OCR A-Level Computer Science (H446) - Trace Table Worksheet

# Q1. Basic Iteration & Accumulation

def count\_up\_to(n):
 total = 0
 for i in range(1, n + 1):
 total += i
 return total

count\_up\_to(4)

Complete the trace table for count\_up\_to(4):

|  |  |
| --- | --- |
| i | total |
|  |  |
|  |  |
|  |  |
|  |  |

# Q2. Conditional Logic in a Loop

def filter\_even(nums):
 result = []
 for num in nums:
 if num % 2 == 0:
 result.append(num)
 return result

filter\_even([3, 6, 7, 2, 9, 10])

Complete the trace table showing the state of num and result for each iteration:

|  |  |  |
| --- | --- | --- |
| num | num % 2 == 0 | result |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Q3. While Loop with Sentinel Value

def mystery():
 x = 10
 while x > 0:
 x = x - 3
 return x

mystery()

Trace the values of x during each iteration of the while loop:

|  |  |  |
| --- | --- | --- |
| Iteration | x before | x after |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Q4. Nested Loops with Accumulation

def nested\_sum(n):
 total = 0
 for i in range(n):
 for j in range(i):
 total += j
 return total

nested\_sum(4)

Complete the trace table showing how i, j, and total change:

|  |  |  |
| --- | --- | --- |
| i | j | total |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |