

Sample Midterm Questions

Disclaimer: These have been edited only lightly, and have largely not been checked for correctness.

1. What does the following program output?

```
if 5 > 10:  
    print ("Hello.")
```

2. What does the following program output?

```
hello = False  
if hello:  
    print ("Hello.")  
else:  
    print ("Goodbye.")
```

3. What does the following program output?

```
if False or not False:  
    print ("Hello.")  
else :  
    print ("Goodbye.")
```

4. What does the following program output?

```
S1 = False  
S2 = True  
if (not S1) and S2:  
    print (100)  
else:  
    print (0)
```

5. What does the following program print?

```
A=7
B=a-2
if a+b==9
    print("sounds about right")
elif a+b>14
    print ("Don't know about that")
else print: ("I'd check this with a calculator")
```

6. Which of the following will produce an error?

- a) mom=turtle.Turtle()
- b) Mom=turtle.Turtle()
- c) 1mom=turtle.Turtle()
- d) mom1=turtle.Turtle()
- e) #mom=turtle.Turtle()

7. What is the value of number after the following code is executed?

```
for number in range (1,16):
    print (number, end=", ")
```

8. What does the following program print?

```
a = 2
b = 5 % 3
c = 4 * b ** a
d = (a + b + c) / b

if d <= 20:
    d += 1
    print(d)
else:
    print("d is greater than 20")
```

9. What is the output of:

```
str = "Hello World!"
print(str * 2)
```

A: Hello World!Hello World!

B: Hello World! * 2

C: Hello World!

D: None of the above

10. What does the following program print?

```
e = 2
while e <= 4:
    b = 19
    c = b % e
    e += 1
print(e)
```

11. Consider the following code:

```
x = 5
y = 3
print(x ** 2 + 2 * y)
```

- What will the above program print?
- What is the data type of the value that gets printed?
- In what order are the operators in the expression evaluated?

12. Evaluate the following expression:

```
(8//5) + 7 - 5**2 == 9
```

13. What is by the following: `print("a" * 3)`?

- a3
- aaa
- a a a
- a

14. If the user input is 3, what is the output of the following?

```
n = input()
print("n+1", n)
if type(n) == float:
    print(n)
if type(n) == str:
    n=int(n)+1
else:
    print ("n")
print(n)
```

15. Riley wishes to create a while loop to print all possible outcomes of two 6-sided dice, and has typed the following:

```
die1 = 1
while die1 <= 6:
    die2 = 1
    while die2 <= 6:
        print( die1, die2)
        die2 += 1
    die1 += 1
```

Riley has discovered for loops and wants to rewrite the code to take up less. Write a program that prints the same output using for loops.

16. What will the following block of code output?

```
for i in range(1,17,4):
    if i%3 != 0:
        while i<=10:
            print(i//5,end=" ")
            i+=1
    else:
        print(i-1,17)
```

17. Write an program that returns the product of two integers a and b. But if one of the integers is at least twice as large as the other, return quotient of the larger divided by the smaller.

18. Write code to create a Turtle object and then draw a right triangle. Name the variable referring to your turtle after yourself.

19. What does the following program print?

```
a = True
b = False
```

```
print(((not a or b) or (a != b)) and not (not a and b))
```

20. What does this code print?

```
for number in range(10):
    if number % 2 == 0:
        print(number, sep=' ')
```

21. In Python, which of the following will increment the value of 'n' by one?

- A. n += 1
- B. n == n + 1
- C. n *= 1
- D. n = n + 1
- E. n++

22. What would the following code print?

```
x = 3
If x > 10:
    print("AA")
elif x % 2 == 0:
    print("AAA")
else:
    print("AAAA")
```

23. True or False: Statements are executed, while an expressions represent values and can be evaluated.

24. Find the syntax error(s) in the following code:

```
if 23 >= 22 and 7/ 9 != 1
    Print("Correct")
else:
    print("Incorrect")
```

- a) A colon is missing after the Boolean expression.
- b) One of the print functions is incorrectly entered.
- c) The greater-than-or-equal-to operand is in the wrong order.
- d) Both a and b.
- e) None of the above.

25. Consider the following code:

```
if a % 5 == 0 and a % 10 == 0 and b >= 15:
    print(a + b)
elif a % 5 == 0 and a % 10 == 0 and b < 15:
    print(a - b)
elif a % 5 == 0 and a % 10 != 0 and b >=15:
    print(a * b)
elif a % 5 == 0 and a % 10 != 0 and b < 15:
    print(a // b)
else:
    print(a ** b)
```

What values of a and b make the output of the program 630?

- A. a = 30, b = 600
- B. a = 635, b = 5
- C. a = 35, b = 18
- D. both A and C
- E. None of the above

26. Convert the following binary numbers into decimal, add them together, and divide by 4.

10111

10001

27. Evaluate the following expression:

$8 - 4 == 7$ or False or $(50 + 45 > 107 \text{ and } (3 < 4))$

28. Find and fix the syntax error, then give what is printed by the following code:

```
print(32 % 6 + 2 ** (8 - 4))
```

29. What is the output of the following code, for n = 0, n = 1, and n = 2?

```
while n < 30:
    if n % 2 != 0:
        print(n)
        n = n**n
    else:
        print(n)
        n += 1
```

30. What does this code print?

```
x=1
y=3
while x <= 5:
    x+=1
    for i in range(1,5):
        y+=1
print(x*y)
```

31. What is the output of this program?

```
x = 9
y = x % 2

if x <= 9:
    if y > 2 or x > 10:
        print(x + 1)
    elif y < 20 and x > 1:
        print(y + 2*x)
    else:
        if y > 0 or x >= 1:
            print(x - y)
else:
    if y > 0:
        print(x * y)
```

32. Where is the short-term memory of a computer stored?

- A. the CPU
- B. the main memory
- C. the secondary storage
- D. the monitor

Answers

1. No output
2. Goodbye.
3. Hello.
4. 100
5. I'd check this with a calculator
6. c
7. 15
8. 11.0
9. A
10. 5
11. a: 11; b: int; c: ** then * then +
12. False
13. b
14. n+1 3
4

Explanation: After n is assigned to 3, "n+1" is printed as a string, and n is printed as 3. "n" does not evaluate to a float type so the first if clause is ignored. "n" is a string (we know this because all input variables default to a string type. Now n is assigned to 4 because "n" is converted to an integer. We skip the else clause and print n which is now four.

15.

```
for die1 in range(1, 7 ):
    for die2 in range(1, 7 ):
        print (die1, die2)
```
16. 0 0 0 0 1 1 1 1 1 2 1 1 1 1 1 2 8 17


```
17. if a * 2 <= b:
    print(b / a)
    elif b*2 <= a:
        print(a / b)
    else:
        print(a * b)
```

```
18.
import turtle
```

```
maggie = turtle.Turtle()
```

```
maggie.forward(100) # here draws the base
```

```
maggie.left(90)
maggie.forward(100)
```

```
maggie.left(135)
maggie.forward(142)
```

19. True

20. 0 2 4 6 8

21. A and D

22. AAAA

23. True

24. d

25. D

26. $10111 = \underline{23}$

$10001 = \underline{17}$

$23 + 17 = \underline{40}$

$40 / 4 = 10$

27. False

28. Missing closing paren; prints 18 once fixed

29. n = 0:

infinite 1s printed on separate lines

n = 1:

infinite 1s printed on separate lines

n = 2:

2

3

27

30. 138

31. 19

32. B