

1. FUNCTION

Part – I

Choose the best answer (1 Mark)

1. The small sections of code that are used to perform a particular task is called
(A) **Subroutines** (B) Files (C) Pseudo code (D) Modules
2. Which of the following is a unit of code that is often defined within a greater code structure?
(A) Subroutines (B) **Function** (C) Files (D) Modules
3. Which of the following is a distinct syntactic block?
(A) Subroutines (B) Function (C) **Definition** (D) Modules
4. The variables in a function definition are called as
(A) Subroutines (B) Function (C) Definition (D) **Parameters**
5. The values which are passed to a function definition are called
(A) **Arguments** (B) Subroutines (C) Function (D) Definition
6. Which of the following are mandatory to write the type annotations in the function definition?
(A) Curly braces (B) **Parentheses** (C) Square brackets (D) indentations
7. Which of the following defines what an object can do?
(A) Operating System (B) Compiler (C) **Interface** (D) Interpreter
8. Which of the following carries out the instructions defined in the interface?
(A) Operating System (B) Compiler (C) **Implementation** (D) Interpreter
9. The functions which will give exact result when same arguments are passed are called
(A) Impure functions (B) Partial Functions
(C) Dynamic Functions (D) **Pure functions**
10. The functions which cause side effects to the arguments passed are called
(A) **Impure function** (B) Partial Functions
(C) Dynamic Functions (D) Pure functions

2. DATA ABSTRACTION

Part – I

Choose the best answer (1 Mark)

- Which of the following functions that build the abstract data type?
(A) **Constructors** (B) Destructors (C) recursive (D) Nested
- Which of the following functions that retrieve information from the data type?
(A) Constructors (B) **Selectors** (C) recursive (D) Nested
- The data structure which is a mutable ordered sequence of elements is called
(A) Built in (B) **List** (C) Tuple (D) Derived data
- A sequence of immutable objects is called
(A) Built in (B) List (C) **Tuple** (D) Derived data
- The data type whose representation is known are called
(A) Built in datatype (B) Derived datatype
(C) **Concrete datatype** (D) Abstract datatype
- The data type whose representation is unknown are called
(A) Built in datatype (B) Derived datatype
(C) Concrete datatype (D) **Abstract datatype**
- Which of the following is a compound structure?
(A) **Pair** (B) Triplet (C) single (D) quadrat
- Bundling two values together into one can be considered as
(A) **Pair** (B) Triplet (C) single (D) quadrat
- Which of the following allow to name the various parts of a multi-item object?
(A) Tuples (B) Lists (C) **Classes** (D) quadrats
- Which of the following is constructed by placing expressions within square brackets?
(A) Tuples (B) **Lists** (C) Classes (D) quadrats

3. SCOPING

Part – I

Choose the best answer

- Which of the following refers to the visibility of variables in one part of a program to another part of the same program.
(A) **Scope** (B) Memory (C) Address (D) Accessibility
- The process of binding a variable name with an object is called
(A) Scope (B) **Mapping** (C) late binding (D) early binding
- Which of the following is used in programming languages to map the variable and object?
(A) :: (B) := (C) **=** (D) ==
- Containers for mapping names of variables to objects is called
(A) Scope (B) Mapping (C) Binding (D) **Namespaces**
- Which scope refers to variables defined in current function?
(A) **Local Scope** (B) Global scope (C) Module scope (D) Function Scope
- The process of subdividing a computer program into separate sub-programs is called
(A) Procedural Programming (B) **Modular programming**
(C) Event Driven Programming (D) Object oriented Programming
- Which of the following security technique that regulates who can use resources in a computing environment?
(A) Password (B) Authentication (C) **Access control** (D) Certification
- Which of the following members of a class can be handled only from within the class?
(A) Public members (B) Protected members
(C) Secured members (D) **Private members**
- Which members are accessible from outside the class?
(A) **Public members** (B) Protected members
(C) Secured members (D) Private members
- The members that are accessible from within the class and are also available to its subclasses is called
(A) Public members (B) **Protected members**
(C) Secured members (D) Private members

4. ALGORITHMIC STRATEGIES

Part – I

Choose the best answer

- The word comes from the name of a Persian mathematician Abu Ja'far Mohammed ibn-i Musa al Khowarizmi is called?

