Objective Type Sample Questions:

1. How many MB is 1GB?

   Answer:
   1000MB

2. _____ phase of the SDLC process involves close interaction between the users and developers.

   Answer:
   Requirements Analysis

3. What is the computer's native language?

   Answer:
   Machine Language

4. What is the IDE used for python?

   Answer:
   Python IDLE

5. What is the result of the following expression?

   10 - 5 % 2 + 3 // 2 * 2?

   Answer:
   11

6. Given `testAvg = 95.5` and `letterGrade = 'A'`, the following print statement will result in an error. How will you fix it?

   ```
   print(testAvg + '/' + letterGrade)
   ```

   Answer:
   ```
   print(str(testAvg) + '/' + letterGrade)
   ```

7. What is the output of the following code?

   ```
   print(int(53.231) * 100 / 100)
   ```

   Answer:
   53

8. Assume `gpa = 4.0` and `major = "cosc"`. What is the output of the following statement?

   ```
   print(gpa >= 3.5 and major.upper() == "cosc")
   ```

   Answer:
   False

9. What is the missing `input()` statement in the following code that computes the degrees in fahrenheit when degrees in celsius is input?

   ```
   FREEZE = 32
   FILL_IN_THE_MISSING_INPUT_STATEMENT
   fahrenheit = (celsius * 1.8) + FREEZE
   print("The degrees in Fahrenheit =", fahrenheit)
   ```

   Answer:
   ```
   celsius = float(input("Enter the value of degrees in Celsius: "))
   ```

10. What is the output of the following code?

```
y = 0
if y > 3:
    y = y + 1
print("y is", y)
```

Answer:

```
y is 0
```

11. What is the output of the following code?

```
if 4 // 2 >= 0:
    print(4 // 2)
if 4 % 2:
    print(4 % 2)
else:
    print(1)
```

Answer:

```
2
0
```

12. What is the output of the following code?

```
if 4 // 2 >= 0:
    print(4 // 2)
elif 4 % 2:
    print(4 % 2)
else:
    print(1)
```

Answer:

```
2
```

13. What is the output of the following code?

```
grade = 75
if grade >= 80:
    print("very good")
elif grade < 60:
    print("not good")
else:
    print("passed, but can do better")
```

Answer:

```
passed, but can do better
```

14. Which line in the following program will cause an error?

```
1  num = 7
2  if num < 0 or > 100:
3      print("Out of range")
4  else:
5      print("Within range")
```

Answer:

```
Line 2 (should be if num < 0 or num > 100:)
```

15. Given `age = 18`, convert the following conditional expression to appropriate selection statement?

```
print("Eligible to vote!" if age >= 18 else "Not Eligible to vote!")
```

Answer:

```
if age >= 18:
    print("Eligible to vote!")
else:
    print("Not Eligible to vote!")
```

16. What is the output of the following code?

```
user = "public"
match user:
    case "faculty": print("You have read & write privilege")
    case "staff": print("You have read only privilege")
    case _: print("You do not have any privilege")
```

Answer:

```
You do not have any privilege
```

17. What is the output of the following code?

```
x, y = None, 36
x = 100 if y > 50 else 200
print(f"x = {x}", end = " ")
print(f"y = {y}")
```

Answer:

```
x = 200 y = 36
```

18. What is the value of `answer` when `x = 12`, `y = 3`, `z = 5`?

```
answer = "Good" if x > y or x < z and y > z or z == y else "Bad"
print(answer)
```

Answer:

```
Good
```

19. What is the output of the following code?

```
import math
x, y, z = 3, 16, 2
print(math.sqrt(y), pow(x, z))
```

Answer:

```
4.0 9
```

20. Suppose `course = "COSC 1436"`, what is the result of `print(course[-4:])`?

Answer:

```
1436
```

21. Suppose `endStr = "@hccs.edu"`, what is the output of the following statement?

```
print("W123" + endStr)
```

Answer:

```
W123@hccs.edu
```

22. Given `rate = .075` and `amt = 123.4567`, what is the output of the following code?

```
print("12345678901234567890")
print(format(amt, ">10.2f"), format(rate, "10.2%"))
```

```
Answer:
12345678901234567890
    123.46      7.50%
```

23. Given two float variables x and y. Write a statement that displays each value in a field of 8 positions and guaranteed to have 4 decimal places.

```
Answer:
print(format(x, "8.4f"), format(y, "8.4f"))
```

24. If you wanted to start from 50 and loop to 5 in python, how would you write the for loop?

```
Answer:
for i in range(50, 4, -1):
```

