SUBJECT : XII STD COMPUTER SCIENCE

ONE MARK QUESTIONS

CHAPTER 1. FUNCTION

1. A **function** is a unit of code.

2. **Subroutines** are the basic blocks of computer programs.

3. In programming languages subroutines are called **functions**.

4. Parameters are **variables**.

5. Arguments are **values**.

6. A function definition which call itself called **recursive function**.

7. An **interface** is a set of action that an object can do.

8. **Implementation** carries out the instruction defined in the interface.

9. **Pure functions** are functions which will give exact result when the same arguments are passed.

10. **Impure function**cause side effects.

11. When you write the type annotations the **parenthesis** are mandatory.

12.**Definitions** are distinct syntactic blocks.

CHAPTER 2. DATA ABSTRACTION

1. Splitting a program is called **modules**.

2. **Abstract data type** is a type for objects whose behavior is defined by a set of values and operations.

3. To facilitate data abstraction, we will need to create two functions **constructor**, **destructor**.

4.**Constructors** are functions that build the abstract data type.

5.**Selectors** are functions that retrieve information from the data type.

6. A **rational** number is a ratio of integers.

7. A tuple is a comma separated values surrounded with parentheses.

8. A class is bundled **data** and **functions**.

9. Bundling of two values together into one called **pair**.

10. **Pair** is a compound structure.

11.**list**is constructed by placing expressions within square brackets separated by commas.

12. The elements of a list can be accessed in **two** ways.

13. The two ways of accessing element in list is **multiple assignment, element selection operator.**

14. A representation of data type is known is called **concrete data type**.

15. A representation of data type is unknown is called **abstract data type**.

CHAPTER 3. SCOPING

1. **Scope** refers to visibility of variables.

2. **Namespaces** are containers for mapping names of variables to objects.

3. **:=** sign is used to map variable name to object

4. The process of binding variable name with an object is called **mapping**.

5. The **scope** of variable is part of code where it is visible.

6. **LEGB**rule is used to decide the order in which the scopes are to be searched for scope resolution.

7. There are **4** types of variable scope.

8. **Local scope** refers to variable defined in current function.

9. A **module** is a part of program.

10. A variable which is declared outside of all functions is known as Global scope.

11. A function with in another function is called **nested function**.

12. Pre-loaded program scope refers to **Built in scope**.

13. Module segments can be invoked by its **names** and **parameters**.

14. **Access control** is a security technique that regulates who or what can view or use resources in computing environment.

15. All members in a python class are **public** by default.

16. **Protected members** of class are accessible with in class and its sub class.

17. A variable can be changed as private by adding **double underscore** before variable name.

18. All members in c++ , java are **private** by default.

19. Object oriented languages are **C++** and **JAVA**.

20. Modules contains **instruction, processing logic** and **data**.

CHAPTER 4. Algorithm

1. An **Algorithm**is a finite set of instructions to accomplish a particular task.

2. An Algorithm can be implemented in any suitable **programming language**.

3. Data maintained and manipulated effectively through **data structure**.

4. Examples for Data structures are **Arrays, Structures, list, Tuples, dictionary** etc.

5. The way of defining Algorithm is called **Algorithmic strategy**.

6. The word Algorithm comes from the name of s Persian author **Abu Jafar Mohammed ibnMussalKhowarizmi**.

7. Analysis of Algorithm and performance evaluation can be divided in to priori testing,posteriori testing.

8. Algorithm do functions like **search,sort ,insert,update,delete**

9. An algorithm that yields expected output for a valid input is called an **Algorithmic solution**.

10. An estimation of time and space of an Algorithm for varying input sizes is called **Algorithm analysis**.

11. **Big O** is used to describe the worst case algorithm.

12. **Big Ω** is used to describe the best case Algorithm.

13. **Big Θ** is used to describe the better case Algorithm.

14. **Linear search** is also called sequential search.

15. In linear search Algorithm Elements need not be **sorted**.

16. Binary search is also called **Half interval search**.

17. The binary search algorithm can be done as **Divide-and-conquer** search algorithm.

18. The formula for find index of middle element of the array **mid=low+(high-low)/2**

19. **Bubble sort** is a simple sorting Algorithm.

