CISC 1215 Midterm Review

TY11 F25

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Chapter 1: Programming as a way of thinking

1. What is the difference between integers and floats?
   (a) Integers have no decimal part, while floats can have decimals.
   (b) Integers are smaller numbers than floats.
   (c) Integers are stored as text, while floats are stored as numbers.
   (d) Integers can only be positive, while floats can be negative.

2. What is the Python multiplication operator?

   (a) x (b) + (c) * (d) ** (e) ∧

3. What is the result of the following operation: 27 // 2?

   (a) 54 (b) 12 (c) 13.5 (d) 13 (e) 10

4. What is the Python exponentiation operator?

   (a) x (b) + (c) * (d) ** (e) ∧

5. What is the result of this expression? `3 + 4 * 2`

   (a) 7 (b) 10 (c) 11 (d) 14

6. What is the result of this expression? `8 - 3 + 2 * 5`

   (a) 15 (b) 25 (c) 35 (d) 45

7. What is the result of this expression? `10 / 2 + 3 * 2`

   (a) 8.0 (b) 11.0 (c) 13.0 (d) 16.0

8. What is the result of this expression? `5 + 2 ** 3 * 2`

   (a) 14 (b) 21 (c) 45 (d) 64

9. What is the result of this expression? `18 / 3 + 2 ** 2 * 3`

(a) 12.0 (b) 18.0 (c) 24.0 (d) 30.0

10. Sarah bought 3 packs of markers for $4 each and one notebook for $5. Which expression represents the total amount she spent?

    (a) 3 + 4 * 5 (b) (3 + 4) * 5 (c) 3 * 4 + 5 (d) 4 * (3 + 5)

11. A movie ticket costs $12 and popcorn costs $5. If 3 friends each buy one ticket and share one popcorn, which expression gives the total cost?

    (a) 3 * 12 + 5 (b) (12 + 5) * 3 (c) 12 + 3 * 5 (d) (3 + 1) * (12 + 5)

12. A car travels at 60 miles per hour for 2 hours, then another 30 miles. Which expression represents the total distance?

    (a) 60 + 2 * 30 (b) (60 + 2) * 30 (c) 60 * (2 + 30) (d) 60 * 2 + 30

13. Emily has 24 apples and wants to divide them evenly among 6 friends. Which expression represents how many apples each friend gets?

    (a) 24 * 6 (b) 6 / 24 (c) 24 / 6 (d) 24 - 6

14. A box of pencils costs $2, and each eraser costs $3. If you buy 4 boxes of pencils and 2 erasers, which expression shows the total cost?

    (a) (4 + 2) * 3 (b) 4 * 2 + 2 * 3 (c) 4 + 2 * 3 (d) 4 * (2 + 3)

15. What does the round function in Python do?

    (a) It truncates the decimal part of a number.
    (b) It converts a number to the nearest integer greater than or equal to it.
    (c) It converts a number to the nearest integer or to a specified number of decimal places.
    (d) It returns a random number rounded to a certain number of decimal places.

16. Write Python code that calls a function to compute the absolute value of a variable called x.

17. Which of the following is an invalid string literal?

    (a) 'Hello, world!'
    (b) "Python's great"
    (c) 'She said "Hi!'
    (d) "She said, 'Hello!"

18. Which of the following is an invalid string literal?

    (a) "Good morning"
    (b) 'It\'s sunny today'
    (c) "Welcome to Python"
    (d) 'Hello world""

19. Write Python code that calls a function to find the length of a string called `x`.

20. Write Python code that calls a function to find the type of a variable called `x`.

21. Write Python code that calls a function to change the type of `42.78` to an int. What will be the value returned by the function?

22. What is the type of a variable with the following value? 42

    (a) float
    (b) string
    (c) int
    (d) bool

23. What is the type of a variable with the following value? 3.14

    (a) int
    (b) float
    (c) string
    (d) complex

24. What is the type of a variable with the following value? True

    (a) int
    (b) bool
    (c) string
    (d) float

25. What is the type of a variable with the following value? "hello"

    (a) bool
    (b) string
    (c) int
    (d) float

26. What is the type of a variable with the following value? 0.0

    (a) int
    (b) float
    (c) string
    (d) bool

27. Write code to concatenate two strings `x` and `y`.

28. Write code to print five copies of the word "hello".

Chapter 2: Variables and statements

29. Which of the following assigns the value 5 to a variable `x`?

    (a) `5 = x`
    (b) `x = 5`
    (c) `x = x + 5`
    (d) `x := 5`

30. Which of the following is a valid Python variable name?

(a) my-variable

(b) 2ndValue

(c) my_variable

(d) class

31. Which of the following is not a valid Python variable name?

(a) total_sum

(b) numberOfItems

(c) 5items

(d) user_name

32. Which of the following is a valid Python variable name?

(a) first_name

(b) first name

(c) first-name

(d) first.name

33. Which of the following is not correct?

(a)
```
import math
math.sqrt(25)

from math import sqrt
sqrt(25)
```

(b)
```
from math import sqrt
math.sqrt(25)

import math.sqrt
math.sqrt(25)
```

34. Which symbol is used to start a comment in Python?

(a) //

(b) #

(c) %

(d) $

35. What happens to everything on a line after the # symbol in Python?

(a) It is executed as part of the program.

(b) It is ignored by the Python interpreter.

(c) It is converted to a string.

(d) It causes an error.

36. Which of the following comments would be considered useful?

(a) # assign 8 to v

(b) # increase v by 1

(c) # velocity in miles per hour

(d) # set variable

37. Why are comments important in programming?

(a) They make the code run faster.

(b) They explain what the code does and why.

(c) They change how Python interprets the code.

(d) They replace the need for good variable names.

38. Which of the following statements about comments is true?

(a) Comments affect how the code executes.

(b) Comments should explain obvious parts of the code.

(c) Comments should document non-obvious features or reasoning.

(d) Comments are required on every line of code.

39. Which of the following describes a syntax error?

(a) An error that causes the program to crash while running.

(b) An error that occurs when the code runs but produces the wrong result.

(c) An error in the structure or rules of the code that prevents it from running.

(d) An error that only appears after the program finishes running.

40. Which type of error prevents a Python program from running at all?

(a) Runtime error

(b) Semantic error

(c) Syntax error

(d) Logic error

41. What type of error occurs when Python encounters an operation it cannot perform while the program is running?

(a) Syntax error

(b) Semantic error

(c) Runtime error

(d) Compilation error

42. Which of the following is an example of a runtime error?

(a) Using a reserved keyword as a variable name.

(b) Dividing a string by a number.

(c) Forgetting a colon at the end of an if statement.

(d) Using parentheses incorrectly.

43. Which of the following best describes a semantic error?

(a) The program crashes because of an invalid operation.

(b) The program does not run because of an incorrect symbol or keyword.

(c) The program runs but produces an incorrect result.

(d) The program cannot be saved due to formatting issues.

44. In the expression ‘1 + 3 / 2‘, what kind of error occurs if the goal was to compute the average of 1 and 3?

(a) Syntax error

(b) Runtime error

(c) Semantic error
(d) Type error

45. Which of the following correctly matches the type of error with its description?

(a) Syntax error — program runs but gives wrong output
(b) Runtime error — program fails while running due to an invalid operation
(c) Semantic error — Python stops before executing any code
(d) Syntax error — problem with meaning of the code

Chapter 3: Functions

46. Which keyword is used to define a function in Python?

(a) `function`
(b) `def`
(c) `func`
(d) `define`

47. What is the purpose of the `return` statement in a function?

(a) To call another function
(b) To exit the function and return a value to the caller
(c) To print a message to the console
(d) To define a function

48. Which of the following is a valid function definition in Python?

(a) `def myFunction():`
(b) `function myFunction():`
(c) `def myFunction[]:`
(d) `function myFunction[]:`

49. What does the following function do?

```
def greet(name):
    print("Hello, " + name)
```

(a) Prints "Hello, " followed by the value of `name`
(b) Returns the string "Hello, " concatenated with `name`
(c) Prints the value of `name`
(d) Returns the value of `name`

50. What is the output of the following code?

```
def square(x):
    return x * x

print(square(4))
```

(a) 16
(b) 8
(c) 4
(d) Error

Chapter 5: Conditionals and recursion

51. What does the modulus operator (‘%‘) do in Python?

    (a) Divides two numbers and returns the quotient.

