Exercise Sheet 1

1 Static vs. Dynamic Information 10 Points

Classify the following information into static primary, static derived or dynamic.

- addresses of variables
- scopes of variables
- sizes of structures
- values of pointers
- types of variables

Give a short explanation (2-4 sentences) for each.

2 Statements and Expressions 10 Points

Translate the following C-expressions into valid CMa-instruction sequences:

- i++;
- int*x = &y;
- while(e_1) {s_1; if (e_2) continue; s_2;}
- while(e_1) {s; if (e_2) break;}


3 Code Generation for CMa 10 Points

Generate the corresponding CMa-instructions for the following code snippet:

```c
{ 
  int result = 1;
  int i = 1;

  while (i <= 10) 
  { 
    result = result * i;
    i++;
  }
}
```

At the beginning, the stack is completely empty, at the end of the execution only the value of the variable `result` should be left on the stack.