上 海 交 通 大 学 试 卷（ B 卷）

（ 2022 至 2023 学年 第 1 学期 ）

班级号_____ 学号_____ 姓名 _____

课程名称 _____CS1602 计算导论_____ 成绩 _____

Python 3 is the only programming language allowed for this course. **100 points in all.**
(1). Please choose the correct answer: Only one is correct for each question. (2.5 points each, 100 points.)

1. Which code doesn't have error when running?

A.
```
class A:
    def __init__(s):
        s.a = 1
a = A()
print(a.a)
```

B.
```
class B:
    def f():
        return 1
b = B()
b.f()
```

C.
```
c = open("a.txt", "w")
c.write(321)
c.close()
```

D.
```
d = "123"
print(d.index("4"))
```

2. Here's some code:
```
class A:
    def __init__(self, s):
        self.s = s

    def __add__(self, other):
        self.s += other.s
        return self
```

我承诺，我将严格遵守考试纪律。

承诺人：_____

题号	1									
得分										
批阅人(流水阅卷教师签名处)										

```
a = A("a")
b = a + a
c = b + a
print(len(a.s) + len(b.s) + len(c.s))
```

What's the output?

A. 12 B. 6 C. 3 D. All of A, B, C are wrong.

3. Here's some code:

```
def f(n, x, y):
    if n == 0:
        return 0
    return f(n - 1, x, y) + x + f(n - 1, y, x)

x = f(3, 2, 1)
```

Which expression is True?

A. 6 <= x <= 8 B. 8 < x < 11 C. 11 <= x < 14 D. x < 6 or x >= 14

4. What's the output of the following code?

```
b = 3

class T:

    def __init__(self):

        self.a = b + 1

    b = 2

print(T().a, T.b, b)
```

A. 4 2 3
B. 4 2 2
C. 3 2 2
D. AttributeError: 'T' object has no attribute 'b'

5. What's the time complexity of the following code?

```
def f(n):
    res = 0
```

```
    for i in range(n):
        res += i
    return res
```

A. $O(1)$
B. $O(n)$
C. $O(n^2)$
D. $O(2^n)$

6. Given the following two files under the same folder:
Mod.py

```
name = 'SJTU'

print(name)

if __name__ == '__main__':

    print('Here')
```

Real.py

```
from Mod import name as newname

if __name__ == '__main__':

    name = 'FDU'

    print(newname)
```

What's the result of command "python Real.py"?

A. 'SJTU'
   'Here'

   'FDU'

B. 'SJTU'
   'FDU'

C. 'SJTU'
   'Here'

   'SJTU'

D. 'SJTU'
   'SJTU'

7. Assume that there are two different functions in module A and module B, and both are named 'f'. If you want to import and use these two functions in the same program, how many of the following import commands are correct?

1) from A import f
   from B import f as Bf

2) from A import f
   Af = f

   del f

   from B import f

3) from A import f as Af
   from B import f as Bf

4) from A import f
   from B import f

   Bf = f

   del f

A. 1
B. 2
C. 3
D. None of above are correct.

8. Given the code below, what's the value of variable j at last?

```
j = 0
while j < 10:
    try:
        k = 2 / j
        j += 2
    except ZeroDivisionError:
        j += 3
        break
    finally:
        j += 5
        break
```

A. 5
B. 3
C. 10
D. 8

9. What will the value of B be after the execution of the following code?

```
B = 0
try:
    print({1: 3}[2])
except KeyError:
    B += 2
else:
    B += 4
print(B)
```

A. 6
B. 2
C. 4
D. The code can't run successfully because there is invalid syntax in it.

10. What will an empty file "a.txt" become after executing following program?

```
>>> for i in range(2):
>>>     f = open("a.txt", "w+")
>>>     f.writelines(['123', '456'])
>>>     f.close()
```

(A) '123456'　　(B) '123\n456\n'
(C) '123456123456'　　(D) '123\n456\n123\n456\n'

11. Which is the correct output of the function call?

```
>>> l = iter({1:2, 5:6, 7:8})
>>> next(l)
>>> print(next(l))
```

(A) 5:6　　(B) 7:8　　(C) 5　　(D) 6

12. Which is the correct output of the function call?

```
>>> i, l = 0, [1, 2, 3]
>>> i, l[i] = l[i]+1, i+1
>>> print(l)
```

(A) [1, 2, 3]　　(B) [1, 1, 3]　　(C) [1, 2, 1]　　(D) [3, 2, 3]

13. Which is the correct output of the function call?

```
>>> a, b, c = 1, 2, 3
>>> l1 = [a, b, c]
>>> l2 = [l1 for i in range(2)]
>>> l1[0] = 4
>>> a = 5
>>> print(l2)
```

(A) [[5, 2, 3], [1, 2, 3]]
(B) [[4, 2, 3], [1, 2, 3]]
(C) [[5, 2, 3], [5, 2, 3]]
(D) [[4, 2, 3], [4, 2, 3]]

14. The language of this course is

A. Java

B. C++

C. Python 2.0

D. Python 3.0

15. print(sum([_ for _ in range(100)]))

A. 5000

B. 5050

C. 4955

D. 4950

16. The output of the following code is

```
def myfunc(n):
        return lambda a: a**n
f1 = myfunc(3)
print(f1(2))
```

A. 8

B. 9

C. 6

D. 5

17. The output of the following code is

```
M = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]

print(list(map(sum, M)))
```

A. [6, 15, 24]

B. [12, 15, 18]

C. 45

D. [3, 6, 9]

18. The output of the following code is

```
from functools import reduce
print(reduce((lambda x, y: x*y), [1, 2, 3, 4]))
```

A. 24

B. 12

C. 10

D. 4

19. How many implementations are correct: to write a function to check whether a year is a leap year?

```
def is_leap_year(y):
```

(1)
```
if y%4 == 0 and y%100 != 0:
    return True
if y%400 == 0:
    return True
return False
```

(2)
```
if y%4 == 0 and y%100 != 0:
    return True
elif y%400 == 0:
    return True
else:
    return False
```

(3)
```
return (y%4 == 0 and y%100 !=0) or (y%400 ==0)
```

A. 0 B. 1 C. 2 D. 3

20.
```
sg = (x for x in range(2022))
lis = list(sg)
print(next(sg))
```

A. 0 B. 1 C. 2022 D. Error, StopIteration

21. First read the code at below. Which is the output given by the Python Interpreter?

```
>>> num_1 = 10.0 ** (10 ** 0)
>>> num_2 = input("Please enter an integer between 1 and 100:")
Please enter an integer between 1 and 100:5
>>> num_1 > num_2 * int(3 / 2)
```

A. True B. False
C. No output result, report TypeError D. No output result, report SyntaxError

22. id() function is used to record a unique id for a specified object. Now we define:

```
element = [0, 1, 2]
lst_1 = [element for _ in range(3)]
lst_2 = [element[:] for _ in range(3)]
```

Which choice is correct?"
A. id(element) == id(lst_1[0]) B. id(lst_1[0]) == id(lst_2[0])
C. id(lst_2[0]) == id(lst_2[1]) D. id(lst_2[2]) == id(element)

23. Which one of the four expressions will **exactly** return True?
A. False or ("123" < "") or not True and False
B. (not True or 1) and (False or 1 / 2)
C. not True and not 1 or False
D. (not True or 1) and (False or not 0 or 1 / 0)

24. Which is the correct output of the function call?

```
num = 1
lst = []

def f(num, lst):
    num = 2
    lst.append(1)

f(num, lst)
print(num, lst)
```

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

25. Which one of the following expressions is illegal in Python?
A. x, y = y, y B. x = y = z == 1 C. x = y = z = 1 D. x = (y == z = 1)

26. Suppose that L is a list of strings. If the length of L is greater than 2, then L[2] is assigned to the variable a, otherwise the string "python" is assigned to the variable a. Which of the following Python statements can correctly achieve the above intentions?
(1) a = len(L) > 2 and L[2] or "python"
(2) a = L[2] if len(L) > 2 else "python"

A. Only (1)
B. Only (2)
C. Both (1) and (2)
D. Neither of them

27. What is the output of the following code?

```
for i in range(4):
    print(i, end=',')
    i += 1
```

A. 0,1,2,3,
B. 0,1,2,3,4,
C. 0,2,
D. 0,2,4,

28. Suppose that you have implemented a function to find solution of a certain equation by Newton-Raphson method. The function is defined as follows:

```
def Newton(start, maxiter=1000, epsilon=1e-6, *args):
    # some implementation
    pass
```