20. Insertion sort Algorithm uses **n-1** number of passes to get the final sorted list.

21. Two main measures for the Efficiency of an Algorithm are **time and space**.

22. The complexity of linear search algorithm is **O(n)**.

23. **Selection sort** is not a stable sorting Algorithm.

24. In dynamic programming, the technique of storing the previously calculated value is called **memoization**.

25. The Θ notation in **asymptotic**evaluation represents Average case.

CHAPTER 5. Python variables and operators

1. python created by **Guido Van Rossum**.

2. Python released in **1991**.

3. Python is a **general** purpose programming language.

4. The version 3.x of **python IDLE** is used to develop and run python code.

5. The expansion of IDLE is **Integrated Development Learning Environment**.

6. In python programs can be written in two ways namely Interactive mode, script mode.

7. **Script** mode is used to create and edit python source file.

8. The interactive mode can be used as a **simple calculator**.

9. The prompt >>>indicates the interpreter is ready to accept instruction.

10. Python scripts are **reusable** code.

11. To create script in python press **ctrl+N** or **File->new**.

12. To execute python script Choose **Run->Run module** or**press F5**.

13. To save a python script **File->save** or **ctrl+s**.

14. **input()** is used to enter data at run time.

15. **print()** is used to display the result of the program on the screen.

16. **Comma(,)** is used as a separator in print() to print more than one item.

17. **int()** is used to convert string data as integer data explicitly.

18. In python comments begins with **hash symbol (#)**.

19. Types of comments are **single line comment**, **multiline comment**.

20. Python uses whitespaces such as **spaces** and **tabs** to define program blocks.

21. Multiline comments should be begin with a set of ‘’’ ‘’’ (triple quotes).

22. Python breaks each logical line into a sequence of elementary lexical components called as **tokens**.

23. Tokens are classified as **5.**

24. An **identifier** is a name is used to identify a variable, function, class, module or object.

25. Identifier must not be a Python **keyword**.

26. **Keywords** are special words used by python interpreter to recognize the structure of program.

27. Values and Variables used with operator are known as **operands**.

28. An relational operator is also called as **comparative** operator.

29. = is the simple Assignment operator.

30. **Literals** are raw data given to a variable or constant.

31. Ternary operator is known as **conditional** operator.

32. **“\”** is a special character also called the escape character.

33. A Boolean can have any of two values such as **true or false.**

34. Python has fundamental data types such as **Number**, **string**, **Boolean**, **tuple**, **list**, and **dictionary**.

35. All data values in python are **objects.**

36. Number data type supports **integer**, **floating point** and **complex numbers**.

37. String data types enclosed in **single quotes** or **double quotes** or **triple quotes**.

CHAPTER 6. Control Structures

1. Programs contain set of **statements**.

2. A program statement that causes a jump of control from one part of the program to another is called **controlstructures** or **control statement**.

3. Skip a segment or set of statements and execute another segment based on test of a condition is called **alternative** or **branching**.

4. To execute a set of statements multiple times called **iteration** or **looping**.

5. There are **3** important control structures.

6. A **sequential** statement is composed of a sequence of statements.

7. Types of alternative or branching statements are simple **if statement**,**if…elsestatement**, **if…elif statement.**

8. elif can be considered to be abbreviation of **else…if**

9. if…elif…else statement is similar to **nested if** statement.

10.A indentation is equal to **4** spaces.

11. A **loop** statement allows to execute a statement or group of statements multiple times.

12. Python provides **2** types of looping structures such as **while** and **for** loop.

13. print can have **end**, **sep** as parameters.

14. end parameter can be used to specify escape sequence like **'\t', '\n'** .

15. **for** loop is the most comfortable loop.

16. for loop uses **range()**.

17. range() generates a **list** of values starting from start till stop-1.

18. range() can take values from **string**, **list**, **dictionary** etc.

19. The **jump** statement in python is used to unconditionally transfer the control from one part of the program to another.

20. There are **3** keywords to achieve jump statements in python such as **break** ,**continue** , **pass**.

21**. break** statement terminates the loop containing it.

22. **continue** statement skip the remaining part of the loop and start with next iteration.

23. In python programming **pass** statement is a null statement.

24. pass statement is used as p**laceholder .**

25. **Indentation** plays vital role in python programming.

CHAPTER 7. python functions

1. **Functions** are group of related statements.

