Variables and Datatypes MCQ Question Bank

Question 1 What is a variable in Python?

A. A reserved word
B. A data type
C. A location in memory to store data
D. A function

Question 2 How do you declare a variable in Python?

A. var x
B. x = variable
C. declare x
D. x = 4

Question 3 What is the correct way to comment a single line in Python?

A. // This is a comment
B. # This is a comment
C. /* This is a comment */
D. -- This is a comment

Question 4 Which of the following is a valid variable name in Python?

A. 1variable
B. my_variable
C. global
D. variable-1

Question 5 How do you swap the values of two variables in Python without using a third variable?

A. x = y; y = x
B. x, y = y, x
C. temp = x; x = y; y = temp
D. x + y; y = x; x = y

Question 6 Which of the following data types is immutable in Python?

A. List
B. Tuple
C. Set
D. Dictionary

Question 7 What is the output of the following code?

```
x = 10
y = 5
z = x + y
print(z)
```

A. 10
B. 15
C. "10+5"
D. Error

Question 8 What does the type() function return in Python?

A. The value of the variable
B. The type of the variable
C. The memory address of the variable
D. The length of the variable

Question 9 What is the scope of a global variable in Python?

A. Limited to the function it is defined in
B. Limited to the module it is defined in
C. Limited to the class it is defined in
D. Limited to the block it is defined in

Question 10 How do you convert a string to an integer in Python?

A. int(string)
B. convert(int, string)
C. str_to_int(string)
D. stringToInt(string)

Question 11
What is the correct way to check if a variable is of a specific type in Python?

A. type(var) == "int"
B. var.type() == "int"
C. isinstance(var, int)
D. var.isint()

Question 12
What is the output of the following code?

```
x = 5
y = 2print(x // y)
```

A. 2.5
B. 2
C. 2.0
D. 3

Question 13
How do you concatenate two strings in Python?

A. str1 . str2
B. str1 + str2
C. str1 , str2
D. concat(str1, str2)

Question 14
What is the output of the following code?

```
x = "Hello"
print(x[1:4])
```

A. "Hell"
B. "ello"

C. "ell"
D. Error

Question 15
What is the purpose of the max() function in Python?

A. To find the maximum value in a list
B. To get the maximum length of a string
C. To compare two variables
D. To find the maximum of two numbers

Question 16
How do you find the length of a list in Python?

A. len(list)
B. length(list)
C. list.length()
D. count(list)

Question 17
How do you check if a key is present in a dictionary?

A. key in dictionary
B. key.exists(dictionary)
C. dictionary.contains(key)
D. has_key(key, dictionary)

Question 18
What is the purpose of the enumerate() function in Python?

A. To get the index and value of each item in an iterable
B. To count the occurrences of an element in an iterable
C. To enumerate through a list
D. To enumerate through a dictionary

Question 19
What is the output of the following code?

```
x = [1, 2, 3, 4]
y = filter(lambda a: a % 2 == 0, x)
print(list(y))
```

A. [1, 3]
B. [2, 4]
C. [1, 2, 3, 4]
D. []

Question 20
How do you convert a list of strings to a single string in Python?

A. "".join(list)
B. str(list)
C. convert(list, str)
D. " ".join(list)

Question 21
How do you find the length of a list in Python?

A. len(list)
B. length(list)
C. list.length()
D. count(list)

Question 22
How do you convert a floating-point number to an integer in Python?

A. int(number)
B. float_to_int(number)
C. number.int()
D. convert(int, number)

Question 23
How do you create a multiline string in Python?

A. "This is a multiline string"
B. 'This is a multiline string'
C. """This is a multiline string"""
D. (a and b)

Question 24
How do you create a dictionary using a comprehension in Python?

A. {key: value for key, value in iterable}
B. dict(iterable)
C. create_dict(iterable)
D. {key, value in iterable}

Question 25
What is the purpose of the __dict__ attribute in Python?