How many of the following statements can correctly call this Python function?
(1) Newton(0.0, 100)
(2) Newton(maxiter=10000, start=0.0)
(3) Newton(0.0, maxiter=100, epsilon=1e-4, 0.0)
A. 0
B. 1
C. 2
D. 3

29. What is f(3) if function f is defined as follows?

```
def f(n):
    if n == 0:
        return [1]
    return f(n - 1) + [-i for i in f(n - 1)]
```

A. [1, 1, 1, 1, -1, -1, -1, -1]
B. [-1, 1, -1, 1, -1, 1, -1, 1]
C. [1, -1, -1, 1, -1, 1, 1, -1]
D. [-1, 1, 1, -1, 1, -1, -1, 1]

30. What is the output of the following code?

```
def f(x, y):
    x += x
    y = y + y

a = b = [1, 2]
c = d = [1, 2]
f(a, c)
```

print(a, b, c, d)

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

31. How many statements below can create a list of positive integers less than 10 in ascending order?
(1) a = list(range(1, 10))
(2) b = [range(1, 10)]
(3) c = list(i for i in range(1, 10))
(4) d = [i for i in range(1, 10)]

A. 1
B. 2
C. 3
D. 4

32. Determine whether this piece of program is right or wrong. If wrong, which type of error will it produce
>>> d = dict()
>>> key = [1, 2, 3]
>>> d[key] = 'a list'
(A) Right;
(B) TypeError: unstorable type ‘string’;
(C) TypeError: unhashable type ‘list’;
(D) Error: Duplicate key ‘[1, 2, 3]’

33. Determine whether this piece of program is right or wrong. If wrong, which type of error will it produce
>>> d = dict()
>>> value = [1, 2, 3]
>>> d[‘a list’] = value
(A) Right;
(B) TypeError: unstorable type ‘list’;
(C) TypeError: unhashable type ‘string’;
(D) Error: Duplicate value ‘[1, 2, 3]’

34. Suppose now you have a string s=‘0x120x340x560x78’, how to convert it into a list l=[’12’, ’34’, ’56’, ’78’]
(A) l=s.split(‘0x’) (B) l=s.remove(‘0x’) (C) l=s.split(‘0x’)[1:] (D) l=s.rstrip()

35. Suppose now you have a list l=[’12’, ’34’, ’56’, ’78’], how to convert it into a string s=‘0x120x340x560x78’
(A) s=l.join(‘0x’) (B) s=’0x’.join(l) (C) ‘0x’+’0x’.join(l) (D) s = str(l)

36. What is the output:

```
>>> r = 2.5
>>> s = 3.14 * r ** 2
>>> print(f'The area of a circle with radius {r} is {s:.2f}')
```

(A) The area of a circle with radius 2.5 is 19.62
(B) The area of a circle with radius 2.5 is 19.625
(C) The area of a circle with radius {r} is {s:.2f}
(D) The area of a circle with radius r is s

37. What is the output of the following program:

```
A={1,2,3}
B={1,2,3,4,5,6}
print(A<=B, A&B)
```

(A) True {1,2,3} (B) False {1,2,3} (C) True {1,2,3,4,5,6} (D) False {1,2,3,4,5,6}

38. What's the output of these code?

```
class Node:
    def __init__(self, value, next=None):
        self.value = value
        self.next = next
a = Node(0)
b = Node(1, a)
c = Node(2, b)
a.next = c
d = b
for i in range(3):
    if d.next is None:
        break
    d = d.next
    print(d.value, end="")
```

A. 021 B. 102 C. 210 D. All of A, B, C are wrong.

39. Here's some code:

```
class A:
    def __init__(self):
        self.x = 2

    def print(self):
        print(self.x)
```

Here's some code to use this class:

① print(A.x)
② print(A().x)
③ a = A(); print(a.x)

④ a = A(); a.print()
⑤ print(A())
How many options above can print “2”?
A. 2 B. 3 C. 4 D. 5

40. Here’s some code:

```
class A:
    def __init__(self):
        self.data = []

a = A()
b = A()
c = a
d = A()
d.data = c.data
a.data.append(1)

print(len(a.data) + len(b.data) + len(c.data) + len(d.data))
```

What’s the output?
A. 1 B. 2 C. 3 D. 4

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课程名称 CS1602 计算导论 成绩 _____

我承诺，我将严格遵守考试纪律。

承诺人：_____

题号	1									
得分										
批阅人(流水阅卷教师签名处)										

Please fill your answer here:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40