2. Functions that calls itself known as **recursive functions.**

3. Function blocks begins with the keyword " **def**" .

4. Function name followed by **parenthesis ()**.

5. The code block always comes after a **colon (:)**.

6. The **return** statement exit a function.

7. Python keyword should not used as function name.

8. Ablock within a block is called **nested block**.

9. When the first block indented by a **single**tab, the second block indented by **double** tab spaces.

10. Functions help us to divide a program into **modules**.

11. Function arguments are **4** type

12. **Required** arguments are the arguments passed to a function in correct positional order.

13. **Keyword** argument will invoke the function by their parameter names.

14. We cannot assure that how many arguments will be passed in that time **asterisk (*)** is used to define such arguments.

15. We can pass arguments in variable length argument in **two** methods.

16. Non keyword variable arguments are called **tuples**.

17. **print()** supports variable length arguments .

18. Anonymous functions are called as **lambda** function.

19. Lambda function is used with the functions **filter()** , **map()** and **reduce()**.

20. Lambda function access only **global** variables.

21. Any number of return statements are allowed in a function.

22. Only **one** return statement is executed at run time.

23. **Two** types of scopes in python such as **local scope** and **global scope.**

24. A variable declared inside the function body is known as **local** variable.

25. The **formal** arguments are local to function.

26. A **Global** variable defined outside the scope of any function/block.

27. We use **global** keyword to read and write a global variable inside a function.

28. We cannot modify the global variable without using **global** keyword.

29. **abs()** returns absolute value of a variable.

30. **ord()** returns ASCII value of Unicode character.

31. **chr()** returns Unicode character for given ASCII value.

32. **bin()** returns the binary value for given integer.

33. type() returns the **data type** for object

34. **id()** returns the address of the object in memory.

35. **min()** returns the minimum value in a list

36. **max()** returns the maximum value in a list.

37. **sum()** returns the sum of values in a list.

38. **format()** returns the output based on the given format.

39. **round()** returns integer nearest to its output.

40. pow() returns the computation of **(a**b)**

41. We have to import **math** module before using all mathematical functions in a program.

42. **floor()** returns the largest integer less than or equal to variable value.

43. **ceil()** returns the smallest integer greater than or equal to variable value.

44. sqrt() returns the **square root** of variable value.

45. The value returned by a function used as an argument for another function in a nested manner is called **composition**.

46. When a function call itself is known as **recursion**.

47. Recursion works like a **loop**.

48. Recursive function is called by some **external** code.

49. **sys.setrecursionlimit(limit_value)** change the limitation value of recursion.

CHAPTER 8. Strings and Strings manipulation

1. String is a **data type** in python.

2. **String** is used to handle Array of characters.

3. String is a **sequence**of Unicode characters.

4. String is enclosed within **single, double or triple quotes**.

5. Strings are**immutable**.

6. Multiline string enclosed within **triple quotes**.

7. Positive subscript starts from **0**.

8. The last character assigned by **n-1**

9. The negative index assigned from the last character to first character in reverse order begins with **-1**

10. The index value is called as **subscript**.

11. The subscript can be **positive** or **negative** integer numbers.

12. We can remove entire string**del** command.

13. Joining two or more strings is called as **concatenation**.

14. The '**+**' operator is used to concatenate strings in python.

15. Adding more strings at the end of existing strings is known as **Append**.

16. The operator '**+=**' is used to append a new string with an existing string.

17. The repeating operator is **'*'** is used to display a string in multiple number of times.

18. **Slice** is a substring of a main string.

19. Slicing operator is [].

20. **Stride** is third argument in slicing operation.

21. The formatting operator **%** is used to construct strings.

22. The **curly braces {}** is used as placeholder in format().

23. **len()** returns the length os the string.

24. **capitalize()** is used to capitalize the first character of the string.

25. Membership operators are **'in'**and **'not in'**

26. Escape sequence starts with **backslash (\).**

27.%c denotes **character**.

28. %s denotes **string**.

29. %u denotes **unsigned decimal integer**.

30. %o denotes **octal integer**.

31. %f denotes **floating point numbers**.

32. %e or %E denotes **Exponential notation**.

