

Basics of Python

Q1 The output of below Python Code Segment is _____

```
a,b=1,3
for i in range(a,b):
    for j in range(b,a,-1):
        print(i+j, end=' ')
(A) 4,3,5 (B) 4,5,3,4
(C) 4,3,5,4 (D) 4,5,3
```

Q2 The final value of result is _____

```
result=1
for x in range(result,4,2):
    result+=1
    for y in range(result):
        result+=2
print(result)
```

Q3 What is printed by below Python Code Segment?

```
for i in range(5,2,-1):
    i=10
    for j in range(1,3):
        i=i+j
print(i)
(A) 12 (B) 13
(C) 15 (D) 16
```

Q4 What will be final ans value from the below code?

```
a=1
b=4
ans=1
while a<4:
    ans=ans+a
    while b>1:
        if b<=2:
            break
        ans=ans+b+a
        b=b-1
    a=a+2
print(ans)
```

Q5 The total number of times print statement is executed is _____

```
for i in range(7,8):
    for j in range(6,7):
        print(i*j)
(A) 1 (B) 2
(C) 3 (D) 4
```

Q6 The output of below code is _____

```
i=print('GATE',end='')
while i:
    print(i,end=',')
    i=i-1
(A) Error (B) GATE 4,3,2,1
(C) GATE 4,3,2 (D) GATE
```

Q7 What will be the output of below Python Code Segment?

```
for i in range(1,10,2):
    if i%3 ==0:
        print(i+2,end=' ')
        continue
    elif i%5==0:
        print(i-1,end=' ')
        break
    else:
        print(i+1,end=' ')
(A) 2, 5 (B) 1, 4, 3
(C) 2, 5, 4 (D) 2, 5
```

Q8 The value of 'i' printed by below code is _____

```
i=5
for j in range(5):
    match j:
        case 2: i=i+2
        case 4: i=i-1
        case 5: i=i+1
        case 3: i=i-2
        case 1: i=i+i
print(i)
```



Answer Key

Q1	(C)	Q5	(A)
Q2	21	Q6	(D)
Q3	(B)	Q7	(C)
Q4	14	Q8	9



Hints & Solutions

Q1 Text Solution:

1. Variable Initialization:

- `a = 1`
- `b = 3`

2. Outer Loop:

- `for i in range(a, b)` translates to `for i in range(1, 3)`. So, `i` will take the values 1 and 2.

3. Inner Loop:

- `for j in range(b, a, -1)` translates to `for j in range(3, 1, -1)`. So, `j` will take the values 3 and 2.

4. Print Statement:

- `print(i + j, end=' ')` prints the sum of `i` and `j` with a space as the separator.

Iteration Details:

• When `i = 1`:

- `j = 3: print(1 + 3) => 4`
- `j = 2: print(1 + 2) => 3`

• When `i = 2`:

- `j = 3: print(2 + 3) => 5`
- `j = 2: print(2 + 2) => 4`

Output Generation:

Combining all the prints from the loops:

- For `i = 1`: Print 4 3
- For `i = 2`: Print 5 4

So, the complete output is: 4 3 5 4

Conclusion:

The correct answer is:

(C) 4 3 5 4

Q2 Text Solution:

Initial Values:

- `result = 1`

Outer Loop Analysis:

1. Outer Loop for `x in range(result, 4, 2)`:

- The range function will generate values starting from `result`, up to but not including 4, with a step of 2.

2. Iteration 1:

- `result = 1`
- The outer loop `range(1, 4, 2)` generates 1 and 3 (i.e., `x` will take these values).

Sub-Iteration 1 (for `x = 1`):

- `result += 1` → `result` becomes 2
- Inner loop: `for y in range(result)` translates to `for y in range(2)` (i.e., `y` takes values 0 and 1).

• Inner Loop Iteration 1 (for `y = 0`):

- `result += 2` → `result` becomes 4

• Inner Loop Iteration 2 (for `y = 1`):

- `result += 2` → `result` becomes 21

Q3 Text Solution:

1. Outer Loop (for `i in range(5, 2, -1)`):

- This loop generates values starting from 5 down to 3 (inclusive). However, the values of `i` in the outer loop are immediately overwritten by `i = 10` inside the loop.

2. Inside the Outer Loop:

- `i` is set to 10 at the start of each iteration.
- Inner Loop (for `j in range(1, 3)`):
 - This loop generates values 1 and 2.

3. Updates within the Inner Loop:

- On each iteration of the inner loop, `i` is updated by adding the value of `j`.

Detailed Execution:

For each iteration of the outer loop:



- **Iteration 1 (for i = 5):**

- i = 10 (as set inside the outer loop)
- **Inner Loop:**
 - j = 1: i = 10 + 1 = 11
 - j = 2: i = 11 + 2 = 13

- **Iteration 2 (for i = 4):**

- i = 10 (as set inside the outer loop)
- **Inner Loop:**
 - j = 1: i = 10 + 1 = 11
 - j = 2: i = 11 + 2 = 13

- **Iteration 3 (for i = 3):**

- i = 10 (as set inside the outer loop)
- **Inner Loop:**
 - j = 1: i = 10 + 1 = 11
 - j = 2: i = 11 + 2 = 13

After all iterations of both loops, the final value of i is 13.

