Part 1 - Theory

Problem 1, top-down parsing

Matched	Stack	Input	Action
	S$	ig+gtwgtsee$	
	I$	ig+gtwgtsee$	output S ::= I
	iEtSe$	ig+gtwgtsee$	output I ::= iEtSe
i	EtSe$	g+gtwgtsee$	match i
i	gFtSe$	g+gtwgtsee$	output E ::= gF
ig	FtSe$	+gtwgtsee$	match g
ig	+gFtSe$	+gtwgtsee$	output F::=+gF
ig+g	FtSe$	twgtsee$	match +g
ig+g	tSe$	twgtsee$	output F::= ε
ig+gt	Se$	wgtsee$	match t
ig+gt	We$	wgtsee$	output S::=W
ig+gt	wEtSee$	wgtsee$	output W::=wEtSe
ig+gtw	EtSee$	gtsee$	match w
ig+gtw	gFtSee$	gtsee$	output E::= gF
ig+gtwg	FtSee$	tsee$	match g
ig+gtwg	tSee$	tsee$	output F::= ε
ig+gtwgt	See$	see$	match t
ig+gtwgt	see$	see$	output S::=s
ig+gtwgtsee	$	$	match see

Problem 2, Bottom-up parsing

a)
<u>Shift/reduce:</u> The parser doesn't know if it should reduce, or move the look-ahead one more step(i.e. trying to find a bigger production to reduce).

<u>Reduce/reduce:</u> The parser doesn't know which one of several reductions to make.

b) Correct: 1 + 2 * 3
Incorrect: 1 * 2 + 3

c) Correct: 1 * 2 + 3
Incorrect: 1 + 2 * 3