python uses Automatic Garbage collection
* Python is a dynamic typed language.
* " run through a interpreter
* " uses shorter program code

(Any 5 Points) – 5 marks

* In Python, there is no need declare data types
* A function may accept an argument of any type and return multiple value

b) Ability to manipulate data   Security

Reduced Redundancy   Support Transcactions.

Data consistency

support multiple user

Query language — Explain any 5 headings – 5marks

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 is in lower case
Max () — Returns the maximum value in a list
Min () — " " Sum of values in a list
— 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 slicing operator, you have to slice one or more substring from a main string.

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

Any suitable example – 2marks   (iv) del Mylist

38) a) 1) >>> print (Mylist)   (v) Mylist.clear().
ii) >>> len (Mylist)   del Mylist
(iii) >>> Mylist.extend ([11,12,13])   — 5marks
append

b) i) plt.title() — specifies title to the graph
ii) plt.legend() – invokes the default legend.
(iii) plt.show() – display the plot.
(iv) plt.xlabel – specifies label for x axis
(v) plt.ylabel – specifies label for y axis.
— 5marks.