A. To access the dictionary of a list
B. To access the dictionary of a class or module
C. To define a dictionary in Python
D. To convert a dictionary to a list

Question 26
Which of the following cannot be a Python variable name?

A. Int_1
B. true
C. var-2
D. name3

Question 27
Which of the following is not a Python Data Type?

A. int
B. string
C. char
D. set

Question 28
What is the output of the following code?

python

Copy code
```
print(type({}))
```

A. <class 'set'>
B. <class 'list'>
C. <class 'tuple'>
D. <class 'dict'>

Question 29
Which data type can be used to store the percentage obtained by a student?

A. Boolean
B. Float
C. String
D. Integer

Question 30

```
dic = {1: 'A', 2: 'E', 3: 'I'}
dic[4] = 'O'print(dic)
```

A. {1: 'A', 2: 'E', 3: 'I', 4: 'O'}
B. {1: 'A', 2: 'E', 4: 'O'}
C. {4: 'O', 1: 'A', 2: 'E'}
D. Error

Question 31
What is the output of the following code?

```
list1 = ['a', 'b', 'g', 1, 5]
print(list1.pop)
```

A. 5
B. ['a', 'b', 'g', 1]
C. ['b', 'g', 1, 5]
D. Syntax error

Question 32
Which of the following operators is used to add elements at the end of a list?

A. add()
B. join()
C. attach()
D. append()

Question 33

```
var = 2

print(2 == 2.0)
```

A. true
B. False
C. True
D. false

Question 34

```
num = 4 + 0j
print(type(num))
```

A. int
B. float
C. complex
D. real

Question 35

```
print(int(3.9))
```

A. 4
B. 3.9
C. 3
D. None

Question 36

```
a = 'Python' + ".py"

print(a)
```

A. Python.py
B. Python .py
C. Python +.py
D. Error

Question 37
In which of the following is indexing not allowed?

A. Dictionary
B. Set
C. Tuple
D. None

Question 38
What is the output of the following code?

```
print(str(True), end=" ")
int("4.5")
```

A. True SyntaxError
B. 'True' ValueError
C. True 4
D. SyntaxError SyntaxError

Question 39
Which of the following gives the output as "ello" from name = "Hello, World!"?

A. print(name[1:5])
B. print(name[1:4])
C. print(name[2:5])
D. print(name[2:6])

Question 40

```

```
set1 = {1, 5, 6, 4, 3}
print(set1)
```

A. {1, 3, 4, 5, 6}
B. {1, 5, 6, 4, 3}
C. 1, 5, 6, 4, 3
D. (1, 5, 6, 4, 3)

**Question 41**
What is the output of the following code?

```
x = 50
def fun1():
    x = 25
    print(x)

fun1()
print(x)
```

A. NameError
B. 25
   25
C. 25
   50

Question 42
What is the output of the following variable assignment?

```
x = 75
def myfunc():
    x = x + 1
    print(x)

myfunc()
print(x)
```

A. Error
B. 76
C. 1
D. None

Question 43
What is the data type of print(type(0xFF))?

A. number
B. hexint
C. hex
D. int

Question 44
Select all the right ways to create a string literal Ault'Kelly

A. str1 = 'Ault\\'Kelly'
B. str1 = 'Ault\'Kelly'
C. str1 = """Ault'Kelly"""

Question 45
What is the data type of the following?

```
aTuple = (1, 'Jhon', 1+3j)
print(type(aTuple[2:3]))
```

A. list
B. complex
C. tuple
D. str

Question 46
What is the output of the following code?

```
print(bool(0), bool(3.14159), bool(-3), bool(1.0+1j))
```

A. False True False True
B. True True False True
C. True True False True
D. False True True True

Question 47
What is the output of the following code?