25. What is the output of the following code?

```
for i in range(10, 0, -3):
    print(i, end = ' ')
```

```
Answer:
10 7 4 1
```

26. What is the final value of i after the following code is executed?

```
for i in range(5):
    print('HELLO!')
```

```
Answer:
4
```

27. What is the output of the following code?

```
p = 0
while p < 5:
    print(p, end = " ")
    p += 1
```

```
Answer:
0 1 2 3 4
```

28. Convert the following for loop to a while loop:

```
p = 5
total = 0
for q in range(p):
    total += pow(q, 2)
print(total)
```

```
Answer:
p = 5
total = 0
q = 0
while q < p:
    total += pow(q, 2)
    q += 1
print(total)
```

29. In the following sentinel-controlled loop _____ is the sentinel value

```
total = 0
```

```
while total != 100:
    points = int(input())
    total += points
```

Answer:
100

30. **(True/False)** The code below will add the sum of 5 randomly generated numbers between 1-5 (both numbers inclusive)?

```
import random
sum = 0
for i in range(5):
    r = random.randint(1, 5)
    sum += r
print(sum)
```

Answer:
True

31. What is the output of the following nested loop?

```
for x in range(1, 5):
    y = 1
    while y <= x:
        print('$', end = '')
        y += 1
    print()
```

Answer:
$
$$
$$$
$$$$

32. Write the code *(HINT: nested for loops)* to output the following?

```
   *
  **
 ***
****
```

Answer:

```
for r in range(1, 5):
    for c in range(1, 5):
        if c < 5 - r:
            print(' ', end = '')
        else:
            print('*', end = '')
    print()
```

33. Convert the below while loop to a for loop?

```
prodTotal = 1
for i in range(1, 5):
    prodTotal *= i
print(i, prodTotal)
```

Answer:

```
4 24
```

34. What is the output of the following code?

```
def foo(n1, n2 = 3):
    return pow(n1, n2)
print(foo(2) + foo(10, 2))
```

Answer:

```
108
```

35. What is the output of the following code?

```
def main():
    p = 5
    q = myFunc(p * 2, p)
    print(p + q)

def myFunc(a, b):
    b = a + 30
    return a + b

main()
```

Answer:

```
55
```

36. What is the output of the following code?

```
x = 5

def func():
    global x
    x += 20

def main():
    x = 15
    func()
    print(x * 2)

main()
```

Answer:

```
30
```

37. What is the output of the following code?

```
gVar = 1

def foo1():
    print(gVar, end = ' ')

def foo2():
    global gVar
    gVar += 1
    print(gVar, end = ' ')

def main():
   gVar = 3
```

```
    foo1()
    foo2()
    print(gVar)

main()
```

Answer:
1 2 3

38. Suppose you try to access the sixth item in a list that only contains five items, this will result in _____ error causing the program to crash.

Answer:
runtime

39. Given a list named primes holding the prime numbers between 1-1000, how will you access the last element of the list?

Answer:
primes[len(primes) – 1] -OR- primes[-1]

40. Create a list named vowels and initialize it to the vowels of the English alphabets in capital letters

Answer:
vowels = ['A', 'E', 'I', 'O', 'U']

41. What is the output of the following code?

```
num = [33, 44, 55]
print(num[3])
```

Answer:
Runtime error *(because list index is out of range)*

42. What is the output of the following code?

```
num = [33, 44, 55]
for i in range(len(num)):
    print(num[i], end = " ")
```

Answer:
33 44 55

43. What is the output of the following code?

```
x = [1, 2, 3]
for p in range(3):
    x[p] = 2 * pow(p+1, 2)
print(x[2] / x[0])
```

Answer:
9.0

44. What is the output of the following code?

```
lst = [2 * x for x in range(1, 6)]
result = lst[0]
for item in lst:
    if item > result:
        result = item
print(result)
```

Answer:
```
10
```

45. What is the output of the following code?

```
lst = [i for i in range(1, 5)]
result = [num % 2 for num in lst if (num < 3)]
print(result)
```

Answer:
```
[1, 0]
```

46. What is the output of the following code?

```
roman = ["i", "ii", "iii", "iv", "v", "vi", "vii", "viii", "ix", "x"]
xList = [elem.upper() for elem in roman if "x" in elem]
print(xList)
```

Answer:
```
['IX', 'X']
```

47. What is the output of the following code?

```
def sumUnits(nums):
    total = 0
    for num in nums:
        unit = num % 10
        total += unit
    return total

data = [23, 765, 826, 3]
print(sumUnits(data))
```

