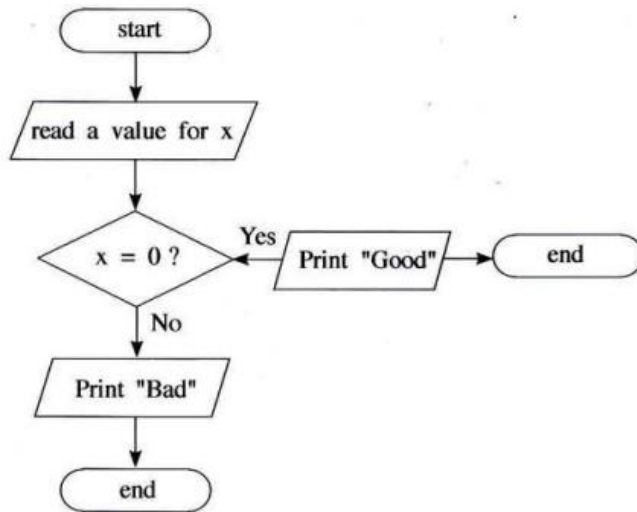1) Consider the following flow chart.

What is the error with the above flowchart?

    1. It has two end symbols.
    2. Print is not a valid keyword.
    3. It has no process box.
    4. It has two print symbols.
    5. A flow direction is not correct.

2) Which of the following statements is true about algorithms?
    1. A set of steps used to solve a problem is called an algorithm.
    2. A sequence of activities used to solve a problem is called an algorithm.
    3. To solve any problem, there can be at most one algorithm.
    4. An algorithm can obtain an infinite number of steps.
    5. An algorithm does not need to terminate within a finite time.

3) Which of the following statements about Python data types/expressions is correct?
   1. String is a mutable data type.
   2. List is an immutable data type.
   3. [1, 2, 3] is a tuple.
   4. The expression [1, 2, 3] [1] will produce [2] when executed.
   5. The type of {'a':1, 1:(1,2)} is a Dictionary.

4) Consider the following values:
   A. 2.3e3
   B. TRUE
   C. "This isn't a string"
   D. "

   Which of the above values are valid in Python?

   1. A and B only
   2. A and C only
   3. B and C only
   4. A, B and C only
   5. A, C and D only

5) Consider the following Python statement:
   Temp= [1, 2, 3, 4, 5, 6] [2::2]
   Which of the followings is the value of the variable temp after executing the above statement?
   1. 2, 4, 6
   2. 3, 5
   3. [2, 3]
   4. [3, 5]
   5. [2, 4, 6]

6) Consider the following statements:

    A. a = b = 2 + 3

    B. a, b = 2, 3

    C. a, b = (2, 3)

    D. a = (2, 3)

Which of the above are valid assignment statements in Python?

    1. A and B only

    2. B and C only

    3. C and D only

    4. A, B and C only

    5. All A, B, C and D

7) Consider the following Python expressions:

    A. True or False and True

    B. 3 > 2 and False

    C. $\{2, 3\} == \{3, 2\}$

    D. $(2, 3) == (3, 3)$

Which of the above expressions would result in the Boolean value True?

    1) A and B only

    2) A and C only

    3) B and C only

    4) B and D only

    5) C and D only

8) The content of two files with names "in.csv" and "out.csv" are shown in the "fig.1" and "Fig. 2" respectively.

| Ruvan, 20, 50 |
| Ramesh, 0, 5 |
| Raj, 10, 10 |

Fig. 1: in.csv

| Ruvan 20 50 70 |
| Ramesh 0 5 5 |
| Raj 10 10 20 |

Fig. 2: out.csv

Which of the following Python programs can be used to transform the data in "in.csv" to the content of the file "out.csv"?

(1)	(2)

``
f1=open("in.csv", "r")
f2=open("out.csv", "r")
for line in f1:
    items=line.strip().split(",")
    tot=int(items[1])+int(items[2])
    print(items[0], items[1], items[2], tot, file = f2)
f1.close()
f2.close()
``
	``
	f1=open("in.csv", "r")
	f2=open("out.csv", "w")
	for line in f1:
	    items=line.strip()
	    tot=int(items[1])+int(items[2])
	    print(items[0], items[1], items[2], tot)
	f1.close()
	f2.close()
	``

(3)	(4)

``
f1=open("in.csv", "r")
f2=open("out.csv", "w")
for line in f1:
    items=line.strip().split(",")
    tot=int(items[1])+int(items[2])
    print(items[0], items[1], items[2], tot, file = f2)
f1.close()
f2.close()
``
	``
	f1=open("in.csv", "r")
	f2=open("out.csv", "w")
	for line in f1:
	    items=line.strip().split(",")
	    tot=items[1]+items[2]
	    print(items[0], items[1], items[2], tot, file = f2)
	f1.close()
	f2.close()
	``

(5)	

``
f1=open("in.csv", "r")
f2=open("out.csv", "w")
for line in f1:
    items=line.strip().split(",")
    tot=int(items[1])+int(items[2])
    print(items[0], items[1], items[2], tot, file = f1)
f1.close()
f2.close()
``	

9) Which of the following functions gives the sum of all elements in any list of integers?

(1)
```
def f(x):
    s = x[0]
    for i in range (0, len(x)):
        s=s+i
    return s
```

(2)
```
def f(x):
    s = x[0]
    for i in range (1, len(x)):
        s=s+i
    return s
```

(3)
```
def f(x):
    s = 0
    for i in x:
        s=s+i
    return s
```

(4)
```
def f(x):
    s = 0
    for i in x:
        s=s+ x[i]
    return s
```

(5)
```
def f(x):
    s = 0
    i = 0
    while i < len(x):
        s=s+ x[i]
    return s
```

10) The consumption of electricity at houses is charged based on the number of units consumed. The first 64 units are charged at Rs. 5.00 per unit, and the rest at Rs. 10.00 per unit.

    a) Draw a flowchart to represent an algorithm that can be used compute the total amount to be charged from a householder when the household number and the present and the previous readings of the electricity mater are given.

    b) Encode the algorithm given in the (a) above in Python programming language. State all valid assumptions if any.

    c) Develop a function in Python to write household number, meter readings and the total amount to be charged at the end of an existing text file named "deb.txt".