    (b) Divides two numbers and returns the remainder.

    (c) Multiplies two numbers and returns the product.

    (d) Adds two numbers and returns the sum.

52. Which of the following is a valid boolean expression in Python?

    (a) `5 = 5`

    (b) `5 == 5`

    (c) `5 != 5`

    (d) `5 > 5`

53. What is the result of the expression `7 // 3` in Python?

    (a) `2.3333`

    (b) `2`

    (c) `3`

    (d) `1`

54. Which of the following is a valid conditional statement in Python?

    (a) `if x = 5:`

    (b) `if x == 5:`

    (c) `if x != 5;`

    (d) `if x > 5 then:`

55. What is the purpose of the `elif` clause in Python?

    (a) To execute a block of code if the condition is true.

    (b) To execute a block of code if the previous conditions were false.

    (c) To define a function.

    (d) To handle exceptions.

56. Which of the following is an example of a recursive function?

    (a) `def factorial(n): if n == 0: return 1 else: return n * factorial(n-1)`

    (b) `def factorial(n): return n * n`

    (c) `def factorial(n): return n + n`

    (d) `def factorial(n): return n - n`

57. What is the base case in a recursive function?

    (a) The condition that stops the recursion.

    (b) The first function call.

    (c) The last function call.

    (d) The return value.

58. What will the following code print?

```
def countdown(n):
    if n <= 0:
        print("Blastoff!")
    else:
        print(n)
        countdown(n-1)

countdown(3)
```

(a) `3, 2, 1, Blastoff!`

(b) `3, 2, Blastoff!`

(c) `3, Blastoff!`

(d) `Blastoff!`

59. What is the output of the following code?

```
def f(n):
    if n == 0:
        return True
    else:
        return g(n-1)

def g(n):
    if n == 0:
        return False
    else:
        return f(n-1)

print(f(4))
```

(a) `True`

(b) `False`

(c) `None`

(d) `RecursionError`

60. What is the output of the following code?

```
x = 10
y = 2
if x > 5:
    print("x is bobo")
elif y < 5:
    print("y is kiki")
else:
    print("Neither condition met")
```

(a) x is bobo

(b) y is kiki

(c) Neither condition met

(d) Error

Chapter 6: Return values

61. What is the purpose of the `return` statement in a function?

    (a) To display a message to the user.

    (b) To exit the function and pass a value back to the caller.

    (c) To define the function's parameters.

    (d) To import necessary modules.

62. What will the following code print?

```
def greet(name):
    return "Hello, " + name

greet("Alice")
```

    (a) Hello, Alice

    (b) None

    (c) Error

    (d) Hello, name

63. What is the output of the following code?

```
def absolute_value(x):
    if x < 0:
        return -x
    else:
        return x

print(absolute_value(-5))
```

    (a) -5

    (b) 5

    (c) None

    (d) Error

64. What is the result of the following code?

```
def multiply(x, y):
    return x * y

result = multiply(3, 4)
print(result)
```

    (a) 7

    (b) 12

    (c) None

    (d) Error

Chapter 7: Iteration and Search

65. What is the purpose of the `in` operator in Python?

    (a) To check if a value is present in a collection.

    (b) To assign a value to a variable.

    (c) To iterate over a sequence.

    (d) To define a function.