-
- (A) Flowchart (B) Flow **(C) Algorithm** (D) Syntax
2. From the following sorting algorithms which algorithm needs the minimum number of swaps?
(A) Bubble sort (B) Quick sort (C) Merge sort **(D) Selection sort**
3. Two main measures for the efficiency of an algorithm are
(A) Processor and memory (B) Complexity and capacity
(C) Time and space (D) Data and space
4. The complexity of linear search algorithm is
(A) $O(n)$ (B) $O(\log n)$ (C) $O(n^2)$ (D) $O(n \log n)$
5. From the following sorting algorithms which has the lowest worst-case complexity?
(A) Bubble sort (B) Quick sort **(C) Merge sort** (D) Selection sort
6. Which of the following is not a stable sorting algorithm?
(A) Insertion sort **(B) Selection sort** (C) Bubble sort (D) Merge sort
7. Time complexity of bubble sort in best case is
(A) $\theta(n)$ (B) $\theta(n \log n)$ (C) $\theta(n^2)$ (D) $\theta(n(\log n)^2)$
8. The Θ notation in asymptotic evaluation represents
(A) Base case **(B) Average case** (C) Worst case (D) NULL case
9. If a problem can be broken into subproblems which are reused several times, the problem possesses which property?
(A) Overlapping subproblems (B) Optimal substructure
(C) Memoization (D) Greedy
10. In dynamic programming, the technique of storing the previously calculated values is called?
(A) Saving value property (B) Storing value property
(C) Memoization (D) Mapping

5. PYTHON – VARIABLES AND OPERATORS

Part – I

Choose the best answer

- Who developed Python?
A) Ritchie
B) **Guido Van Rossum**
C) Bill Gates
D) Sunder Pitchai
- The Python prompt indicates that Interpreter is ready to accept instruction.
A) **>>>**
B) <<<
C) #
D) <<
- Which of the following shortcut is used to create new Python Program?
A) Ctrl + C
B) Ctrl + F
C) Ctrl + B
D) **Ctrl + N**
- Which of the following character is used to give comments in Python Program?
A) **#**
B) &
C) @
D) \$
- This symbol is used to print more than one item on a single line.
A) Semicolon(;) B) Dollor(\$)
C) **comma(,)**
D) Colon(:)
- Which of the following is not a token?
A) **Interpreter**
B) Identifiers
C) Keyword
D) Operators
- Which of the following is not a Keyword in Python?
A) break
B) while
C) continue
D) **operators**
- Which operator is also called as Comparative operator?
A) Arithmetic
B) **Relational**
C) Logical
D) Assignment
- Which of the following is not Logical operator?
A) and
B) or
C) not
D) **Assignment**
- Which operator is also called as Conditional operator?
A) **Ternary**
B) Relational
C) Logical
D) Assignment

6. CONTROL STRUCTURES

Part – I

Choose the best answer

1. How many important control structures are there in Python?
A) 3 B) 4 C) 5 D) 6
2. elif can be considered to be abbreviation of
A) nested if B) if..else **C) else if** D) if..elif
3. What plays a vital role in Python programming?
A) Statements B) Control C) Structure **D) Indentation**
4. Which statement is generally used as a placeholder?
A) continue B) break **C) pass** D) goto
5. The condition in the if statement should be in the form of
A) Arithmetic or Relational expression B) Arithmetic or Logical expression
C) Relational or Logical expression D) Arithmetic
6. Which is the most comfortable loop?
A) do..while B) while **C) for** D) if..elif
7. What is the output of the following snippet?

```
i=1
while True:
    if i%3 ==0:
        break
    print(i,end="")
    i +=1
```

A) 12 B) 123 C) 1234 D) 124
8. What is the output of the following snippet?

```
T=1
while T:
    print(True)
    break
```

A) False **B) True** C) 0 D) 1
9. Which amongst this is not a jump statement?
A) for B) pass C) continue D) break
10. Which punctuation should be used in the blank?

```
if <condition>_
    statements-block 1
else:
    statements-block 2
```

A) ; **B) :** C) :: D) !

