BENEDICT UCHE AJOKU
2750
COMPUTER SCIENCE

1.

S_1 – If I studied then I passed, and if I passed then I attended the exam.

S_2 – If I did not attend the exam then I did not pass.

1. (a)

Expression: (S ′n P) ∧ (P ′n G)

S	P	G	(S′n P)	(P′n G)	(S′n P) ∧ (P′n G)
T	T	T	T	T	T
T	T	F	T	F	F
T	F	T	F	T	F
T	F	F	F	T	F
F	T	T	T	T	T
F	T	F	T	F	F
F	F	T	T	T	T
F	F	F	T	T	T

S_2 = (¬G ′n ¬P)

S	P	G	¬P	¬G	(¬G ′n ¬P)
T	T	T	F	F	T
T	T	F	F	T	F
T	F	T	T	F	T
T	F	F	T	T	T
F	T	T	F	F	T
F	T	F	F	T	F
F	F	T	T	F	T
F	F	F	T	T	T

2. 3.

S_1 and S_2 are contingent because they are true in some assignments and false in others.

S_1 has 4 true and 4 false, so it is neither a tautology nor a contradiction.

S_2 is false in two rows and true in the rest, so it's also neither a tautology nor a contradiction.