

Exam #1 – Practice Version

General Instructions: This quiz has 6 parts. Be sure to complete each part. Read the instructions completely before attempting to answer specific questions. **Number your answers in your blue book, show all work and state the result.**

For this first exam, you may take up to the full class period to complete this exam. You may do the parts in any order you choose. Don't get hung up on one part or one question.

Part I True or False? (2 points each, 20 points total)

1. If the premises of an argument are true, the argument is valid.
2. A valid argument can have a false conclusion.
3. An argument with a tautology as its conclusion is a valid argument.
4. An argument with a contradiction as its conclusion is a valid argument.
5. Any conjunction with one tautologous conjunct is a tautology.

Part II Truth-functionality (10 points)

Instructions: Answer each of the following questions

1. Explain why “Belinda believes that” is an operator, but not a truth-functional operator.

Part III Translation (5 points each, 10 points total)

Instructions: Translate the following English sentences into Propositional Logic. Be sure to provide a dictionary.

1. It's not the case that both apples are red unless grass is green, and water is wet if and only if sand is dry.
2. Manston will ask Cytherea's hand in marriage if either Miss Aldclyffe requests it or Owen remains ill.

Part IV Validity (10 points each, 20 points total)

Use the full truth table method to determine whether the following argument is valid or invalid. Be sure to state your result

1. $A \supset \sim(B \& A)$
 $B \vee A$

 $\sim A$

Use the gappy truth-table method to test the following argument for validity. State the result.

2. $C \equiv D$
 $\sim D$

 $\sim C$

Part V Validity (20 points total)

Use the truth tree method to determine whether the following arguments are valid or invalid. Be sure to state your result. ("///" separates the premises from the conclusion.)

1. $(F \ \& \ \sim G) \vee (T \ \& \ \sim W), \sim(\sim W \vee \sim H), (F \supset G) \supset (H \supset \sim S), \text{///} \sim S$

Part VI Determine logical status using the truth tree method: (20 points total)

1. Determine whether the following wff is a tautology:

$(P \ \& \ \sim P) \supset ((Q \vee \sim R) \supset L)$