66. What will the following code print?

```
def has_e(word):
    for letter in word:
        if letter == 'E':
            return True
    return False

print(has_e("Hello"))
```

    (a) True

    (b) False

    (c) Error

    (d) None

67. Correct the `has_e` function so `has_e("Hello")` returns True.

68. What is a shorter way of implementing the `has_e` function?

69. What is the output of the following code?

```
def count_e(words):
    count = 0
    for word in words:
        if has_e(word):
            count += 1
    return count

words_list = ["apple", "banana", "cherry", "date"]
print(count_e(words_list))
```

    (a) 2

    (b) 3

    (c) 4

    (d) 1

70. What does the following code do?

```
def linear_search(target, sequence):
    for index, value in enumerate(sequence):
        if value == target:
            return index
    return -1

print(linear_search(3, [1, 2, 3, 4, 5]))
```

(a) Returns the index of the target value in the sequence.

(b) Returns the target value.

(c) Returns the length of the sequence.

(d) Returns -1 if the target is not found.

Chapter 8: Strings and Regular Expressions

71. What is the output of the following code?

```
word = 'banana'
print(word[1])
```

(a) a

(b) b

(c) n

(d) Error

72. Which of the following methods can be used to convert a string to lowercase?

(a) `lower()`

(b) `capitalize()`

(c) `title()`

(d) `swapcase()`

73. What does the following slice operation return?

```
word = 'banana'
print(word[1:4])
```

(a) ana

(b) ban

(c) an

(d) Error

74. Which of the following is a correct way to check if a substring exists within a string?

(a) `if 'ana' in word:`

(b) `if word.contains('ana'):`

(c) `if word.has('ana'):`

(d) `if word.indexOf('ana'):`

75. What is the purpose of regular expressions in Python?

(a) To perform pattern matching and text manipulation.

(b) To define functions.

(c) To handle exceptions.

(d) To manage memory allocation.

76. What is the output of the following code?

```
word = 'pineapple'
print(word[-1])
```

(a) e
(b) p
(c) l
(d) Error

77. What does the following slice return?

```
word = 'strawberry'
print(word[2:6])
```

(a) rawb
(b) awbe
(c) straw
(d) rawn

78. What is the output of this slice operation?

```
word = 'blueberry'
print(word[:4])
```

(a) blue
(b) berry
(c) blueb
(d) blu

79. What is the output of the following code?

```
word = 'blackberry'
print(word[5:])
```

(a) berry
(b) black
(c) blackberry
(d) kberry

80. What does the following code print?

```
word = 'raspberry'
print(word[-3:])
```

(a) rry
(b) asp
(c) ber
(d) ry

81. What is the output of this code?

```
word = 'cranberry'
print(word[:-4])
```

(a) cran
(b) berry
(c) cr
(d) cranber

82. What package is used for regular expressions in Python?

(a) `regex`
(b) `rexpr`
(c) `regular`$_e$*xpressions*
(c) `re`

83. What is the difference between `re.search` and `re.match` in Python?

(a) `re.search` looks for a pattern anywhere in the string, while `re.match` only checks at the beginning of the string.
(b) `re.match` looks for a pattern anywhere in the string, while `re.search` only checks at the beginning of the string.
(c) Both `re.search` and `re.match` only check at the beginning of the string.
(d) Both `re.search` and `re.match` look for a pattern anywhere in the string.

84. What is returned by the function `re.search` in Python?

(a) A boolean value indicating whether the pattern was found.
(b) A list of all matches of the pattern in the string.
(c) A `Match` object if the pattern is found, or `None` if no match is found.
(d) The position index of the first match in the string.

85. What does the following regular expression match?

```
r'[aeiou]'
```

(a) Any single lowercase vowel
(b) Any single uppercase vowel
(c) Any letter except vowels
(d) Any sequence of vowels

86. What does the following regular expression match?

```
r'cat|dog'
```

(a) The string 'cat' or the string 'dog'
(b) Any string containing 'cat' followed by 'dog'
(c) Only the string 'catdog'
(d) Any string containing 'c', 'a', 't', 'd', 'o', or 'g'

87. What does the following regular expression match?

```
r'^Hello'
```

(a) Any string that starts with 'Hello'
(b) Any string that ends with 'Hello'
(c) Any string that contains 'Hello' anywhere
(d) Only the string 'Hello'