QB365 Student Learing Managemnet System
Exam Name: Pre Quarterly - Practice
Std: 12th Standard - Computer Science
Chapter: Unit 1 - Function - New, Unit 1 - Data Abstraction - New, Unit 1 - Scoping - New, Unit 1 - Algorithmic Strategies - New, Unit 2 - Python - Variables and Operators - New, Unit 2 - Control Structures - New, Unit 2 - Python Functions - New, Unit 3 - Strings and String Manipulation - New, Unit 3 - Lists, Tuples, Sets and Dictionary - New, Unit 4 - Database Concepts - New, Unit 4 - Structured Query Language (SQL) - New, Unit 4 - Python and CSV files - New, Unit 4 - Importing C+ + programs in Python - New, Unit 5 - Data manipulation through SQL - New, Unit 5 - Data visualization using pyplot : line chart, pie chart and bar chart - New

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## Answers Key:

**ANSWER THE FOLLOWING**

1. X:= (78) has an expression in it but (78) is not itself an expression. Rather, it is a function definition. Definitions bind values to names, in this case the value 78 being bound to the name 'X'.

2.

| S.No. | Constructors | Selectors |
|---|---|---|
| (i) | Constructors are functions that build the abstract data type. | Selectors are functions that retrieve information from the data type. |
| (ii) | Constructors create an object, bundling together different pieces of information. | Selectors extract individual pieces of information from the object |

3. The difference between interface and implementation is

| 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 |

4. List is constructed by placing expressions within square brackets separated by commas.
   Example : 1st := [10, 20]
   x, y := 1st
5. Essentially, variables are addresses to an object in memory. When you assign a variable with := to an instance (object), you're binding (or mapping) the variable to that instance. Multiple variables can be mapped to the same instance.
6. Programming languages keeps track of all these mappings with namespaces. Namespaces are containers for mapping names of variables to objects.
7. Python prescribes a convention of prefixing the name of the variable or method with single or double underscore to emulate the behaviour of protected and private access specifiers.
8. (i) Insertion sort is a simple sorting algorithm.
   (ii) t works by taking elements from the list one by one and inserting then in their correct position in to a new sorted list.
   (iii) This algorithm builds the final sorted array at the end.
9. i. Interactive mode.
   ii. Script mode
10. i. Arithmetic operator
    ii. Relational operator or comparative operator,
    iii. Logical operator,
    iv. Assignment operator and
    v. Conditional operator or Ternary operator.
11. An Exponent data contains decimal digit part,4. decimal point, exponent part followed by one or more digits. Example: 12.E04, 24.e04.
12. There are three important control structures are,
    (i) Sequential
    (ii) Alternative or Branching
    (iii) Iterative or Looping
13. Syntax :
    if<condition>:
    statements-block 1
    else:
    statements-block 2
14. Scope of variable refers to the part of the where it is accessible, i.e., area where program, you can refer(use) it. The scope holds the current set of variables and their values. The two types of scopes are - local scope and global scope.
15. Program :
    for i in range(5, 0,-1):

```
for j in range(i):
print ("*", end ="")
print ()
```

16. del command is used to remove the entire string variable.
**Example :**
```
>>> strl = "How about you"
>>> print (str1)
How about you
>>> del str1
>>> print (str1)
```
**Output :**
Name Error: name 'str1' is not defined

17. Syntax:
```
Tuple_ Name= ( ) #Empty tuple
Tuple_ Name = (E1, E2,E2.....En) #Tuple with n number elements
Tuple_ Name = E1, E2, E3.....En # Elements of a tuple without parenthesis
```

18. Data Consistency means that data values are the same at all instances of a database.

19. Database normalization was first proposed by Dr. Edgar F Codd as an integral part of RDBMS in order to reduce data redundancy and improve data integrity. These rules are known as E F Codd Rules.

