Suppose we wish to add a ‘select’ statement to Core as follows: a select statement has the structure

```
select b1 -> S1 || b2 -> S2 || ... || bn -> Sn end;
```

where b1, ..., bn are boolean expressions (i.e. \langle cond\rangle’s), and S1, ..., Sn are \langle stmt seq\rangle’s; and the number of b’s is equal to the number of S’s. We execute the select as follows: if b1 evaluates to true, execute S1 and you are done; if b1 evaluates to false, and b2 to true, execute S2 and you are done; ...; if b1, ..., b (n-1) evaluate to false and bn to true, execute Sn; if b1, ..., bn all evaluate to false, simply go to the next statement that follows the select (i.e., the select, in this case, is a ‘no-op’). Note that the “||” is a new terminal symbol that is used to separate each \langle cond\rangle,\langle stmt seq\rangle pair from the next pair. (Actually, it is the same symbol that we are going to use in place of “or” in the Core grammar.)

Now for the problems:

1. (6 points). Add the select statement to Core by modifying the BNF grammar appropriately. (You may use “extended BNF” if you wish but answering the next question might then be harder.)

2. (14 points). Using the notation from the class notes (copies of slides), write down the Execute-select-statement procedure and any other procedures you need to add to Core’s interpreter to implement the select statement. Don’t worry about the Parse-select-statement procedure.

   You may assume the array representation of the parse tree when answering this question. You may also assume procedures such as Execute-stmt-seq or functions like Eval-Cond etc. already exist.

   **Important Note:** The problem is not asking you to show how you can achieve the effect of the select statement by using multiple if statements or anything like that. You are being asked to introduce a new statement into the CORE language so that the CORE programmer can write, as part of his or her CORE program, statements such as:

   ```
   select (X > 0) -> Y = 10; || (Y > 0) -> X = 10; end;
   ```

   **Important Note 2:** The assignment is due in class on Oct. 7. If you don’t turn it in on the 7th, but turn it in by the start of the next class (Oct. 10), you will be penalised 20%. If you don’t turn in the assignment by the start of class on Oct. 10, you will receive no credit for the assignment.

   **Important Note 3:** The first mid-term will be on Wednesday, Oct. 12.

   Topics for the mid-term will be everything we discuss in class before the exam.