1)

```
fun factorial(n: nat) ret f : nat
  if n = 0 then
    f := 1
  else
    f := n * factorial(n-1)
  fi
end fun
```

2)

```
fun factorial(n: nat) ret f : nat
  f := 1
  for i := 2 to n do
    f := f * n
  od
end fun
```

3)

```
proc init_array(out a: array[N..M] of int)
  for i := N to M do
    a[i] := 0
  od
end proc
```

4)

```
proc init_array(in/out a: array[N..M] of int)
  for i := N to M do
    a[i] := a[i] + 1
  od
end proc
```

5)

```
fun min(a: array[1..N] of int ret i : int
  i := a[1]
  for j := 2 to N do
    if a[j] < i then
      i := a[j]
    else
      skip
    fi
  od
end fun
```