Introduction to Symbolic Logic
Test 2 Study Guide

1. Define the following: truth-functional logic, proposition.
2. What is a truth-function?
3. When are conjunctions true?
4. When are disjunctions false?
5. When are conditionals false?
6. What is a valid argument form?
7. Write out the valid argument forms for the following: modus ponens, modus tollens, "not both" form.
8. What is a formal fallacy? Write out the two formal fallacies discussed.
9. Define the following: logicism, formal language.
10. What does TL stand for?
11. What is a well-formed formula?
12. Which of the following are sentences of TL? Cross out those that are not. For those that are, circle the main operator. No explanation is needed.

~ ~ [(J & K ⊃ K] ∨ ~ J  ~ (B ∨ C) ≡ ~ (C & ~ A)  ~ (~ F ∨ ~ ~ B) ⊃ ~ ~ C

B ⊃ [H ⊃ (A ∨ B ≡ (H ∨ A)]  ([(X ∨ Y) ∨ D] ⊃ K) ≡ (B & Z)

*Use the truth-table method to answer the following questions. Be sure to show your work and briefly state your results (i.e., truth-functionally true, valid, etc.).*

13. Are the following sentences truth-functionally true, truth-functionally false, or truth-functionally indeterminate?
    a. ~ (R ⊃ [(R ⊃ T) ⊃ T])
    b. [(S ∨ ~ W) ≡ (~ W ⊃ W)] ∨ (W ⊃ P)
14. Is the set of sentences {Y ⊃ Z, ~ (Y ∨ Z), (~ Y ≡ Z) ⊃ ~ Z} truth-functionally consistent?
15. Are the following sets of sentences truth-functionally equivalent?
    a. C ⊃ L ; L ⊃ C
    b. C ⊃ L ; ~L ⊃ ~C
16. Construct a truth-table to assess for validity:
    a. O ⊃ R; R ⊃ T; O ∨ R / O ⊃ T
    b. (A & B) ∨ C; ~C / A & B
    c. L ⊃ C; C ⊃ L / L ≡ C