

9. Due to ML's type restrictions, some values and functions cannot be written in ML as generally as they can be in Scheme. For example, the list '(5 abc (99 xyz ())) is permitted in Scheme, but the corresponding list [5, "abc", [99, "xyz", []]] is not allowed in ML because type inference reports a type error. Using ML, show how to create a simulated representation of this given mixed-type nested list. **[8 points]**

10. Write a `prefixes` function in ML that works as follows:
`prefixes [10, 20, 30, 40]` returns `[[], [10], [10, 20], [10, 20, 30], [10, 20, 30, 40]]`.

- a. First write `prefixes` using recursion and pattern matching. Do not use `map`, `foldr`, or `foldl`. **[8 points]**
- b. Next write `prefixes` using `map`, `foldr`, and/or `foldl`. Do not use any explicit recursion. **[6 points]**