**Logic Exercises 3: The Language of Propositional Logic**

**Section A: Identifying Elements in the Language of Propositional Logic**

1. Explain what the domain of propositional logic is:

2. Write down all of the grouping symbols of propositional logic:

3. Explain the difference between propositional constants and propositional variables:

4. Write down all of the main connectives of propositional logic**:**

5. Explain what a logical constant is:

**Section B: Circle the Well Formed-Formulas**

6. (P & Q)

7. (P 🡒 ∧ Q)

8. (P) ∨ ∧ (F)

9. ((P ∧ Q) 🡒 R)

10. (R ∨ S) 🡒 T 🡒 V)

11. (V 🡒 S) 🡒 T)

12. ≡ V ∧ T

13. ((R ≡ S) 🡒 (V ∧ T))

14. ¬¬(T 🡒 R)

15. ¬🡒 (P ∨ Q)

**Section C: Circle the Main Connective**

16. (P ∨ (Q ∧ R))

17. ((P 🡒R) 🡒 S)

18. ¬(P ∧ Q)

19. (¬P ∧ ¬Q)

20. ¬(P ≡ (R 🡒 S))

21. ((P 🡒 Q) ∨ (R ∧ S))

22. (¬S 🡒 ¬T)

23. (¬R ∨ (S 🡒 P))

24. ¬¬P

25. ([(P ∨ Q) ∨ (S ∨ T)] 🡒 S)

**Section D: The Semantics of Propositional Logic**

26. Write down the truth table for ‘∨’

27. Write down the truth table for ‘∧’

28. Write down the truth table for ‘¬’

29. Write down the truth table for ‘≡’

30. Write down the truth table for ‘🡒’