# **Quiz 2 Solution**

**Question 1**

Radix-Sort(A,n)

{

max = getMax(A,n);

for (pos = 1; max/pos > 0; pos \*= 10)

countSort(A, n, pos);

}

countSort(A,n,pos)

{

int output[n];

int i, count[10] = {0};

// Count the occurrences of digits in count[]

for (i = 0; i < n; i++)

count[(A[i]/pos) % 10]++;

// Change count[i] to hold the actual position of this digit

for (i = 1; i < 10; i++)

count[i] += count[i - 1];

// Build the output array

for (i = n - 1; i >= 0; i--) {

output[count[(A[i]/pos) % 10] - 1] = A[i];

count[(A[i]/pos) % 10]--;

}

**Question 2**

Rod-Cutting

// Array s[0...n] stores the optimal size of the first piece to cut off

r[0]= 0; // Array r[0...n] stores the computed optimal values

for j = 1 to n do

q=-∞;

for i = 1 to j do

// Solve problem of size j

if q< p[i] +r[j - i] then

q= p[i] + r[j-1]:

s[j] = i; // Store the size of the first piece

end

end

r[j] = q:

end

while n > 0 do

// Print sizes of pieces

Print s[n]:

n = n - s[n];

end