Hurley, 13th edition, 6.3 Part I

1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| N | ⊃ | (N | ⊃ | N) |
| T | T | T | T | T |
| F | T | F | T | F |

Tautologous

2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (G | ⊃ | G) | ⊃ | G |
| T | T | T | T | T |
| F | T | F | F | F |

Contingent

3.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| (S | ⊃ | R) | · | (S | · | ~ | R) |
| T | T | T | F | T | F | F | T |
| T | F | F | F | T | T | T | F |
| F | F | T | F | F | F | F | T |
| F | F | F | F | F | F | T | F |

Self Contradictory

4.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| [(E | ⊃ | F) | ⊃ | F] | ⊃ | E |
| T | T | T | T | T | T | T |
| T | F | F | T | F | T | T |
| F | T | T | T | T | F | F |
| F | T | F | F | F | T | F |

Contingent

5.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (~ | K | ⊃ | H) | ≡ | ~ | (H | v | K) |
| F | T | T | T | F | F | T | T | T |
| F | T | T | F | F | F | F | T | T |
| T | F | T | T | F | F | T | T | F |
| T | F | F | F | F | T | F | F | F |

Self-Contradictory

6.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (M | ⊃ | P) | v | (P | ⊃ | M) |
| T | T | T | T | T | T | T |
| T | F | F | T | F | T | T |
| F | T | T | T | T | F | F |
| F | T | F | T | F | T | F |

Tautology

7.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [(Z | ⊃ | X) | · | (X | v | Z)] | ⊃ | X |
| T | T | T | T | T | T | T | T | T |
| T | F | F | F | F | T | T | T | F |
| F | T | T | T | T | T | F | T | T |
| F | T | F | F | F | F | F | T | F |

Tautology

8.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| [(C | ⊃ | D) | · | ~C] | ⊃ | ~ | D |
| T | T | T | F | F | T | F | T |
| T | F | F | F | F | T | T | F |
| F | T | T | T | T | F | F | T |
| F | T | F | T | T | T | T | F |

Contingent

9.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [X | ⊃ | (R | ⊃ | F)] | ≡ | [(X | ⊃ | R) | ⊃ | F] |
| T | T | T | T | T | T | T | T | T | T | T |
| T | F | T | F | F | T | T | T | T | F | F |
| T | T | F | T | T | T | T | F | F | T | T |
| T | T | F | T | F | T | T | F | F | T | F |
| F | T | T | T | T | T | F | T | T | T | T |
| F | T | T | F | F | F | F | T | T | F | F |
| F | T | F | T | T | T | F | T | F | T | T |
| F | T | F | T | F | F | F | T | F | F | F |

Contingent

10.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [G | ⊃ | (N | ⊃ | ~ | G)] | · | [(N | ≡ | G) | · | (N | v | G)] |
| T | F | T | F | F | T | F | T | T | T | T | T | T | T |
| T | T | F | T | F | T | F | F | F | T | F | F | T | T |
| F | T | T | T | T | F | F | T | F | F | F | T | T | F |
| F | T | F | T | T | F | F | F | T | F | F | F | F | F |

Self-Contradictory

11.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [(Q | ⊃ | P) | · | (~ | Q | ⊃ | R)] | · | ~ | (P | v | R) |
| T | T | T | T | F | T | T | T | F | F | T | T | T |
| T | T | T | T | F | T | T | F | F | F | T | T | F |
| T | F | F | F | F | T | T | T | F | F | F | T | T |
| T | F | F | F | F | T | T | F | F | T | F | F | F |
| F | T | T | T | T | F | T | T | F | F | T | T | T |
| F | T | T | F | T | F | F | F | F | F | T | T | F |
| F | T | F | T | T | F | T | T | F | F | F | T | T |
| F | T | F | F | T | F | F | F | F | T | F | F | F |