```
def func1():
    x = 50
    return x
func1()
print(x)
```

A. 50
B. NameError
C. None
D. 0

Question 48
What is the output of print(type({}) is set?

A. True
B. False

Question 49
Please select the correct expression to reassign a global variable x to 20 inside a function fun1():

```
x = 50
def fun1():
    # your code to assign global x = 20
fun1()
print(x) # it should print 20
```

A. Global x = 50
B. global var x
   X = 20
C. global.x = 20
D. global x
   x = 20

Question 50
Select all the valid string creation in Python:

```

A. str1 = 'str1'
B. str1 = "str1"
C. str1 = '''str'''
D. str1 = 'str1'

**Question 51**
In Python 3, what is the output of type(range(5))? (What data type will it return).

A. int
B. list
C. range
D. None

**Question 52**
What is the data type of print(type(10))?

A. float
B. integer
C. int
D. None

**Q53.** What is the data type of the variable "x" in the following code snippet?

x = 5

a) Integer
b) String
c) Float
d) Boolean

**Q54.** What will be the output of the following code snippet?

x = "Hello"
print(type(x))

a) hello
b) str
c) string
d) String

**Q55.** Which data type in Python is used to store a sequence of characters?
a) Integer
b) Float
c) String
d) Boolean

**Q56.** What is the output of the following code snippet?

x = 3.14
 print(type(x))

a) int
b) Integer
c) float
d) Float

**Q57.** Which data type is used to store a collection of items, where each item is indexed by a key?
a) List
b) Tuple
c) Set
d) Dictionary

**Q58.** What will be the output of the following code snippet?

x = 10

y = "20"
print(x + int(y))

a) 30
b) 1020
c) "1020"
d) Error

**Q59.** Which data type in Python is mutable?
a) String
b) Tuple
c) Set
d) List

**Q60.** What will be the output of the following code snippet?

x = {"apple", "banana", "cherry"}
print(type(x))

a) set
b) Set
c) list
d) List

**Q61.** Which data type is used to store a collection of items, where each item is unique and unordered?
a) List
b) Tuple
c) Set
d) Dictionary

**Q62.** What is the output of the following code snippet?

x = {"name": "John", "age": 30}
print(type(x))

a) dictionary
b) dict
c) Dictionary
d) Dict

**Q63.** What is the data type of the variable "x" in the following code snippet?

python
Copy code
x = True

a) Integer
b) String
c) Float
d) Boolean

**Q64.** What will be the output of the following code snippet?

```
x = [1, 2, 3]
print(type(x))
```

a) list
b) List
c) Array
d) Array

Q65. Which data type is used to store a collection of items, where each item is indexed by a numerical index?
a) List
b) Tuple
c) Set
d) Dictionary

Q66. Which of the following statements about Python strings is true?
a) Strings in Python are mutable.
b) Strings can only contain numeric characters.
c) Strings can be concatenated using the "+" operator.
d) Strings can be accessed by numerical indices.

Q67. Which data type in Python is immutable?
a) List
b) Tuple
c) Set
d) Dictionary

Q68. What will be the output the following code snippet?

```
x = 10
y = "20"
print(str(x) + y)
```

a) 30
b) "1020"
c) Error
d) "10200"

Q69. What is the output of the following code snippet?

```
x = [1, 2, 3]
y = x.copy()
x.append(4)
print(y)
```

a) [1, 2, 3]
b) [1, 2, 3, 4]
c) [1, 2, 3, 4, 4]
d) [1, 2, 3, 3]

Q70. What will be the output of the following code snippet?

```
x = {"a", "b", "c"}
y = {"b", "c", "d"}
z = x & y
print(z)
```

a) {"a", "b", "c", "d"}
b) {"b", "c"}
c) {"a", "d"}
d) {"a", "b", "c"}

Q71. What is the output of the following code snippet?

```
x = 10
y = 20
x, y = y, x
print(x, y)
```

a) 10 20
b) 20 10
c) 20 20
d) 10 10

Q72. What will be the output of the following code snippet?

```
x = {"a": 1, "b": 2}
y = {"b": 3, "c": 4}
z = {**x, **y}
print(z)
```

a) {"a": 1, "b": 3, "c": 4}
b) {"a": 1, "b": 2, "c": 4}
c) {"b": 3, "c": 4}
d) {"a": 1, "b": 2}