20. Query : SELECT * FROM student WHERE Age < 18 ORDERBY Name;

21.

| | Unique Key Constraint | Primary Key Constraint |
|---|---|---|
| (i) | This constraint ensures that no two rows have the same value in the specified columns. | This constraint declares a field as a Primary Key which helps to uniquely identify a record. |
| (ii) | The UNIQUE constraint can be applied only to fields that have also been declared as NOT NULL. | The Primary Key does not allow NULL values. |

22.

| Table constraint | Column constraint |
|---|---|
| Table constraint is apply to a group of one or more columns. | Column constraint apply only to individual column |

23.

| Command | Description | Component |
|---|---|---|
| Insert | Inserts data into a table | DML |
| Create | To create tables in the database | DDL |

24.

| SQL | MySQL |
|---|---|
| Structured Query Language is a language used for accessing databases. | MySQL is a database management system, like SQL Server, Oracle, Informix, Postgres, etc. |
| SQL is a DBMS | MySQL is a RDBMS |

25. SELECT DISTINCT place FROM student WHERE age > 18;

26. (i) A CSV file is a human readable text file where each line has a number of fields, separated by commas or some other delimiter.
(ii) ACSV file is also known as a Flat File.

27. There are two ways to read a CSV file.
(a) Use the csv module's reader function
(b) Use the DictReader class.

28. The default modes of the file reading is text mode, while reading from the file the data would be in the format of strings.

29. (i) The next() function returns the next item from the iterator.
(ii) It can also be used to skip a row of the csv file.

30. To sort by more than one column you can use itemgetter with multiple indices: operator .itemgetter (1,2).
**Syntax :**
sortedlist = sorted(data,key =operator.itemgetter(Col_number),reverse-True)
**Example :** sortedlist = sorted (data, key operator.itemgetter(1))

31. (i) The theoretical difference between the two is that scripting languages do not require the compilation step and are rather interpreted.
(ii) A scripting language requires an interpreter while a programming language requires a compiler.

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32.

| S.NO | Compiler | Interpreter |
|---|---|---|
| (i) | A compiler takes a program as a whole. | An interpreter takes single lines of a code. |
| (ii) | Error deduction is difficult. | Error deduction is easy. |
| (iii) | Comparatively faster. | lower. |
| (iv) | **Example** : C++ | **Example :** Python |

33. (i) SWIG - Simplified Wrapper Interface Generator.
(ii) MINGW – Minimalist GNU for Windows
34. (i) The use of modules is to break down large programs into small manageable and organized program.
(ii) Modules provide reusability of code. We can define our most used functions in a module and import it, instead of copying their definitions into different programs.
35. To change a directory 'cd' command is used.
(Eg) cd:\>cd c:\program files\open office 4\program"
36. Users of database can be human users, other programs or applications.
37. Create a connection using connect () method and pass the name of the database File
Example :
import sqlite 3
connection = sqlite 3.connect("Academy.db")
cursor = Connection.cursor()
38. If a column of a table is declared as an INTEGER PRIMARY KEY that column will be automatically auto- incremented.
(or)
Whenever a null is used for this column the null will be automatically converted into an integer which will be one larger than the highest value so far used in that column
39. To populate (add record) the table "INSERT" command is passed to SQLite. "execute" method executes the SQL command to perform some action.
Example :
sql_command = "INSERT INTO Student (Rollno, Sname, Grade, gender,Average, birth_date) VALUES (NULL,"Aravind", "A", "M"92.50","2000--08-17");"n
cursor.execute(sql_command)
40. The fetchall () method is used to fetch all rows from the database table.
Example : result = cursor.fetchall()
41. Data Visualization is the graphical representation of information and data. The objective of Data Visualization is to communicate information visually to users.
42. (i) Charts
(ii) Tables
(iii) Graphs
(iv) Maps
(v) Infographics
(vi) Dashboards
43. There are many types of Visualizations under Matplotlib. Some of them are
(i) Line plot
(ii) Scatter plot
(iii) Histogram
(iv) Box plot
(v) Bar chart and
(vi) Pie chart
44. (i) Matpotlib can be installed using pip software.
(ii) Pip is a package manager software for installing python packages.

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