Answer:
```
17
```

48. What is the output of the following code?

```
SIZE = 3
lst = [3.5, 2.5, 12.5]
result = lst[0]
for i in range(SIZE):
    if lst[i] < result:
        result = lst[i]
        print(format(result, '.2f'))
```

Answer:
```
2.50
```

49. What is the output of the following code?

```
list1 = [1]*3
list2 = list1
list1[0] = 5
print(list2[0])
```

Answer:
```
5
```

50. What is the output of the following code?

```
list1 = [1]*3
list2 = [] + list1
list1[0] = 5
print(list2[0])
```

Answer:
1 1

51. What is the output of the following code?

```
def populateList():
    lst = []
    for x in range(0, -5, -1):
        lst.append(x)
    return lst

def printList(lst):
    for num in lst:
        print(num, end = ' ')

def main():
    lst = populateList()
    printList(lst)

main()
```

Answer:
0 -1 -2 -3 -4

52. The function below is to find and return the index of the list element that stores the smallest value in the list. Complete the missing statement:

```
def getMinIndex(aList, size):
    minIdx = 0
    for i in range(1, size):
        if aList[i] < aList[minIdx]
            # FILL_IN_THE_MISSING_STATEMENT
    return minIdx
```

Answer:
minIdx = i

53. List 3 palindrome words starting with the letter 'r'?

Answer:
radar, refer, rotor

54. Create a 2D list named list2D with 2 rows and 3 columns and initialize it to numbers 0 to 5 in that order.

Answer:
list2D = [[0, 1, 2], [3, 4, 5]]

55. What is the output of the following code?

```
matrix = [ [1, 2, 3, 4],
           [4, 5, 6, 7],
           [8, 9, 10, 11],
           [12, 13, 14, 15] ]
for i in range(4):
```

```
    print(matrix[i][3], end = " ")
```

Answer:

```
4 7 11 15
```

Short Answer Type Sample Questions:

1. Write an **if/elif/else** statement that checks whether the number is a ZERO, POSITIVE or NEGATIVE number and prints appropriate messages as follows *(Assume the variable **num** is already created and initialized)*

   If **num** is **0**, print the string **"ZERO"**
   If **num** is a **positive number**, print the string **"POSITIVE"**
   If **num** is a **negative number**, print the string **"NEGATIVE"**

   ****** Only write the code necessary to complete this task***

   Answer:

```
if num == 0:
    print("ZERO")
elif num > 0:
    print("POSITIVE")
else:
    print("NEGATIVE")
```

2. Write the definition of a function named **findLowest()**, that receives 3 parameters named **num1, num2,** and **num3**. The function when called should return the lowest of the 3 numbers. Use **if statements** or **if/elif/else** statements to find the lowest of the 3 numbers and make sure to return the lowest number *(Create any variables necessary to complete this task)*.

   Below is the function call in the main body of the program:

```
print("Lowest Number is", findLowest(11, 5, 20))
```

   ****** Only write the code for the function definition***

   Answer:

```
def findLowest(num1, num2, num3):
    lowest = num1
    if num2 < lowest:
        lowest = num2
    if num3 < lowest:
        lowest = num3
    return lowest
```

   -OR-

```
def findLowest(num1, num2, num3):
    if num1 < num2 and num1 < num3:
        lowest = num1
    elif num2 < num1 and num2 < num3:
        lowest = num2
    else:
        lowest = num3
    return lowest
```

3. Write the code necessary to find the count of even and odd numbers in a list named **numbers** *(Assume the list **numbers** is already created and initialized with values)*

Complete the following tasks:

- Using a loop of your choice, count the number of even and odd numbers in the list **numbers** *(Create any variables necessary to complete this task)*
- Output the following:
  - "Count of even numbers = " followed by the actual count of even numbers
  - "Count of odd numbers = " followed by the actual count of odd numbers

****** Only write the code necessary to complete this task.***

Answer:

```
evenCount = oddCount = 0
for n in numbers:
    if n % 2:
        oddCount += 1
    else:
        evenCount += 1
print("Count of even numbers =", evenCount)
print("Count of odd numbers =", oddCount)
```

4. Define a function **displayEvens()** that takes a list of integer numbers **nums** as a parameter and displays only the even values of the list.

Answer:

```
def displayEvens(nums):
    evenNums = [x for x in nums if x % 2 == 0]
    print(evenNums)
```

-OR-

```
def displayEvens(nums):
    evenNums = []
    for x in nums:
        if x % 2 == 0:
            evenNums.append(x)
    print(evenNums)
```