

# Introduction to Logic

## *Practice Exam for Unit 3 (Exams 3 and 5):*

**Instructions.** Translate the following statements into the language of predicate logic. Use the first letters of the capitalized words in your translations (either as lower or uppercase).

1. NEPTUNE and JUPITER are un-INHABITABLE.
2. Neither NEPTUNE nor MERCURY are GASEOUS.
3. NEPTUNE and URANUS are NEIGHBORS.
4. CALLISTO ORBITS JUPITER, unless it ORBITS NEPTUNE.
5. No STARS are INHABITABLE.
6. Some PLANETS are not INHABITABLE.
7. All GASEOUS PLANETS ROTATE.
8. Not everything is INHABITABLE.
9. Something both ROTATES and is GASEOUS.

10. Every GASEOUS PLANET either ROTATES or DRIFTS.

11. Everything is GASEOUS only if nothing is a PLANET.

12. All PLANETS and STARS are either INHABITABLE or GASEOUS.

13 & 14. Only INHABITABLE PLANETS ROTATE. (two readings, give both)

15. The only non-GASEOUS PLANETS ROTATE.

16. If all PLANETS are INHABITABLE, then some GASEOUS PLANETS are INHABITABLE.

17. No INHABITABLE PLANETS are GASEOUS, unless JUPITER is INHABITABLE.

18. Something ORBITS JUPITER.

19. There is something that does not ORBIT JUPITER.

20. Everything is ORBITTED by SOMETHING (or other).

21. There is something that ORBITS nothing.

22. JUPITER is LARGER than everything that ORBITS it.

23. Something that is LARGER than MERCURY ORBITS JUPITER.

24. Nothing that is LARGER than JUPITER is LARGER than NEPTUNE.

25. No PLANETS are LARGER than every STAR.

26. Some PLANETS that are LARGER than every ASTEROID are INHABITABLE.

27. All STARS that are LARGER than every PLANET are LARGER than every ASTEROID.

28. Nothing that is LARGER than every STAR ORBITS any PLANET.