1. OCaml
   1. B, C, D
   2. x := 6
   3. C
   4. B

2. NFA/DFA
   1. False
   2. abb*|baa* (or ab+|ba+)
   3. A
   4. 1, 3
   5. 2, 3
   6. 2
   7. X, Y
   8. C

3. CFG
   1. A, D, E
   2. S -> epsilon | e | f | g | eSe | fSf | gSg
   3. D

4. FIRST sets
   1. A, B, C, D, E
   2. First apply left factoring:
      S -> aL | T
      L -> b | T
      T -> bM
      M -> c | epsilon
   But now L has overlapping first sets. Simplify L and T:
      S -> aL | bM
      L -> b | bM
      M -> c | epsilon
   And now apply left factoring to L:
      S -> aL | bT
      L -> bT
      T -> M | epsilon
      M -> c | epsilon
   Again, T has overlapping first sets, but we can combine M into T:
      S -> aL | bT
      L -> bT
      T -> c | epsilon
   (you were not required to show all of this work, and any equivalent CFG with non-overlapping first sets would be accepted)

3. S -> VaS | V
   V -> a | b | c

4. S -> aSa | T
   T -> bSb | c
5. OpSem
   1. B
   2. C
   3. D
   4. #1: A; e2 -> v2
      #2: x2:v2; e2 -> v

6. Security
   1. A (C language)
   2. True
   3. B
   4. Reason: password is not sanitized, and simple string interpolation is used
      Fix: prepared statements, sanitize password like username, escaping, etc.