

Practice Questions for Half Yearly Examination 2018

Chapter 4 – Data Handling

Q1. What is the function of logical operators? Write an expression involving a logical operator to test if marks are 55 and grade is 'B'.

Sol. Logical operators are used for comparison of numbers. `marks == 55 and grade == 'B'`

Q2. How is implicit conversion different from explicit type conversion?

Sol. Implicit conversion – Automatic conversions performed by the compiler.

Explicit conversion – User defined conversion

Q3. Identify the data types of the values given below:

3, 3j, 13.0, '13', "13", 2+0j, 13, [3,13,2], (3,13,2)

Sol. 3 – integer, 3j – complex number, 13.0 – Floating point number, '13' – String, "13" – String
2 + 0j – complex number, 13 – integer, [3,13,2] – List, (3,13,2) – Tuples

Q4. What will be the output produced by the following code?

```
A, B, C, D = 9.2, 2.0, 4, 21
print(A/4)
print(A//4)
print(B ** C)
print(D//B)
print(A%C)
```

Sol. 2.3, 2.0, 16.0, 10.0, 1.2

Q5. What will be the output produced by these?

(a) 12/4 (b) 14//14 (c) 14%4 (d) 14.0/4 (e) 14.0//4 (f) 14.0%4

Q6. Given that i=4, j=5, k=4, what will be the result of following expressions ?

(i) i < k (ii) i < j (iii) i <= k (iv) i == j (v) i == k (vi) j > k (vii) j >= i
(viii) j != i (ix) j <= k

Q7. Consider the following variables:

```
a = 3
b = 13
p = 3.0
c = 'n'
d = 'g'
e = 'N'
f = 'god'
g = 'God'
h = 'god'
j = 'God'
k = "Godhouse"
L = [1, 2, 3]
```

M = [2 , 4 , 6]

N = [1 , 2 , 3]

O = (1 , 2 , 3)

P =(2 , 4 , 6)

Q = (1 , 2 , 3)

(i) a < b (ii) c < d (iii) f < h (iv) f == h (v) c == e (vi) g == j
(vii) "God" < "Godhouse" (viii) "god" < "Godhouse" (ix) a == p (x) L == M
(xi) L == N (xii) O == P (xiii) O == Q (xiv) a == True (xv) 0 == False (xvi) 1 == True

Sol.7. (i) True (ii) False (iii) False (iv) True (v) False (vi) True
(vii) True (viii) False (ix) True (x) False (xi) True (xii) False
(xiii) True (xiv) False (xv) True (xvi) True

Q8. What is the difference between = and == operator?

Sol. == equal to operator and = assignment operator

Q9. a=1.5 , b=1.5 then why is **a is b** is False while **a == b** is True ?

Sol. a is b is False, because float values are stored at different locations, whereas a==b is True because the values are same in both variables.

Q10. Given that variable CK is bound to string "Raman" (i.e. CK="Raman"). What will be the output produced by following two statements if the input given is "Raman"? Why?

DK= input("Enter name:")

Enter name : Raman

(a) DK == CK **(b)** DK is CK

Q11. If you give the following for str1 ="Hello", why does Python report error?

str1[2] = 'p'

Sol. Strings are immutable data types and individual character cannot be changed. That is why above statement report error.

Q12. Write a program that reads a number of seconds and prints it in form : mins and seconds, e.g. 200 seconds are printed as 3 mins and 20 seconds.

Sol. a = int(input("Enter number of seconds"))

mins = a/60

seconds = a%60

print(mins, "minutes", seconds , "seconds")

Q13. What will be the output of following Python code?

a = 1.2

b = 7.4

c = 1

a -= b

print(a,b)

a *= 2 + c

print(a)

b += a * c

print(b)

Sol. -6.2 7.4

-18.6

-11.2

Q14. What will be the output of following code?

```
x , y = 4 , 8
z = x / y * y
print(z)
```

Sol. 4.0

Q15. What will be the output produced by following code? State reason for this output.

```
a , b , c = 1 , 1 , 2
d = a + b
e = 1.0
f = 1.0
g = 2.0
h = e + f
print(c == d)
print(c is d)
print(g == h)
print(g is h)
```

Sol. True

True

True

False

Chapter 5 – Conditional and Iterative Statements

Q1. Correct the following code fragment:

```
if ( x = 1)
    k = 100
else
    k = 10
```

Sol. if x = 1 :
 k = 100
 else :
 k = 10

Q2. What will be the output of following code fragment if the input given is (i) 7 (ii) 5 ?

```
a = input('Enter a number')
if a == 5 :
    print("Five")
else :
    print("Not Five")
```

Sol. (i) Not Five (ii) Five

Q3. What will be the output of the following code fragment if the input given is (i) 2000 (ii) 9000 (iii) 1991

```
year = int(input("Enter 4-digit year"))
if year % 100 == 0 :
    if year % 400 == 0 :
        print("LEAP Century year")
    else :
        print("Not century year")
```

Sol. (i) LEAP Century year (ii) LEAP Century year (iii) Not Century year

Q4. What would range(3, 13) return?

Sol. 3 4 5 6 7 8 9 10 11 12

Q5. What is the output of the following code fragment?

```
for a in "abcde" :  
    print(a , '+' , end= ' ')
```

Sol. a+b+c+d+e+

Q6. What is the output of the following code fragment?

```
for i in range(0 , 10) :  
    pass  
print(i)
```

Sol. 9

Q7. Why does "Hello" not print even once?

```
for i in range(10 , 1) :  
    print("Hello")
```

Sol. because default step value in range function is +1.

Q8. What will be the output of following code:

```
while(6 + 2 > 8) :  
    print("Gotcha!")  
else :  
    print("Going out!")
```

Sol. Going out!

Q9. What is the significance of break and continue statements?

Q10. What is the output produced by following loop?

```
for a in range(2,7) :  
    for b in range (1, a) :  
        print(b , end= ' ')  
    print( )
```

Sol. 1
1
2
1
2
3
1
2
3
4
1
2
3
4
5

Q11. Write a for loop that displays the even numbers from 51 to 60.

Q12. Write a python script that asks the user to enter a length in centimetres. If the user enters a negative length, the program should tell the user that the entry is invalid. Otherwise, the program should convert the length to inches and print out the result. There are 2.54 centimetres in an inch.

Sol. `len = int(input("Enter the length in Centimeters:"))`

```
if len <= 0 :
    print("User entry is invalid")
else:
    inch = len/2.54
    print("Length in inches is:", inch)
```

Q13. A store charges Rs.120 per item if you buy less than 10 items. If you buy between 10 and 99 items, the cost is Rs.100 per item. If you buy 100 or more items, the cost is Rs.70 per item. Write a program that asks the user how many items they are buying and prints the total cost.

Q14. A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not.

Sol.14. `year = int(input("Enter 4-digit year"))`

```
if year % 100 == 0 :
    if year % 400 == 0 :
        print("LEAP Century year")
    else :
        print("Not century year")
```

Q15. Write a program to take an integer a as an input and check whether it ends with 4 or 8. If it ends with 4, print "ends with 4", if it ends with 8, print "ends with 8", otherwise print "ends with neither".

Q16. Write a program to print the following series:

- (i) 1 4 7 10 40
- (ii) 60, 58, 56, 54, 52, 50

Q17. What is the output of the following lines of code ?

```
if str(0) == 'zero' :
    print(0);
elif str(0) == '0' :
    print(str(0))
else :
    print("none of the above")
```

Q18. program to print table of a number , say 5.

Q19. Predict the output of following code :

```
(a) count = 0
while count < 10 :
    print("Hello")
    count+=1
```

Sol:

```
Hello  
Hello  
Hello  
Hello  
Hello  
Hello  
Hello  
Hello  
Hello  
Hello
```

```
(b) x = 10  
    y = 0  
    while x > y :  
        print(x , y)  
        x = x - 1  
        y = y + 1
```

Sol: 10 0

```
9 1  
8 2  
7 3  
6 4
```

```
(c) x = 45  
    while x < 50 :  
        print(x)
```

Sol: Infinite Loop

```
(d) for x in [1,2,3] :  
    for y in [4,5,6] :  
        print(x , y)
```

Sol : 1 4

```
1 5  
1 6  
2 4  
2 5  
2 6  
3 4  
3 5  
3 6
```

```
(e) keepgoing = True  
    x = 100  
    while keepgoing :  
        print(x)  
        x = x - 10  
        if x < 50 :  
            keepgoing = False
```

Sol: 100

```
90  
80
```

70
60
50

Q20. Write the value that will be stored in variable p after execution of following code. How many times will the loop execute?

```
y = 3
x = 5
p = 0
while y > 0 :
    p = p + x
    y = y -1
```

Q21. How many times the following loop will execute?

```
p = 1
for i in range(1, 3)
    p = p * i
print(p)
```

Q22. Convert the while loop given in question no. 20 into for loop.

