

COMP21111 Assignment 2
20 marks

Show your working.

Deadline: 15th Oct., 12pm (noon), SSO
Deadlines are strict

Problem 1 (7 marks)

Make a table with all positions, the corresponding subformulas and polarities for the following formula

$$(p \leftrightarrow \neg q) \wedge \neg((q \rightarrow \neg q) \vee p \vee (\neg q \rightarrow (r \wedge p))).$$

Problem 2 (7 marks)

Check whether the formula $\neg r \rightarrow p \leftrightarrow (p \rightarrow q) \rightarrow r$ is satisfiable or not satisfiable using the splitting algorithm. If it is satisfiable, give a model of this formula.

Problem 3 (6 marks)

Use only pure atom rule to check whether the following formula is satisfiable:

$$\neg((p \vee r \rightarrow q) \rightarrow (p \wedge (q \leftrightarrow r)))$$