7. PYTHON FUNCTIONS

Part – I

Choose the best answer

1. A named blocks of code that are designed to do one specific job is called as
(A) Loop (B) Branching **(c) Function** (D) Block
2. A Function which calls itself is called as
(A) Built-in **(B) Recursion** (C) Lambda (D) return
3. Which function is called anonymous un-named function
(A) Lambda (B) Recursion (C) Function (D) define
4. Which of the following keyword is used to begin the function block?
(A) define (B) for (C) finally **(D) def**
5. Which of the following keyword is used to exit a function block?
(A) define **(B) return** (C) finally (D) def
6. While defining a function which of the following symbol is used.
(A) ; (semicolon) (B) . (dot) **(C) : (colon)** (D) \$ (dollar)
7. In which arguments the correct positional order is passed to a function?
(A) Required (B) Keyword (C) Default (D) Variable-length
8. Read the following statement and choose the correct statement(s).
(I) In Python, you don't have to mention the specific data types while defining function.
(II) Python keywords can be used as function name.
(A) I is correct and II is wrong (B) Both are correct
(C) I is wrong and II is correct (D) Both are wrong
9. Pick the correct one to execute the given statement successfully.
if ____ :
 print(x, " is a leap year")
(A) $x\%2=0$ **(B) $x\%4==0$**
(C) $x/4=0$ (D) $x\%4=0$
10. Which of the following keyword is used to define the function testpython(): ?
(A) define (B) pass **(C) def** (D) while

8. STRINGS AND STRING MANIPULATION

Part – I

Choose the best answer

- Which of the following is the output of the following python code?

```
str1="TamilNadu"  
print(str1[::-1])
```

(A) Tamilnadu (B) Tmlau (C) udanlimaT (D) **udaNlimaT**
- What will be the output of the following code?

```
str1 = "Chennai Schools"  
str1[7] = "-"
```

(A) Chennai-Schools (B) Chenna-School
(C) **Type error** (D) Chennai
- Which of the following operator is used for concatenation?
(A) **+** (B) & (C) * (D) =
- Defining strings within triple quotes allows creating:
(A) Single line Strings (B) **Multiline Strings**
(C) Double line Strings (D) Multiple Strings
- Strings in python:
(A) Changeable (B) Mutable (C) **Immutable** (D) flexible
- Which of the following is the slicing operator?
(A) { } (B) **[]** (C) < > (D) ()
- What is stride?
(A) index value of slide operation (B) first argument of slice operation
(C) second argument of slice operation (D) **third argument of slice operation**
- Which of the following formatting character is used to print exponential notation in upper case?
(A) %e (B) **%E** (C) %g (D) %n
- Which of the following is used as placeholders or replacement fields which get replaced along with format() function?
(A) **{ }** (B) < > (C) ++ (D) ^^
- The subscript of a string may be:
(A) Positive (B) Negative (C) Both (A) and (B) (D) **Either (A) or (B)**

9. LISTS, TUPLES, SETS AND DICTIONARY

Part – I

Choose the best answer

- Pick odd one in connection with collection data type
(A) List (B) Tuple (C) Dictionary **(D) Loop**
- Let list1=[2,4,6,8,10], then print(List1[-2]) will result in
(A) 10 **(B) 8** (C) 4 (D) 6
- Which of the following function is used to count the number of elements in a list?
(A) count() (B) find() **(C) len()** (D) index()
- If List=[10,20,30,40,50] then List[2]=35 will result
(A) [35,10,20,30,40,50] (B) [10,20,30,40,50,35]
(C) [10,20,35,40,50] (D) [10,35,30,40,50]
- If List=[17,23,41,10] then List.append(32) will result
(A) [32,17,23,41,10] (B) [17,23,41,10,32]
(C) [10,17,23,32,41] (D) [41,32,23,17,10]
- 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) more()
- What will be the result of the following Python code?
S=[x**2 for x in range(5)]
print(S)
(A) [0,1,2,4,5] **(B) [0,1,4,9,16]**
(C) [0,1,4,9,16,25] (D) [1,4,9,16,25]
- What is the use of type() function in python?
(A) To create a Tuple
(B) To know the type of an element in tuple.
(C) To know the data type of python object.
(D) To create a list.
- Which of the following statement is not correct?
(A) A list is mutable
(B) A tuple is immutable.
(C) The append() function is used to add an element.
(D) The extend() function is used in tuple to add elements in a list.
- Let setA={3,6,9}, setB={1,3,9}. What will be the result of the following snippet?
print(setA\setB)
(A) {3,6,9,1,3,9} (B) {3,9} (C) {1} **(D) {1,3,6,9}**
- Which of the following set operation includes all the elements that are in two sets but not the one that are common to two sets?
(A) Symmetric difference (B) Difference
(C) Intersection (D) Union
- The keys in Python, dictionary is specified by

(A)=

(B) ;

(C)+

(D) :

