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Course Code

Date of Submission

The Concept of Logic Proof

The modulus ponens rule for the conditional arguments proves the validity of the statement by the use of the linear and Boolean algebra concepts. The combination of the operations results in the desired results (Lifschitz, 526). The validity of the conditional arguments can be proved using the modulus ponens rule. The rule is also called the inference rule. The rule is summarized as follows:

If P and Q are the conditions which show that the resultant event should be true, it can only be so if both are true. If one of the statements is false, then the resultant event is false. The following combination is proved to be true in the explanations given.

(T.M) ℑ ~(Pv ~v)

The combination of the event P is valid since it is a direct commutative rule. The event of P depends on the condition of the T and M. By the application of the modulus ponens rule, event P is exclusively dependent on the T and M.

Question 1

With the premises are given for the N, K and S arguments, the conclusion of the statement is (N.K) v (N.s). The truth of event N and S affects the conclusion of the argument.

Question 2

For the instructions given in the single step premises, the condition for the Q, H, and F are communicative. The conclusion of the arguments given is the (Q v (Q.M)

Question 3

The best conclusion for the premises given is $(s \supset R).(P \supset R)$

Question 4

$L \supset \sim Q).(H \supset \sim Q)$

Question 5

$(A.Q)vN$

Question 6

$Dv \sim T).(Dv \sim R)$

Question 7

$C \supset (\sim F \supset E)$

Question 8

$B \supset D$

Question 9

$(\sim S \supset F).(\sim S \supset N)$

Question 10

$\sim K \supset T$

Question 11

$\sim$ H by the simplification process from 2

$\sim T \rightarrow R$ by use of the disjunctive method

$E \rightarrow F$ by use of the disjunctive syllogism

The T and the E are done by the use of the Disjunctive syllogism hence proved by the Modus Ponens

The T is assumed from the R and Modus ponens used to proof

The conclusion is thus F∀R

Question 12

$\sim n$ by the simplification process from 2

$\sim N \rightarrow R$ by use of the disjunctive method

$L \rightarrow F$ by use of the disjunctive syllogism

The O is assumed from the Modus ponens used to proof

The conclusion is thus $(N.O)R$

Question 13

$\sim C \rightarrow T$ by use of the disjunctive method

$T \rightarrow T$ by use of the disjunctive syllogism

The T is assumed from the T and Modus ponens used to proof

The conclusion is thus $\sim C.T$

Question 14

$\sim X$ by the commutative process from 2

$\sim Y \rightarrow Z$ by use of the disjunctive method

$X.Z$ by use of the disjunctive syllogism

The O is assumed from the Z and Modus ponens used to proof

The conclusion is thus $\sim(X.Z) \cap Y$

Question 15

$\sim$ A by the commutative process from 2

$\sim A \cap Z$ by use of the disjunctive method

$Av.U$ by use of the disjunctive syllogism

The U is assumed from the U and Modus ponens used to proof

The conclusion is thus $\sim A$

Question 16

$\sim$ R by the simplification process from 2

$\sim S \rightarrow H$ by use of the conjunction method

$G \rightarrow H$ by use of the disjunctive syllogism

The H and the G are done by the use of the Disjunctive syllogism hen proved by the Modus Ponens

The G is assumed from the H and Modus ponens used to proof

The conclusion is thus $(\sim \mathbf{S} \supset \mathbf{H}).(\sim \mathbf{S} \supset \mathbf{G})$

Question 17

$\sim$ N by the simplification process from 2

$\sim F \rightarrow A$ by use of the conjunction method

$\rightarrow$ B by use of the disjunctive syllogism

The R and the F are done by the use of the Disjunctive syllogism hen proved by the Modus Ponens

The ~B is assumed from the F and Modus ponens used to proof

The conclusion is thus $\mathbf{B} \supset \sim \mathbf{F}).(\mathbf{N} \supset\sim \mathbf{A})$

Question 18

$\sim$ A by the commutative process from 2

$\sim$ R $\rightarrow$ Q by use of the conjunction method

Av. B by use of the disjunctive syllogism

The A is assumed from the Q and Modus ponens used to proof

The conclusion is thus $(A.Q)vB$

Works Cited

Lifschitz, Vladimir, David Pearce, and Agustín Valverde. "Strongly equivalent logic programs." *ACM Transactions on Computational Logic (TOCL)* 2.4 (2001): 526-541.