33. %g or %G denotes **short numbers in floating point or exponential notation**

CHAPTER 9. Lists, tuples, sets and dictionary

1. A list in python is **s**data type

2. list is an ordered collection of values enclosed within **square brackets [].**

3. Each value of list is called as**element**.

4. list contains another list as an element is called as **nested list.**

5. **for** loop is used to access all elements in a list one by one.

6. **append()** is used to add a single element.

7. **extend()** is used to add more than one element to an existing list.

8. **insert()** is used to insert a new element at a particular location.

9. **del** statement is used to delete known elements

10. **remove()** is used to delete unknown element.

11. **pop()** is used to delete last element of a list.

12. Clear() is used to delete all the elements but **retains** the list.

13. **range()** is used to generate series of values.

14. range() has **3** arguments such as **start,stop,stepvalue**.

15. **list()** is used to create a list in python.

16. **copy()** returns a copy the list.

17. count() returns the number of **similar** elements present in a list.

18. **index()** returns the index value of the first recurring element.

19. **reverse()** is used to reverse the order of the element in the list.

20. **sort()** sort the element in the list

21. sort() will **affect** the original list.

22. If reverse is set as True , list sorting is in **descending** order.

23. A number of values separated by comma and enclosed within parenthesis is **tuple**datatype.

24. Iterating tuple faster than the list.

25. The elements of a tuple are unchangeable.

26. The elements of a tuple enclosed within **paraenthesis.**

27. **tuple()** is used to create tuples from a list.

28. Tuple with one element is called **singleton** tuple.

29. **Tuple assignment** is powerful feature in python.

30. A tuple can be defined inside another tuple is called **nested** tuple.

31. The **for** loop will be useful to access all the elements in a nested tuple.

32. A set is immutable and unordered collection of elements without ***duplicates***.

33. set() is used to include **membership testing** and **eliminating** duplicate elements.

34. set is created by placing all the elements separated by comma within pair of **curly brackets**.

35. **set()** is used to convert as set.

36. **union()**is used to join two sets in python.

37. **intersection()** is used to intersect two sets in python.

38. **difference()** is used to do difference operation.

39. **symmetric_difference()** is use to return elements in two sets exclude common elements in two sets.

40. A dictionary is a **mixed** collection of elements.

41. Dictionary elementsenclosed within **curly braces{}**.

42. The keys in a python dictionary is separated by a **colon (:)**

43. Dictionary is a **datastructure**.

CHAPTER10. Python classes and objects

1.Python is an **object oriented** programming language.

2. **classes** and **objects** are the features of object oriented programming.

3. class is the **main building** block in python.

4. object is a collection of **data and functions**.

5. ojects are also called as **instances** of a class or class variable.

6. All string variables are **object** of class string.

7. In python class is defined by using the keyword **class**.

8. Every class has a unique name followed by a **colon(:)**

9. Variables defined inside a class are called as **class variable**.

10. functions in a class is called as **methods**.

11. class variable and methods are together known as **members** of the class.

12. The class members should be accessed through objects or instance of class.

13. A class can be defined **anywhere** in a program.

14. The process of creating object is called as **class instantiation**.

15. A class member can be accessed by using object with **a dot(.)** operator

16. The class method must have first argument named as **self**.

17. Special function in python called as **init** which acts as a constructor.

18. init function should begin and end with double underscore.

19. initfunction can be defined **with or without** arguments.

20. initfunction is used to initialize the **class variables**.

21. **init** function gets automatically executed when an object is created.

22. In python __del__ () is used as **destructor**.

23. **__del__ ()**gets automatically executed when an object exit from the scope.

24. Thevariables defined inside the class is **public** by default.

25. A variable prefixed with **double underscore** becomes private variable.

CHAPTER 11.Database concepts

1. A database is an **organized** collection of data.

2. Database is **repository** collection of related data.

3. A **DBMS** is a software that allows us to create, define and manipulate database.

4. The database management system can be divided into **five** major components such as **hardware**, **software**, **data**, **methods**, **data access language**.

5. Examples for popular DBMS is Dbase,FoxPro.

6. Table is the entire collection of related data in one table referred to as a file.

7. Each row in a table represents a record.

8. Each table column represents a field.

9. A table is known as relation.

10. A row is known as tuple.

11. A column is known as Attribute.

12. A data model describes the data can be represented from a software.

13. Hierarchical model was developed by IBM.

14. Hierarchical data model represents parent-child relationship.

15. Hierarchical data model is mainly used in main frame computers.

16. The relational database model was first proposedby E.F.Codd in 1970

17. A network model is extended from hierarchical data model.

18. **Network model** represents the data in many-to-many relationships.

