

Exam

Answers may be given in either Swedish or English.

1. Explain what the following expression means:

```
map (·)
```

2. What is the type and the value of the following expression:

```
do "hello"; return "world"
```

3. Functional programming is said to be free of *side effects*. Explain what that means and in what ways it is significant.

4. Define a function which has the type:

```
[(a,b) -> c] -> [a -> b -> c]
```

5. What does the following function compute?

```
g [] = [[]]  
g xs = concat [map (x:) (g (xs \\  
[x])) | x <- xs]
```

The operator (`\`) is defined in the List library as:

```
(\  
) = foldl (flip delete)
```

Also explain why the equation for the empty list is needed.

6. Give an alternative but equivalent definition to the prelude function

```
filter :: (a -> Bool) -> [a] -> [a]
```

in terms of the function `foldr` so that the definition is on the form:

```
filter p = foldr ...
```