

CREDIT TEST 2 MATHEMATICAL LOGIC	DATUM: 12.12.2008	PREDICATE LOGIC - SEMANTICS
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Task:	1	2	3	4	5	Σ
Credits:						

1. Arguments.

- a) **Decide** whether the argument is valid. **Give reasons** for your conclusion.

The Arabians like only alcohol-free drinks.

Ali is an Arabian.

Coffee is an alcohol-free drink.

Hence: Ali likes coffee.

- b) **Formalize** the argument in the predicate logic and **demonstrate its validity**.

No wise man is a terrorist.

Some politicians are wise men.

Hence: Some politicians are not terrorists.

2. Interpretation, models

- a) Find a **model** of the following formula: $\forall x P(x, f(x))$.

Find an **interpretation structure** in which this formula is **not valid**.

- b) Find a **model** of the formula $\exists x [P(x) \wedge \neg Q(x)]$,

which is not a model of the formula $\forall x [P(x) \supset \neg Q(x)]$.

- c) **Characterize all the models** of the following formulas, and give **examples** of their

models: $\exists x [P(x) \vee \neg Q(x)]$

$\forall x [P(x) \supset Q(x)]$