Essay on the statement not in a related to negation

Business, Company

Question#1

Question#2

The role of " it is not the case that" or " it is false that" can be described by the logical operator of negation (~)

Question#3

This is a well-known case of omnipotence paradox (http://en. wikipedia. org/wiki/Omnipotence_paradox)

Generally it is a special case of Russel's paradox (http://en. wikipedia. org/wiki/Russell%27s_paradox)

The bottom line is that we cannot give any affirmative or negative answer to the question. If we say " yes, he can build the wall, which he couldn't jump over", we have a contradiction with the statement, that Zeus could do anything – he can't jump over the wall, over which he can' t jump. If we say " no, he couldn't", we have a contradiction again – " Zeus couldn't do anything"

Question#4

a)

Negation changes the statement into opposite. For example, if the statement is " all lions are black", the negation of this statement is " There are no black lions"

The complement of two set B and A is the set BA, which consists of those elements of B, which are not in A:

b)

The conjunction in logic is a reflection of intersection in set theory. The conjunction means a relation “ and” for statements, and intersection of two sets is the set with elements which are in one set AND in other set.

c)

Disjunction in logic is a reflection of union in set theory. They both means “ OR”. Disjunction means that one of the statement is true (first or second), the union means the set which elements are from the one set or from the other.

Question#5

- ~p is False (because p is true), q -> r is True (because q is false and r is true, and false -> true = true), hence ~p -> (q-> r) is True (because false -> true = true)

3. p is true, q ˄ r is false (because they are not both true), hence p->(q ˄ r) is false (because true -> false = false)

9. ~p is false, ~q is true, ~p ˅ ~q is true (because one of them is true), ~r is false, hence,

(~p˅~q) ˅~r is true (because first is true and second is false)

Question#6

19. A cat has whiskers or a fish can swim, and a chicken lays eggs.

A cat has whiskers – true

Fish can swim – true

Chicken lays eggs – false (chicken is too young to lay eggs)

True and true and false is false.

22. Honda makes automobiles or Honda makes motorcycles, if and only if Toyota makes cereal

Honda makes automobiles – true

Honda makes motorcycles – true

Honda makes automobiles or Honda makes motorcycles – true

Toyota makes cereal – false

Honda makes automobiles or Honda makes motorcycles, if and only if Toyota makes cereal – false (because True <-> False = false)

23. Spike Lee is a movie director, or if Halle Berry is a schoolteacher, then George Clooney is a circus clown.

Spike Lee is a movie director – true

Halle Berry is a schoolteacher – false

George Clooney is a circus clown – false

if Halle Berry is a schoolteacher, then George Clooney is a circus clown – true (because false -> false = true)

Spike Lee is a movie director, or if Halle Berry is a schoolteacher, then George Clooney is a circus clown – true (because true or true is true)