Q23. Convert the for loop given in question no. 21 into while loop.

Chapter 6 – List Manipulation Practice Questions

Q1. Why are list called mutable types?

Q2. What are immutable counterparts of lists?

Sol.2. Strings, Tuples

Q3. How do you create the following lists?

- (a) [4 , 5 , 6]
- (b) [-2 , 1, 3]
- (c) [-9 , -8 , -7 , -6 , -5]
- (d) [0 , 1, 2]

Q4. If a = [5,4,3,2,1,0] evaluate the following expressions:

- (a) a[0]
- (b) a[-1]
- (c) a[a[0]]
- (d) a[a[-1]]

Q5. What is the difference between following two expressions, if lst is given as [1,3,5]

- (a) lst * 3
- (b) lst *= 3

Sol : (a) [1, 3, 5, 1, 3, 5, 1, 3, 5] – This expression will not change original list

(b) [1, 3, 5, 1, 3, 5, 1, 3, 5] – This expression will change original list

Q6. Given a list L1=[3 , 4.5 , 12 , 25.7 , [2 ,1, 0 , 5] , 88]

- (a) Which list slice will return [12, 25.7, [2,1,0,5]]
- (b) Which expression will return [2 , 1 , 0 , 5]
- (c) Which list slice will return [4.5 , 25.7 , 88]

Sol : (a) L1[2 : 5] (b) L1[4:5] (c) L1[1:4]

Q7. Given a list L1 = [3, 4.5 , 12 ,25.7 , [2, 1, 0, 5], 88], which function can change the list to :

- (a) [3, 4.5 , 12 , 25.7 , 88]
- (b) [3 , 4.5 , 12 , 25.7]
- (c) [[2 , 1, 0 , 5] , 88]

Q8. What will the following code result in ?

```
L1 = [1, 3, 5, 7, 9]
print(L1 == L1.reverse( ))
print(L1)
```

Q9. Predict the output:

```
my_list = ['p' , 'r' , 'o' , 'b' , 'l' , 'e' , 'm']
my_list[2 : 3] = [ ]
print(my_list)
my_list[2 : 5] = [ ]
print(my_list)
```

Q10. Predict the output:

```
List1 = [13 ,18 , 11 , 16 , 13 , 18 , 13]
print(List1.index(18))
print(List1.count(18))
List1.append(List1.count(13))
print(List1)
```

Q11. Write a program that inputs two lists and creates a third, that contains all elements of the first followed by all elements of the second.

Q12. Ask the user to enter a list containing numbers between 1 and 12. Then replace all of the entries in the list that are greater than 10 with 10.

Q13. Write a program that takes any two lists L and M of the same size and adds their elements together to form a new list N whose elements are sums of the corresponding elements in L and M. For instance, if L=[3, 1, 4] and M =[1, 5, 9], then N should equal [4, 6 , 13].

Q14. What does each of the following expressions evaluate to?

Suppose that L is the list

```
["These" , ["are" , "a"] , ["few" , "words"] , "that" , "we" , "will" , "use"]
```

- (a) len(L)
- (b) L[3:4] + L[1:2]
- (c) "few" in L[2:3]
- (d) "few" in L[2:3] [0]
- (e) "few" in L[2]
- (f) L[2][1:]
- (g) L[1] + L[2]

Q15. Given a list of integers, L, write code to add the integers and display the sum.

Solution.

```
pos = 0
sum = 0
while pos < len (L) :
    sum = sum + L[pos]
    pos = pos + 1
print (sum )

# start of list
# initial sum
# loop through entire list
# add current item to sum
# move to next item in list
# the answer
```


Q16. Given a list of integers, L write code to calculate and display the sum of all the odd numbers in the list.

Solution.

```
pos = 0
sum = 0
while pos < len (L) :
    if L[pos] % 2 == 1 :
        sum = sum + L[pos]
    pos = pos + 1
print (sum )
```

start of list
initially no sum
loop through list
this is an odd number
so add it
next item in list
the answer

Q17. Write a program to find minimum element from a list of element along with its index in the list.

Q18. Write a program to calculate mean of a given list of numbers.

Q19. Write a program to search for an element in a given a list of numbers.

Q20. Write a program to count frequency of a given element in a list of numbers.
