

# Programming 1

## Review Exercises

### Final Review

#### Assignment Purpose:

The purpose of this assignment is to prepare you for your written exam. These are questions that can be asked of you in a variety of ways and in different situations but the logic remains relatively the same. You will find the answers to these questions in your, teachers presentation, lab, and through supplemental materials either given to you, or research by you.

## Unit 1 – Computer Components and Number Systems

Define each of the following terms:

1. Hard Drive:
2. Motherboard:
3. Keyboard:
4. CPU:
5. RAM:
6. Internet:
7. Intranet:
8. LAN:
9. WAN:
10. Router:
11. Server:
12. TCP/IP

#### Conversions

13. Write the following binary number as a decimal: 111011
14. Write the following decimal number in binary: 125
15. Write the following octal value in decimal: 173
16. Write the following decimal value in octal: 432
17. Write the following octal value in binary: 45
18. Write the following hex value in decimal: 2F3
19. Write the following decimal value in hex: 1423
20. Write the following hex value in binary: 2C1

#### Arithmetic

21. Add the following binary numbers: 101101 + 10111
22. Multiply the following binary numbers: 11010 x 101
23. Add the following octal numbers: 73 + 15
24. Add the following hex values: 2AB + 52

## Unit 2 – Programming Logic, Flowcharts, and Pseudocode

25. Define syntax
26. What is the difference between a logic error and a syntax error?
27. Draw and label the different flowchart symbols
28. What is a variable declaration?
29. What is a data type for a variable and what does it describe?
30. Define abstraction
31. Define scope

32. What is the difference between a local variable and a global variable?
33. What are your three programming structures?
34. Give an example of one-way selection? Two-way selection?
35. Create a flow chart for the following pseudocode:

```
If A is true
    Step B
    While C is true
        Step D
Else
    Step E
```

## Unit 3 – Intro to Python and Primitive Data Types

Perform the following Python arithmetic

36. `>>> 15 + 5 * 2.0`
37. `>>> 2 * 4 / 1`
38. `>>> 13 // 3`
39. `>>> 13 % 3`

40. Give two ways to print a quotation mark inside of a literal string (using quotes in quotes)?
41. Given the programming statement `value = input("Enter a number")`, what data type is stored in value?
42. Write an equivalent programming statement to the following lines of code:  
`x = x - 1`  
`y = y + 4`  
`z = z // x`
43. Define concatenation
44. Assuming the random module has been imported, use the randint() and randrange() functions to produce random values from the following ranges:  
[0, 100]  
[30, 50]  
[-10, 10]

## Unit 4 – Control Statements

Give the output for each of the following coded samples

45. `for i in range(20) :`  
    `if i % 3 == 0`  
    `print(i)`
46. `for i in range(5, 0, -1) :`  
    `for j in range(i):`  
        `print('x' , end = "")`  
    `print()`

47. How many iterations will the following loop structure execute?

```
loops = 1
while loops > 10
    loops += 2
```

48. How many iteration will the following loop structure execute?

```
loops = 0  
while loops != 10  
    loops += 3
```

**Fill in each blank with either: True, False, or indeterminable**

49. The Boolean Expression A or (B and C) is \_\_\_\_\_, when A is true.

50. The Boolean Expression A or (B and C) is \_\_\_\_\_, when A is false.

51. The Boolean Expression (A and B) or !(A and B) is \_\_\_\_\_, when A is true

52. The Boolean Expression (A and B) or !(A and B) is \_\_\_\_\_, when A is false

53. The Boolean Expression (A and B) or !(A and B) is \_\_\_\_\_, when B is false

## Unit 5 – Sequences

54. What is the output:

```
>>>len("This is a test")
```

55. What is the output:

```
>>> str1 = "Happy"  
>>> str2 = "Holidays"  
>>> print(str1 + str2)
```

56. What is the output:

```
>>> str1 = "Finals Review"  
>>> print(str1[ 7 : ])  
>>> print(str1[12])  
>>> print(str1[len(str1)])  
>>> print(str1[-2])
```

57. What is the output:

```
>>> print("try" * 3)
```

58. Write the code to create an empty tuple called items

59. Give 2 ways to print every element in a tuple

60. What is the output:

```
>>> [ 1, 2, 3] + [3, 4, 5]
```