Informational test

June 2, 2004

1 Reading

The following examples are given in pseudocode notation. If unclear about the notation, please ask.

1.1 Loop

Given the following code, what will be the output on screen?

```
count = 0
while (count <= 10) do
  output count," and still counting..."
  count = count+1
od
output count," and stopped!"
```

1.2 Recursion

Given the following function called with the value 7 as `somenumber`, how many times will the function be called (that includes the first call)?

```
function recursion(integer somenumber)

output "I have been called"
if (somenumber > 0)
  recursion(somenumber DIV 2)
fi
```

1.3 Array

given the following codesnippet, what will be the contents of the array

- after the first loop?

- after the second loop?

```
integer ar[1..10]

for i = 1 to 10 do
  ar[i] = i
```

```
od

for i = 1 to 10 do
  ar[i] = ar[11-i]
od
```

2 Writing

For the following problems use any major programming language. Please ask if in doubt.

2.1 Loop

Write a **complete program** that outputs the even numbers from 2 to 20. Use a loop. The loop variable itself should only contain the even numbers.

2.2 Recursion

Write a function that conforms to the following calling convention (or similar in other languages):

```
void recursion(int howoften)
```

It should output "hello world" once and call itself recursively. After calling this function, it should have outputted "hello world" excatly `howoften` times.

2.3 Array

write a code snipped that

- defines an integer array that has at least the indexes 1 - 100

- fills this array with the following values: 100 for index 1, 99 for index 2, 98 for index 3, ...1 for index 100