10. PYTHON CLASSES AND OBJECTS

Part – I

Choose the best answer

- Which of the following are the key features of an Object Oriented Programming language?
(A) Constructor and Classes (B) Constructor and Object
(C) **Classes and Objects** (D) Constructor and Destructor
- Functions defined inside a class:
(A) Functions (B) Module (C) **Methods** (D) section
- Class members are accessed through which operator?
(A) & (B) **.** (C) # (D) %
- Which of the following method is automatically executed when an object is created?
(A) `__object__()` (B) `__del__()` (C) `__func__()` (D) **`__init__()`**
- A private class variable is prefixed with
(A) **`__`** (B) `&&` (C) `##` (D) `**`
- Which of the following method is used as destructor?
(A) `__init__()` (B) `__dest__()` (C) `__rem__()` (D) **`__del__()`**
- Which of the following class declaration is correct?
(A) `class class_name` (B) `class class_name<`
(C) **`class class_name:`** (D) `class class_name[]`
- Which of the following is the output of the following program?

```
class Student:  
    def __init__(self, name):  
        self.name=name  
        print (self.name)  
S=Student("Tamil")
```


(A) Error (B) **Tamil** (C) name (D) self
- Which of the following is the private class variable?
(A) **`__num`** (B) `##num` (C) `$$num` (D) `&&num`
- The process of creating an object is called as:
(A) Constructor (B) Destructor (C) Initialize (D) **Instantiation**

11. DATABASE CONCEPTS

Part – I

Choose the best answer

- What is the acronym of DBMS?
(A) DataBase Management Symbol (B) Database Managing System
(C) **DataBase Management System** (D) DataBasic Management System
- A table is known as
(A) tuple (B) attribute (C) **relation** (D) entity
- Which database model represents parent-child relationship?
(A) Relational (B) Network (C) **Hierarchical** (D) Object
- Relational database model was first proposed by
(A) **E F Codd** (B) E E Codd (C) E F Cadd (D) E F Codder
- What type of relationship does hierarchical model represents?
(A) one-to-one (B) **one-to-many** (C) many-to-one (D) many-to-many
- Who is called Father of Relational Database from the following?
(A) Chris Date (B) Hugh Darween
(C) **Edgar Frank Codd** (D) Edgar Frank Cadd
- Which of the following is an RDBMS?
(A) Dbase (B) Foxpro (C) Microsoft Access (D) **SQLite**
- What symbol is used for SELECT statement?
(A) **σ** (B) Π (C) X (D) Ω
- A tuple is also known as
(A) table (B) **row** (C) attribute (D) field
- Who developed ER model?
(A) **Chen** (B) EF Codd (C) Chend (D) Chand

12. STRUCTURED QUERY LANGUAGE(SQL)

Part – I

Choose the best answer

1. Which commands provide definitions for creating table structure, deleting relations, and modifying relation schemas.
(A) **DDL** (B) DML (C) DCL (D) DQL
2. Which command lets to change the structure of the table?
(A) SELECT (B) ORDER BY (C) MODIFY (D) **ALTER**
3. The command to delete a table is
(A) **DROP** (B) DELETE (C) DELETE ALL (D) ALTER TABLE
4. Queries can be generated using
(A) **SELECT** (B) ORDER BY (C) MODIFY (D) ALTER
5. The clause used to sort data in a database
(A) SORT BY (B) **ORDER BY** (C) GROUP BY (D) SELECT

13. PYTHON AND CSV FILES

Part – I

Choose the best answer

- A CSV file is also known as a
(A) **Flat File** (B) 3D File (C) String File (D) Random File
- The expansion of CRLF is
(A) Control Return and Line Feed (B) Carriage Return and Form Feed
(C) Control Router and Line Feed (D) **Carriage Return and Line Feed**
- Which of the following module is provided by Python to do several operations on the CSV files?
(A) py (B) xls (C) **csv** (D) os
- Which of the following mode is used when dealing with non-text files like image or exe files?
(A) Text mode (B) **Binary mode**
(C) xls mode (D) csv mode 5
- The command used to skip a row in a CSV file is
(A) **next()** (B) skip() (C) omit() (D) bounce()
- Which of the following is a string used to terminate lines produced by writer() method of csv module?
(A) **Line Terminator** (B) Enter key
(C) Form feed (D) Data Terminator
- What is the output of the following program?

```
import csv
d=csv.reader(open('c:\PYPRG\ch13\city.csv'))
next(d)
for row in d:
    print(row)
if the file called "city.csv" contain the following details
    chennai, mylapore
    mumbai, andheri
```