19. **Network**data model is easier and faster access the data.

20. Entity Relationship model was developed by **Chen** in 1976.

21. In ER model relationship are created by dividing the objects in to **entity**.

22. **Object oriented** model stores data in the form of objects.

23. **Object** datamodel is used in Geographic Information System (GIS), engineering design and manufacturing,scientificexperiments

24. **Database Administrator** is the one who manages the complete database management system.

25. Application programmer is involved in **developing and designing** the parts of DBMS.

26. **End users** are the one who store, retrieve, update and delete data.

27. **Database designers** are responsible for identifying the data to be stored in the database for choosing the appropriate structure to represent and store the data.

28. DBMS users are 4 types such as **Database Administrator, Application programmer**, **End users, Databasedesigners.**

29. Database normalization was first proposed by **Dr.Edgar F Codd**

30. Database normalization is used to reduce **data redundancy** and **data integrity**

31. Father of **relational database** is E F Codd.

32. Relational model invented by **E F Codd**

33. Relational algebra first created by **E F Codd**

34. Language used to query the database tables using **SQL**

35. Relational algebra operations are
UNION,**INTERSECTION**,**DIFFERENCE**,**CARTESIAN PRODUCT**

36. UNION operations returns both two table elements without **duplicates**.

37. INTERSECTION operation returns **common** elements in two tables.

38. **DIFFERENCE** operation returns all elements that are in table A not in table B.

39. **CARTESIAN PRODUCT** return elements that are cross product of relation A and B.

40. Select symbol in relational algebra is **σ**

CHAPTER 12. Structured Query Language

1. **SQL** is standard programming language to access and manipulate databases.

2. The later SQL was released in **2008** and named as **SQL 2008**.

3. RDBMS stands for **Relational DataBase Management System**.

4. Examples for RDBMS package are Oracle, **MySQL**, **MS SQL server**, **IBM DB2** and **Microsoft access**.

5. A field is a **column**.

6. A **record** is a row.

7. A **table** is a collection of related data.

8. WAMP stands for **Windows, Apache, MySQL and PHP**.

9. SQL Commands are divided in to **five** categories.

10. Two types of DML is **Procedural DML**, **Non-Procedural DML**.

11. DCL is a programming language used to **control** the access of data stored in a database.

12. **Grant** command is used to grant permission to one or more users to perform specific task.

13. **Revoke** command is used to withdraws the access permission given by Grant permission.

14. Commit command is used to save any transaction into the database **permanently**.

15. **Roll back** is used to restore the database to last commit state.

16. **save point** is used to save a transaction temporarily.

17. DQL is used to **query** and **retrieve** data from a database.

18. **select** command is used to display the records from the table.

19. Keywords have **special** meaning.

20. **Commands** are instruction given by the user to the database as statements.

21. Clauses begin with a **keyword** and consist of keyword and argument.

22. Arguments are the **values**.

23. A table can be created by using **CREATE TABLE** command.

24. **constraint** is a condition applicable on a field or set of fields.

25. Constraint could be either on **table constraint**, **column constraint**.

26. Based on database integrity constraint classified as **unique**, **primary key**, **Default**, **check constraint.**

27. Unique constraint ensures that no two rows have the **same** value.

28. **Primary** key is used to uniquely identify a record.

29. **Default** constraint is used to assign a default value for the field.

30.Check constraint may use r**elational** and **logical** operators for condition.

31. When the constraint is applied to a group of fields of the table known as **table** constraint.

32. **DELETE** command is used to removes one or more records from the table.

33. To alter the **table** structure by using the ALTER command.

34. **TRUNCATE** command is used to delete all rows from the table but retains the Table structure.

35. **DROP** table command is used to remove table from the database.

36. **DISTINCT** command is used along with SELECT command to eliminate duplicate rows in a table.

37. **ALL** keywords retains duplicate rows.

38. BETWEEN and NOT BETWEEN keywords defines a **range** of values.

39. **WHERE** clause is used to search condition comes along with SELECT statement.