The code prints 13.

Q4 Text Solution:

Initial Values:

- a = 1
- b = 4
- ans = 1

Execution Breakdown:

1. Outer while loop: while a < 4

- Initially a = 1, so this loop will run as long as a is less than 4.

2. First Iteration of Outer while loop (a = 1):

- ans = ans + a → ans = 1 + 1 = 2
- **Inner while loop:** while b > 1
 - Initially b = 4.
 - **First iteration of Inner while loop (b = 4):**
 - if b <= 2 is False, so it proceeds.

- ans = ans + b + a → ans = 2 + 4 + 1 = 7
- b = b - 1 → b = 3

- **Second iteration of Inner while loop (b = 3):**

- if b <= 2 is False, so it proceeds.
- ans = ans + b + a → ans = 7 + 3 + 1 = 11
- b = b - 1 → b = 2

- **Third iteration of Inner while loop (b = 2):**

- if b <= 2 is True, so it breaks out of the inner loop.
- a = a + 2 → a = 1 + 2 = 3

3. Second Iteration of Outer while loop (a = 3):

- ans = ans + a → ans = 11 + 3 = 14
- **Inner while loop:** while b > 1
 - b is now 2 (from the previous iteration), so b <= 2 immediately results in breaking out of the inner loop.
 - a = a + 2 → a = 3 + 2 = 5

4. Termination:

- a = 5, which is no longer less than 4, so the outer while loop terminates.

Final Value of ans:

After the loops complete, the final value of ans is 14.

The final value of ans is 14.

Q5 Text Solution:

1. Outer Loop (for i in range(7, 8)):

- The range(7, 8) generates only one value: 7. Therefore, the outer loop will iterate once with i = 7.

2. Inner Loop (for j in range(6, 7)):

- The range(6, 7) generates only one value: 6. Therefore, the inner loop will also iterate once with j = 6.



Execution:

- For $i = 7$ and $j = 6$, the print statement is executed once, producing the result of $7 * 6$.

Conclusion:

Since the inner loop executes once for each iteration of the outer loop and the outer loop also executes once, the print statement is executed exactly **1** time.

So, the correct answer is:

(A) 1

Q6 Text Solution:

1. First Statement:

- `i = print('GATE', end='')`
- The print function outputs GATE without a newline (due to `end=''`), and the result of `print()` is None. Therefore, `i` is assigned the value None.

2. while i Loop:

- The while loop condition is `while i`, which will evaluate to True if `i` is not None (or any non-zero/non-null value). Since `i` is None, the condition `while i` evaluates to False.

3. Execution:

- Since `i` is None and the loop condition `while i` is False, the while loop will not execute.

Output:

- The only output from this code is GATE from the `print('GATE', end='')` statement.
- No additional output is generated because the while loop does not execute.

Conclusion:

The output of the code is simply:

(D) GATE

Q7 Text Solution:

1. Loop Initialization:

- The for loop iterates with `i` taking values from the range(1, 10, 2), which

generates 1, 3, 5, 7, 9 (odd numbers from 1 to 9).

2. First Iteration (i = 1):

- `i % 3` is `1 % 3 = 1` (not 0), so the if condition is not met.
- `i % 5` is `1 % 5 = 1` (not 0), so the elif condition is not met.
- The else block executes: `print(i + 1, end=' ') → print(1 + 1, end=' ')` prints 2.

3. Second Iteration (i = 3):

- `i % 3` is `3 % 3 = 0`, so the if condition is met.
- `print(i + 2, end=' ') → print(3 + 2, end=' ')` prints 5.
- continue statement skips the remaining code and moves to the next iteration.

4. Third Iteration (i = 5):

- Since the continue statement was executed in the previous iteration, this iteration is not reached. The loop ends before this point.

Conclusion:

The output of the code is:

2 5

So, the correct answer is:

(D) 2, 5

Q8 Text Solution:

Breakdown:

1. Initial Value:

- `i = 5`

2. Loop through j in range(5):

- `range(5)` generates values 0, 1, 2, 3, 4.

3. Match Cases:

- For `j = 0`:
 - No case matches 0, so `i` remains 5.



- For $j = 1$:

- case 1: $i = i + i \rightarrow i = 5 + 5 = 10$.

- For $j = 2$:

- case 2: $i = i + 2 \rightarrow i = 10 + 2 = 12$.

- For $j = 3$:

- case 3: $i = i - 2 \rightarrow i = 12 - 2 = 10$.

- For $j = 4$:

- case 4: $i = i - 1 \rightarrow i = 10 - 1 = 9$.

4. Final Value of i :

- After the loop completes, the value of i is 9.

Conclusion:

The value of i printed by the code is 9



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