A) chennai,mylapore (B) **mumbai,andheri**
(C) chennai (D) chennai,mylapore
mumba mumbai,andheri
- Which of the following creates an object which maps data to a dictionary?
(A) listreader() (B) reader() (C) tuplereader() (D) **DictReader ()**
- Making some changes in the data of the existing file or adding more data is called
(A) Editing (B) Appending (C) **Modification** (D) Alteration
- What will be written inside the file test.csv using the following program

```
import csv
D = [['Exam'], ['Quarterly'], ['Halfyearly']]
csv.register_dialect('M', lineterminator = '\n')
with open('c:\pyprg\ch13\line2.csv', 'w') as f:
    wr = csv.writer(f, dialect='M')
    wr.writerows(D)
```

f.close()

(A) Exam Quarterly Halfyearly

(C) E

Q

H

(B) Exam Quarterly Halfyearly

**(D) Exam,
Quarterly,
Halfyearly**

14. IMPORTING C++ PROGRAMS IN PYTHON

Part – I

Choose the best answer

- Which of the following is not a scripting language?
(A) JavaScript (B) PHP (C) Perl (D) **HTML**
- Importing C++ program in a Python program is called
(A) **wrapping** (B) Downloading (C) Interconnecting (D) Parsing
- The expansion of API is
(A) Application Programming Interpreter (B) **Application Programming Interface**
(C) Application Performing Interface (D) Application Programming Interlink
- A framework for interfacing Python and C++ is
(A) Ctypes (B) SWIG (C) Cython (D) **Boost**
- Which of the following is a software design technique to split your code into separate parts?
(A) Object oriented Programming (B) **Modular programming**
(C) Low Level Programming (D) Procedure oriented Programming
- 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
- getopt() will return an empty array if there is no error in splitting strings to
(A) argv variable (B) opt variable (c) **args variable** (d) ifile variable
- Identify the function call statement in the following snippet.
if __name__ == '__main__':
 main(sys.argv[1:])
(A) main(sys.argv[1:]) (B) **__name__** (C) __main__ (D) argv
- Which of the following can be used for processing text, numbers, images, and scientific data?
(A) HTML (B) C (C) C++ (D) **PYTHON**
- What does __name__ contains?
(A) c++ filename (B) main() name (C) **python filename** (D) os module name

15. DATA MANIPULATION THROUGH SQL

Part – I

Choose the best answer

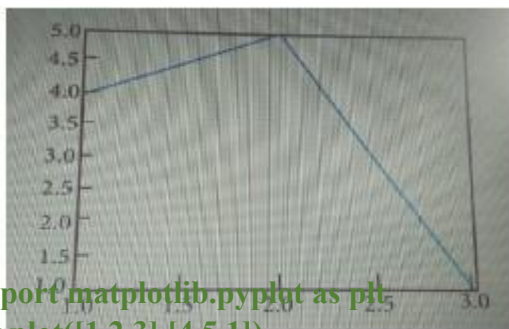
- Which of the following is an organized collection of data?
(A) **Database** (B) DBMS (C) Information (D) Records
- SQLite falls under which database system?
(A) Flat file database system (B) **Relational Database system**
(C) Hierarchical database system (D) Object oriented Database system
- Which of the following is a control structure used to traverse and fetch the records of the database?
(A) Pointer (B) Key (C) **Cursor** (D) Insertion point
- Any changes made in the values of the record should be saved by the command
(A) Save (B) Save As (C) **Commit** (D) Oblige
- Which of the following executes the SQL command to perform some action?
(A) **execute()** (B) key() (C) cursor() (D) run()
- Which of the following function retrieves the average of a selected column of rows in a table?
(A) Add() (B) SUM() (C) **AVG()** (D) AVERAGE()
- The function that returns the largest value of the selected column is
(A) **MAX()** (B) LARGE() (C) HIGH() (D) MAXIMUM()
- Which of the following is called the master table?
(A) **sqlite_master** (B) sql_master (C) main_master (D) master_main
- The most commonly used statement in SQL is
(A) cursor (B) **select** (C) execute (D) commit
- Which of the following clause avoid the duplicate?
(A) **Distinct** (B) Remove (C) Where (D) GroupBy