40. WHERE clause use **Logical operators (i.e.) AND, OR, NOT**

41. **ORDER BY** clause is used to sort the data in ascending or descending order.

42. By default ORDER BY sort the data in **ascending** order.

43. ORDER BY clause does not affect the **original** table

44. The * is used to count to include **NULL** values.

45. MySQL is a **DataBase Management System**.

46. The various components of SQL are ***DDL***, **DML**, **DQL**, **TCL**, and **DCL**.

47. The original version of SQL developed at **IBM's** research centre .

48. SQL originally called as **Sequel** in early 1970.

49. SQL standard released by **American National Standarad Institute.**

50. WAMP is a variation of **LAMP**.

51. LAMP used to serve **live websites**.

52. LAMP is used for **Web development** and **internal testing.**

53. CRUD stands for **Create,Read,Update,Delete**.

CHAPTER 13. PYTHON and CSV files

1. A csv is a human readable **text** file.

2. The expansion of CSV is **Comma Separated Values**.

3. Excel is a **binary** file.

4. CSV file cannot store **Charts** or **Graphs**.

5. File saved in excel cannot be opened in **text** editor.

6. CSV file save data but does not contain **formatting**, **formulas**,**macros** etc.

7. A CSV file is a **flat** file.

8. CSV files used in **e-commerce** applications.

9. We have to import **CSV** module then only we can do several operation on CSV files.

10. **Two** ways to reading a CSV file such as **reader()** , **Dict Reader** class .

11. The default reading is **text** mode.

12. **open()** is used to open a file.

13. open() returns a file object called as **handle**.

14. Syntax for csv.reader is **csv.reader(fileobject,delimiter,fmtparams)**

15. A dialect describes the **format** of the csv file that is to be read.

16. By default skipinitialspace has a value **false.**

17. A dialect is a **class** of CSV module.

18. **skipinitialspace** is used to remove space after delimiter.

19. The delimiter **(|) pipe** is considered as column separator.

20. To sort by more than one column we can use **itemgetter** with multiple indices

21. csv.reader works with **list/tuples**.

22. csv.DictReader and csv.DictWriter works with **dictionary**.

23. DictReader() gives **OrederedDict** by default in its output.

24. **writerow()** is used to write one row at a time.

25. **writerows()** is used to write More than one row at a time.

26. Python CSV module accepts **\r** ,**\n** as line terminator.

27. Python has a garbage collector to clean up **unreferenced** objects.

28. The expansion of CRLF is **Carriage Return and Line Feed**.

29. **next()** is used to skip a row.

30. Adding a new row at the end of the file is called **appending** a row.

31. writerow() takes **one** dimensional data.

32. writerows() takes **two** dimensional data.

CHAPTER 14. Importing C++ programs in Python

1. Python acts as both **scripting and general** purpose language.

2. Python is mostly used as **scripting** or **glue** language.

3. Python is a **dynamic** typed language.

4. Python is typically **interpreted** language.

5. Python uses automatic **garbage** collection.

6. MinGW refers to set of**runtime header** files.

7. **MinGW-W64** is the best compiler.

8. MinGW allows to compile and execute C++ programs dynamically through python program using **g++**.

9. **g++** is a program that calls Gnu C Compiler.

10. To clear the screen in command window use **cls** command.

11. The **dot (.)** operator is used to access the function.

12. Variable in sys module is **argv**.

13. **OS** module allows you to interface with the windows operating system where python is running on.

14. getopt() method returns value consisting of two elements **opts, args**.

15. Importing C++ program in python is called **wrapping**.

16. A framework for interfacing python and C++ is **Boost**.

17. SWIG for both **c and c++**.

18. Application Programming Interface for interfacing with **c** programs.

19. **Ctypes** for interfacing with c programs.

20. __name__ contains **python** file name.

CHAPTER 15. Data manipulation through SQL

1. A **database** is an organized collection of data.

2. **SQLite** is a relational database management system.

3. **cursor** is used for performing all SQL commands.

4. We can define SQL command with a **triple** quoted string in python.

5. If the table column is empty, the value 1 will be used for **integer primary key** column.

6. The cursor is a control structure to **traverse** over the records from the result set.

7. **SELECT** is the most commonly used statement in SQL.