Q73. Which data type in Python represents a sequence of characters?
a) Integer
b) Float
c) String
d) Boolean

Q74. What will be the output of the following code snippet?

```
x = {1, 2, 3}
x.clear()
print(x)
```

a) {}
b) {1, 2, 3}
c) None
d) Error

Q75. Which data type in Python is used to represent a true or false value?
a) Integer
b) String

c) Float
d) Boolean

Q76. What will be the output of the following code snippet?

```
x = "hello"
y = x.upper()
print(y)
```

a) hello
b) Hello
c) HELLO
d) hELLO

Q77. Which data type in Python is used to store a collection of items, where each item is indexed by a key?
a) List
b) Tuple
c) Set
d) Dictionary

Q78. What is the output of the following code snippet?

```
x = "hello"
y = x.replace("l", "L", 1)
 print(y)
```

a) hello
b) helLo
c) heLLo
d) heLo

Q79. What is the output of the following code snippet?

```
x = (1, 2, [3, 4])
x[2][0] = 5
print(x)
```

a) (1, 2, [3, 4])
b) (1, 2, [5, 4])
c) (1, 2, [3, 5])
d) Error

Q80. What will be the output of the following code snippet?

```
x = {"name": "John", "age": 30}
print(x["address"])
```

a) "John"
b) 30
c) None
d) Error

Q81. Which data type in Python is used to store a collection of items, where each item is unique and unordered?
a) List

b) Tuple
c) Set
d) Dictionary

Q82. What is the output of the following code snippet?

```
x = [1, 2, 3]
y = x[:]
x[0] = 4
print(y)
```

a) [1, 2, 3]
b) [4, 2, 3]
c) [1, 2, 3, 4]
d) [4, 2, 3, 4]

Q83. What is the output of the following code snippet?

```
x = {"name": "John", "age": 30}
y = x.copy()
x["name"] = "Jane"
print(y["name"])
```

a) "John"
b) "Jane"
c) 30
d) Error

Q84. What will be the output of the following code snippet?

```
x = {"apple", "banana", "cherry"}
y = x.pop()
print(y)
```

a) "apple"
b) "banana"
c) "cherry"
d) Error

a,bc possible
set.pop( ) remove a abitary element

Q85. Which data type in Python is used to store a collection of items, where each item is indexed by a numerical index?
a) List
b) Tuple
c) Set
d) Dictionary

Q86. What is the output of the following code snippet?

```
x = [1, 2, 3]
x.insert(1, 4)
 print(x)
```

a) [1, 4, 2, 3]
b) [4, 1, 2, 3]
c) [1, 2, 4, 3]
d) [1, 2, 3, 4]

Q87. What will be the output of the following code snippet?

```
x = {"a", "b", "c"}
y = x - {"b"}
print(y)
```

a) {"a", "b", "c"}
b) {"a", "c"}
c) {"b", "c"}
d) Error

Q88. What is the output of the following code snippet?

```
x = {1, 2, 3}
y = x.add(4)
 print(x)
```

a) {1, 2, 3, 4}
b) {1, 2, 3}
c) {1, 2, 3, None}
d) Error

Q89. What is the data type of the variable "x" in the following code snippet?

```
x = [1, 2, 3]
```

a) List
b) Tuple
c) Set
d) Dictionary

Q90. Which data type in Python is used to store a sequence of items, where each item is ordered and can be changed?
a) List
b) Tuple
c) Set
d) Dictionary

```
str1 = "str1""
str1 = "'str1"
E. str1 = str(Jessa)
```

Q 91

Variables in Python

A **variable** is like a labelled box where you can store data. Imagine you have a box labeled "age" and you put the number 25 in it. In Python, you would do this by writing:

```
age = 25
```

When you write this, python creates a box(variable) with name *age* and stores 25 in that box(variable).

