Dawson College : Principles of Mathematics and Logic: 360-124-DW-S01: Winter 2013	
	Nama

Name:	
Student ID:	

Test 1

No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. (2 marks) Name a logician and state his main contribution to logic.

Question 2.¹ Given the following symbolization key:

A: Alexander Berkman loves Emma Goldman

 B_1 : Alexander Berkman buys bread.

B₂: Emma Golman buys bread.

E: Emma Goldman loves Alexander Berkman.

 F_1 : Alexander Berkman buys flowers.

 F_2 : Emma Goldman buys flowers.

*P*₁: Alexander Berkman protests.

*P*₂: Emma Goldman protests.

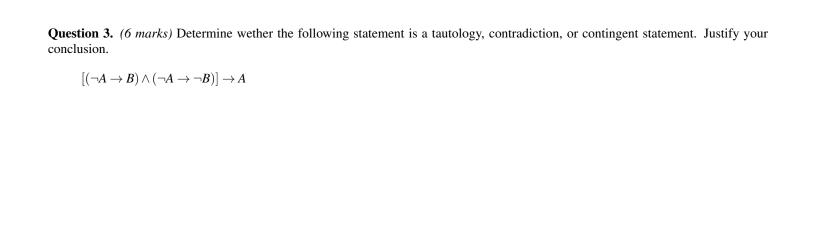
Translate each English language statement into Propositional Logic.

- a. (3 marks) Emma and Alexander love each other only if, it is the case that both Emma and Alexander protest.
- b. (3 marks) Emma buys flowers and Aleaxander buys bread if, neither Alexander loves Emma nor Emma loves Alexander.

Translate each Propositional Logic statement into English.

- c. $(1 \text{ mark}) \neg P_2$
- d. (3 marks) $(\neg P_2 \land B_2) \iff E$

¹not historically accurate



Question 4. (6 marks) Determine whether the following is a valid argument. Justify your conclusion.

 $\neg F_2, (\neg P_2 \wedge B_2) \iff E : E$

Question 5. Which of the following is possible? If it is possible, give an example. If it is not possible, explain why.
a. (3 marks) A valid argument, the conclusion of which is a tautology.
b. (3 marks) An invalid argument, the conclusion of which is a tautology.
Bonus Question. (1 mark) Why did you choose to study in the Liberal Arts program?