16. DATA VISUALIZATION USING PYTHON: LINE CHART, PIE CHART AND BAR CHART

Part – I

Choose the best answer

1. Which is a python package used for 2D graphics?
(A) **matplotlib.pyplot** (B) matplotlib.pip (C) matplotlib.numpy (D) matplotlib.plt
2. Identify the package manager for Python packages, or modules.
(A) Matplotlib (B) **PIP** (C) plt.show() (D) python package
3. Read the following code: Identify the purpose of this code and choose the right option from the following.
C:\Users\YourName\AppData\Local\Programs\Python\Python36-32\Scripts>pip – version
(A) Check if PIP is Installed (B) Install PIP
(C) Download a Package (D) **Check PIP version**
4. Read the following code: Identify the purpose of this code and choose the right option from the following.
C:\Users\Your Name\AppData\Local\Programs\Python\Python36-32\Scripts>pip list
(A) **List installed packages** (B) list command
(C) Install PIP (D) packages installed
5. To install matplotlib, the following function will be typed in your command prompt. What does “-U” represents?
Python –m pip install –U pip
(A) downloading pip to the latest version (B) upgrading pip to the latest version
(C) removing pip (D) **upgrading matplotlib to the latest version**
6. Observe the output figure. Identify the coding for obtaining this output.



- (A) **import matplotlib.pyplot as plt
plt.plot([1,2,3],[4,5,1])
plt.show()**
- (B) import matplotlib.pyplot as plt
plt.plot([1,2],[4,5])
plt.show()
- (C) import matplotlib.pyplot as plt

```
plt.plot([2,3],[5,1])
```

```
plt.show()
```

(D) import matplotlib.pyplot as plt

```
plt.plot([1,3],[4,1])
```

```
plt.show()
```

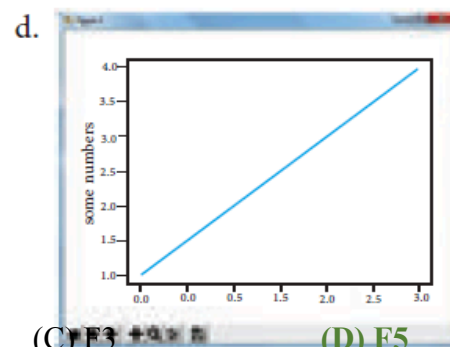
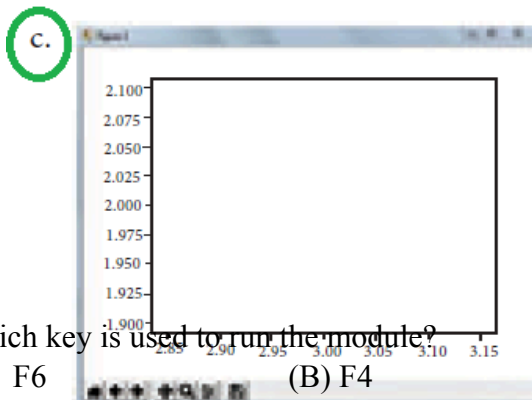
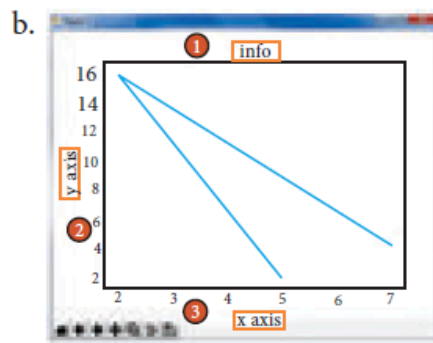
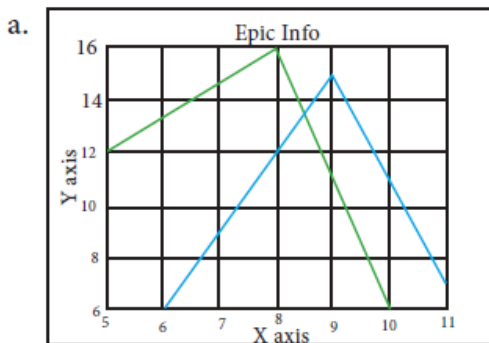
7. Read the code:

(A) import matplotlib.pyplot as plt

(B) plt.plot(3,2)

(C) plt.show()

Identify the output for the above coding.



8. Which key is used to run the module?

(A) F6

(B) F4

(C) F3

(D) F5

9. Identify the right type of chart using the following hints.

Hint 1: This chart is often used to visualize a trend in data over intervals of time.

Hint 2: The line in this type of chart is often drawn chronologically.

(A) Line chart

(B) Bar chart

(C) Pie chart

(D) Scatter plot

10. Read the statements given below. Identify the right option from the following for pie chart.

Statement A: To make a pie chart with Matplotlib, we can use the plt.pie() function.

Statement B: The autopct parameter allows us to display the percentage value using the Python string formatting.

(A) Statement A is correct

(B) Statement B is correct

(C) Both the statements are correct

(D) Both the statements are wrong