- This process of creating a variable to store a value is called **Declaration** and
- The process of setting its value for the first time is called **Initialization**.

Here's the cool part: whenever you use age in your code, Python will remember it is 25. For example, if you write `print(age)`, Python will show 25.

```
print(age) # Output: 25
```

Learn more about variables from this short video explanation:

Task

- Create a variable in editor named age and assign the value 25 to it.
- Print the value of age variable using print statement.

Notice how we don't use " " (double quotes) when printing variables.

Q 92.

Declaring a variable

There are many different types of variables in Python. The type of a variable is defined by the kind of value it stores.

Some variable types in Python are as follows

```python
# Numeric variables - hold integers and decimal values
age = 25
temperature = 98.6

# String variables - Stores a sequence of characters enclosed in single or double quotes
name = "John Doe"
message = 'Hello, world!'

# Boolean variables - only hold the values true and false
is_true = True
is_false = False

# List variables - Stores a collection of items, which can be of different types.
numbers = [1, 2, 3, 4, 5]
fruits = ['apple', 'banana', 'orange']

# Tuple variables
coordinates = (10, 20)

# Dictionary variables
person = {'name': 'Alice', 'age': 30}

# Set variables
unique_numbers = {1, 2, 3}

# None variable
empty_value = None
```

Task

Write a program which does the following

- There is a `variable` named `number` having value 20 in the editor.
- Use the `print` command to output the value of (number - 1).

Q 93.

Properties of Variables

We learned that variable is a labelled box which can store many different types of values. You can also change the value of a variable in your code.

For example

```
age = 25
print(age)

# Update age
age = 26
print(age)
```

The above code will output

```
25
26
```

We are going to use variables all the time in the coming lessons. So let's learn a few more stuff about them.

Rules for Python variable names:

- A variable name can only contain alphabets, numbers and underscores (ie. A-Z, a-z, 0-9, and _).
- A variable name cannot start with a number.
- A variable name cannot have spaces in between.
- Variable names are case-sensitive (age, Age and AGE are three different variables).

Be sure to follow these rules when creating a variable to not get errors.

Task

There is some code written in the editor to print Code Chef.
But the variable names are not following the rule. Can you spot the mistake and fix it?

Q 94.

Addition of Variables

Write a program which does the following:

- Declare two variables a and b.
- Assign the value 23 to a and 20 to b.
- Output the sum of a and b to the console.

Q 95.

Area of Rectangle

Write a program which does the following

- Find out and display the area of a rectangle of sides 45 and 76 respectively.
- Declare variables length, width and area and assign the relevant values to them
- Output the value of variable area

Note: Area of rectangle = length * width

Expected Output

```
3420
```

Q 96.

Float datatype

In Python, you don't need to explicitly specify the type of a variable during declaration. The type is inferred based on the kind of value assigned to the variable.

For example if you put decimal values in a variable, the type of variable becomes float.

```
pi = 3.14
```

Task

Write a program which does the following:

- Find the area of a circle whose radius is 8.9. Take pi = 3.14
- Declare variables *radius* , *pi* and *area* and assign the relevant values to them
- Output the *area*, you don't need to output any other text.

Note: Formula for the area of a circle is $pi \times radius \times radius$

Expected output:

```
248.71940000000004
```

Q 97.

String Datatype

The *string* type is used to store a sequence of characters, i.e. text.
String values can be surrounded by either double quotes or single quotes.
Python does not care about whether you use single or double quotes.

For example, both the below codes do the same thing:

```
sentence1 = "I am using CodeChef"
sentence2 = 'I am using CodeChef'
```

Task

Write a program which does the following

- Declare two variables **a** and **b**
- Assign **Learning** to **a** and **is fun!** to **b**
- Using the concepts we learned previously, display the sentence **"Learning is fun!"** using variables **a** and **b** in a single line