

## Quiz: Translations

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.** Given the following symbolization key:

$A$ : Yann is an anarchist.

$B_1$ : Emilie bikes to the revolution.

$B_2$ : Fred bikes to the revolution.

$B_3$ : Yann bikes to the revolution.

$E$ : Emilie is a unionist.

$F$ : Fred is a communist.

$P_1$ : Emilie flies to the World Social Forum.

$P_2$ : Fred flies to the World Social Forum.

$P_3$ : Yann flies to the World Social Forum.

$T$ : Emilie is a Trotskyist.

Strictly translate each English language statement into Propositional Logic.

a. (2 marks) It is not the case that Yann is not an anarchist.

b. (3 marks) Fred is communist if, he bikes to the revolution and does not fly to the World Social Forum.

Strictly translate each Propositional Logic statement into English.

c. (1 mark)  $\neg T$

d. (3 marks)  $\neg(B_1 \vee P_2) \iff \neg F$

a)  $\neg \neg A$

b)  $(B_2 \wedge \neg P_2) \rightarrow F$

c) Emilie is not a Trotskyist

d) It is not the case that both Emilie bikes to the revolution or Fred flies to the W.S.F. if and only if Fred is not a communist.