NAME: SID:

Problem 1: In the RSA, suppose that Bob chooses $p = 3$ and $q = 43$. (a) Determine three correct values of the public exponent e. Justify briefly their correctness (at most 20 words.)

(b) For one of the e's you selected, compute the corresponding secret exponent d. Show your work.

Problem 2: Solve the recurrence $S_n = 7S_{n-1} - 10S_{n-2}$, with initial conditions $S_0 = 1$, $S_1 = 2$.

(a) Characteristic polynomial and its roots:

(b) General form of the solution:

(c) Initial condition equations and their solution:

(d) Final answer: