(1) Suppose \( \delta(q,a) = (p,b) \) for a Turing machine \((K, \Sigma, \delta, s, H)\). Suppose the Turing machine goes from configuration \(C_1\) to configuration \(C_2\) using the fact that \( \delta(q,a) = (p,b) \). Fill in the blanks below using the following choices. Note that more than one answer may be appropriate for a question. Give one of the appropriate answers in that case.

a) The state the Turing machine will be in in configuration \(C_2\).
b) The state the Turing machine is in in configuration \(C_1\).
c) The tape symbol scanned in configuration \(C_1\).
d) The tape symbol scanned in configuration \(C_2\).
e) The symbol written on the tape between configuration \(C_1\) and \(C_2\).
f) The direction in which the Turing machine moves between \(C_1\) and \(C_2\).
g) The set of states.
h) The top of the push-down stack.
i) The transition function.

1.1 \( q \) is _______.
1.2 \( a \) is _______.
1.3 \( \delta \) is _______.
1.4 \( p \) is _______.
1.5 \( b \) is _______.

(2) Fill in the blanks below using the following choices:

a) Decidable.
b) Partially decidable (semidecidable).
c) Undecidable.
d) Not partially decidable.

2.1 A language \( L \) is _______ if there is a Turing machine (computer program) that halts on all inputs, and for strings in \( L \), halts in state “y”, and for other strings, halts in state “n.”
2.2 A language \( L \) is _______ if there is a Turing machine (computer program) that halts for inputs in \( L \) and fails to halt for other inputs.
2.3 A language is _______ if it is recursive.
2.4 A language is _______ if it is recursively enumerable.
2.5 If a language is not decidable, then it is _______.
2.6 If a language is decidable then it is also _______.

(3) Suppose \((K, \Sigma, \delta, s, H)\) is a Turing machine. Fill in the blanks below using the following choices:

a) The read-write head.  
   b) The left end marker.  
   c) The set of halting states.  
   d) The set of accepting states.  
   e) The set of rejecting states.  
   f) The set of states.  
   g) The input alphabet.  
   h) The stack alphabet.  
   i) The tape alphabet.  
   j) The start state.  
   k) The transition function.

3.1 \(K\) is _______.  
3.2 \(\Sigma\) is _______.  
3.3 \(\delta\) is _______.  
3.4 \(s\) is _______.  
3.5 \(H\) is _______.