1. (5 pts) Construct and draw an NFA for the following regular expression.

ab | c*d

- ab 1 pts
- c* 2 pts
- (c*d) 1 pts
- putting ab and c*d correctly 1 pts

2. (3 pts) Circle “Accept” if the NFA accepts the given string. Circle “Reject” otherwise.
a. 00001111  Accept  Reject  (1 pts)
b. 1111  Accept  Reject  (1 pts)
c. 1000  Accept  Reject  (1 pts)

3. (8 pts) Convert the NFA to a DFA.
4. (4 pts) Given the grammar:

S -> bS | TaT | a
T -> Sb | a

Show the sequence of a leftmost derivation of the string abaa.

Answer: S -> TaT -> SbaT -> abaT -> abaa.

Rubric: 1 point for choosing TaT. 1 point for leftmost derivation. 2 points for getting to abaa through a sequence of steps.