Self-Contradictory

12.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [(H | ⊃ | N) | · | (T | ⊃ | N)] | ⊃ | [(H | v | T) | ⊃ | N] |
| T | T | T | T | T | T | T | T | T | T | T | T | T |
| T | T | T | T | F | T | T | T | T | T | F | T | T |
| T | F | F | F | T | F | F | T | T | T | T | F | F |
| T | F | F | F | F | T | F | T | T | T | F | F | F |
| F | T | T | T | T | T | T | T | F | T | T | T | T |
| F | T | T | T | F | T | T | T | F | F | F | T | T |
| F | T | F | F | T | F | F | T | F | T | T | F | F |
| F | T | F | T | F | T | F | T | F | F | F | T | F |

Tautology

13.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [U | · | (T | v | S)] | ≡ | [(~ | T | v | ~U) | \* | (~ | S | v | ~ | U)] |
| T | T | T | T | T | F | F | T | F | F | F | F | T | F | F | T |
| T | T | T | T | F | F | F | T | F | F | F | T | F | T | F | T |
| T | T | F | T | T | F | T | F | T | F | F | F | T | F | F | T |
| T | F | F | F | F | F | T | F | T | F | T | T | F | T | F | T |
| F | F | T | T | T | F | F | T | T | T | T | F | T | T | T | F |
| F | F | T | T | F | F | F | T | T | T | T | T | F | T | T | F |
| F | F | F | T | T | F | T | F | T | T | T | F | T | T | T | F |
| F | F | F | F | F | F | T | F | T | T | T | T | F | T | T | F |

Self-Contradictory

14.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| {[(G | · | N) | ⊃ | H] | · | [(G | ⊃ | H) | ⊃ | P]} | ⊃ | (N | ⊃ | P) |
| T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| T | T | T | T | T | F | T | T | T | F | F | T | T | F | F |
| T | T | T | F | F | F | T | F | F | T | T | T | T | T | T |
| T | T | T | F | F | F | T | F | F | T | F | T | T | F | F |
| T | F | F | T | T | T | T | T | T | T | T | T | F | T | T |
| T | F | F | T | T | F | T | T | T | F | F | T | F | T | F |
| T | F | F | T | F | T | T | F | F | T | T | T | F | T | T |
| T | F | F | T | F | T | T | F | F | T | F | T | F | T | F |
| F | F | T | T | T | T | F | T | T | T | T | T | T | T | T |
| F | F | T | T | T | F | F | T | T | F | F | T | T | F | F |
| F | F | T | T | F | T | F | T | F | T | T | T | T | T | T |
| F | F | T | T | F | F | F | T | F | F | F | T | T | F | F |
| F | F | F | T | T | T | F | T | T | T | T | T | F | T | T |
| F | F | F | T | T | F | F | T | T | F | F | T | F | T | F |
| F | F | F | T | F | T | F | T | F | T | T | T | F | T | T |
| F | F | F | T | F | F | F | T | F | F | F | T | F | T | F |

Tautology

15.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [(F | V | E) | · | (G | v | H)] | ≡ | [(G | · | E) | v | (F | · | H)] |
| T | T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| T | T | T | T | T | T | F | T | T | T | T | T | T | F | F |
| T | T | T | T | F | T | T | T | F | F | T | T | T | T | T |
| T | T | T | F | F | F | F | T | F | F | T | F | T | F | F |
| T | T | F | T | T | T | T | T | T | F | F | T | T | T | T |
| T | T | F | T | T | T | F | F | T | F | F | F | T | F | F |
| T | T | F | T | F | T | T | T | F | F | F | T | T | T | T |
| T | T | F | F | F | F | F | T | F | F | F | F | T | F | F |
| F | T | T | T | T | T | T | T | T | T | T | T | F | F | T |
| F | T | T | T | T | T | F | T | T | T | T | T | F | F | F |
| F | T | T | T | F | T | T | F | F | F | T | F | F | F | T |
| F | T | T | F | F | F | F | T | F | F | T | F | F | F | F |
| F | F | F | F | T | T | T | T | T | F | F | F | F | F | T |
| F | F | F | F | T | T | F | T | T | F | F | F | F | F | F |
| F | F | F | F | F | T | T | T | F | F | F | F | F | F | T |
| F | F | F | F | F | F | F | T | F | F | F | F | F | F | F |

Contingent