***LOGICA 2018/19 - Test n. 4***

***( Deduzioni naturali guidate)***

Cognome e Nome \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Matricola \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Corso di Studi \_\_\_\_\_\_\_\_\_\_\_\_\_ indirizzo)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ─ ( ─ p ꓥ ─q )  **Ⱶ**  p ꓦ q | | | | | | |
|  |  |  |  |  |  |  |
| 1 |  | (1) | *─ ( ─ p ꓥ ─ q )* |  | **A** |  |
| 2 |  | (2) | *─ ( p ꓦ q )* |  | **A\*** |  |
| 3 |  | (3) | *p* |  | **A\*** |  |
| 3 |  | (4) | *p ꓦ q* |  | **Iꓦ** | 3 |
| 2,3 |  | (5) | *( p ꓦ q ) ꓥ ─ ( p ꓦ q )* |  | **Iꓥ** | 2,4 |
| 2 |  | (6) | *─ p* |  | **RA** | 3,5 |
| 7 |  | (7) | *q* |  | **A\*** |  |
| 7 |  | (8) | *p ꓦ q* |  | **Iꓦ** | 7 |
| 2,7 |  | (9) | *( p ꓦ q ) ꓥ ─ ( p ꓦ q )* |  | **Iꓥ** | 2,8 |
| 2 |  | (10) | *─ q* |  | **RA** | 7,9 |
| 2 |  | (11) | *─ p ꓥ ─ q* |  | **Iꓥ** | 6,10 |
| 1,2 |  | (12) | *( ─ p ꓥ ─ q ) ꓥ ─ ( ─ p ꓥ ─ q )* |  | **Iꓥ** | 1,11 |
| 1 |  | (13) | *─ ─ ( p ꓦ q )* |  | **RA** | 2,12 |
| 1 |  | (14) | *p ꓦ q* |  | **DN** | 13 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ( ─ p → s ) ꓦ ( ─ p → q ), ─ ( q ꓦ ─ r )  **Ⱶ**  ─ s → ( p ꓥ ─ ( q ꓦ ─ r )) | | | | | | |
|  |  |  |  |  |  |  |
| 1 |  | (1) | *( ─ p → s ) ꓦ ( ─ p → q )* |  | **A** |  |
| 2 |  | (2) | *─ ( q ꓦ ─ r )* |  | **A** |  |
| 3 |  | (3) | *─ s* |  | **A\*** |  |
| 4 |  | (4) | *─ p → s* |  | **A\*** |  |
| 3,4 |  | (5) | *─ ─ p* |  | **MTT** | 3,4 |
| 6 |  | (6) | *─ p → q* |  | **A\*** |  |
| 7 |  | (7) | *─ p* |  | **A\*** |  |
| 6,7 |  | (8) | *q* |  | **MPP** | 6,7 |
| 6,7 |  | (9) | *q ꓦ ─ r* |  | **Iꓦ** | 8 |
| 2,6,7 |  | (10) | *( q ꓦ ─ r ) ꓥ ─ ( q ꓦ ─ r )* |  | **Iꓥ** | 2,9 |
| 2,6 |  | (11) | *─ ─ p* |  | **RA** | 7,10 |
| 1,2,3 |  | (12) | *─ ─ p* |  | **Eꓦ** | 1,4,5,6,11 |
| 1,2,3 |  | (13) | *p* |  | **DN** | 12 |
| 1,2,3 |  | (14) | *p ꓥ ─ ( q ꓦ ─ r )* |  | **Iꓥ** | 2,13 |
| 1,2 |  | (15) | *─ s → ( p ꓥ ─ ( q ꓦ ─ r ))* |  | **PC** | 3,14 |