8. **fetchall()** method is used to fetch all rows from the table.

9. **fetchone()** method returns the next rowof a query result set.

10. **fetchmany()** method is used to return next number of rows of the result set.

11. The **DISTINCT** clause is used to avoid duplicate values.

12. The **WHERE** clause is used to extract only those records that fulfil the specified condition.

13. The aggregate functions are **COUNT**, **MAX**, **MIN**, **SUM**, and **AVG**.

14. The **ORDER BY** clause can be used along with the SELECT statement to sort the data.

15. **HAVING** clause is used to filter data based on group functions.

16. The **COUNT ()** method is used to return number of rows in a table satisfying the criteria.

17. COUNT () returns **0** if there were no matching rows.

18. The master table holds the key information about your database tables called **sqlite_master**.

19. 'AND' and 'OR' operators are used to filter the records based on more than one **condition**.

20. The path of a file can be either represented as **'/'** or **'\'** in python.

21. **execute()** method is used to execute the SQL commands.

22. SQL commands executed using **cursor** object only.

23. CD stands for **Change Directory**.

CHAPTER 16. Data visualization using PYPLOT

1. **Data visualization** is the graphical representation of information and data.

2. **matplotlib** is the most popular data visualization library in Python

3. **Scatter plot** shows the data as a collection of points.

4**. Box** plot shows thedata based on five summary points.

5. **Pip**is a management software.

6. A dashboard is a collection of **resources**.

7. **Info graphics** is the representation of information in a graphic format.

8. A line chart is a type of chart which displays information as a series of points called **markers**.

9. Bar chart shows the relationship between a **numerical** variable and a **categorical** variable.

10. **plt.bar()** is used to create bar chart

11. Usage variable is used to assign values to the **lables** specified.

12. **labels** variable is used to specifies lables for the bars.

13. **Bar graph** and **Histogram** are the two ways to display data.

14**. plt.pie()** function is used to make a pie chart.

15. **matplotlib.pyplot** is a python package used for 2D graphics.

16. **F5** function key is used to run the module.

EXPANDED FORM FOR FOLLOWING ABBREVIATIONS.

1. ADT	**-**	**ABSTRACT DATA TYPE**
2. CDT	**-**	**CONCRETE DAT TYPE**
3. LEGB	**-**	**LOCAL ENCLOSED GLOBAL BUILTIN**
4. GUI	**-**	**GRAPHICAL USER INTERFACE**
5. IDE	**-**	**INTEGRATED DEVELOPMENT ENVIRONMENT**
6. IDLE	**-**	**INTEGRATED DEVELOPMENT LEARNING ENVIRONMENT**
7. WAMP	**-**	**WINDOWS APACHE MYSQL PHP**
8. DDL	**-**	**DATA DEFINITION LANGUAGE**
9. DML	**-**	**DATA MANIPULATION LANGUAGE**
10.TCL	**-**	**TRANSACTIONAL CONTROL LANGUAGE**
11.DCL	**-**	**DATA CONTROL LANGUAGE**
12.DQL	**-**	**DATA QUERY LANGUAGE**
13.SQL	**-**	**STRUCTURED QUERY LANGUAGE**
14.DBA	**-**	**DATABASE ADMINISTRQATOR.**
15.DBMS	**-**	**DATABASE MANAGEMENT SYSTEM**
16.RDBMS	**-**	**RELATIONAL DATABASE MANAGEMENT SYSTEM**
17.ER	**-**	**ENTITY RELATIONSHIP**
18.ANSI	**-**	**AMERICAN NATIONAL STANDARD INSTITUTE**
19.CSV	**-**	**COMMA SEPARATED VALUES**
20.XLS	**-**	**eXceL Sheets**
21.API	**-**	**APPLICATION PROGRAMMING INTERFACE**
22.SWIG	**-**	**SIMPLIFIED WRAPPER INTERFACE GENERATOR.**
23.MinGW	**-**	**Minimalist GNU for Windows**
24.HTML	**-**	**HYPER TEXT MARKUP LANGUAGE**

25.PC - PERSONAL COMPUTER
26.GIS - GEOGRAPHIC INFORMATION SYSTEM
27.GCC - GNU C Compiler
28.CRUD - Create Read Update Delete
29.CD - Change Directory

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