**TUGAS LOGIKA MATEMATIKA**

**PERTEMUAN 5**

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**Tugas / Latihan 1 :**

1. Diketahui suatu argument berikut:

P1: jika suku bunga naik, maka harga saham turun

P2: jika harga saham turun, maka banyak investor yang kecewa

P3: suku bunga naik

Q: banyak investor kecewa

Tunjukan dengan tabel kebenaran apakah kesimpulan valid?

1. Diketahui suatu argument berikut:

P1: jika saya belajar logika matematika, maka saya lulus ujian

P2: jika saya tidak bermain game, maka saya belajar logika matematika

P3: ternyata saya tidak lulus ujian

Q: berarti saya bermain game

Tunjukan dengan tabel kebenaran apakah kesimpulan valid?

1. Apakah (s →r) merupakan kesimpulan yang valid dari premis (p →(q →r)), (p ⋁ ¬ s) dan (q)?, tunjukan dengan tabel kebenaran

**Jawaban 1:**

1. p = suku bunga naik

q = harga saham turun

r = investor kecewa

p1 = p → q

p2 = q → r

p3 = p

q = r

((p → q) ∧ q) → r

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| interpretasi | p | q | r | p → q | (p → q ) ∧ q ) | ((p → q) ∧ q) → r |
| 1 | B | B | B | B | B | B |
| 2 | B | B | S | B | B | S |
| 3 | B | S | B | S | S | B |
| 4 | B | S | S | S | S | B |
| 5 | S | B | B | B | B | B |
| 6 | S | B | S | B | B | S |
| 7 | S | S | B | B | S | B |
| 8 | S | S | S | B | S | B |

1. p = belajar logika matematika

q = lulus ujian

r = main game

p1 = p → q

p2 = ¬ r → p

p3 = ¬ q

q = r

(¬ r → p) → (p → q) ⋁ ( r ⟺ ¬ q)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| interpretasi | p | q | r | ¬ q | ¬ r | ¬ r → p | p → q | r ⟺ ¬ q | (¬ r → p) → (p → q) | (¬ r → p) → (p → q) ⋁ ( r ⟺ ¬ q) |
| 1 | B | B | B | S | S | B | B | S | B | B |
| 2 | B | B | S | S | B | B | B | B | B | B |
| 3 | B | S | B | B | S | B | S | B | S | B |
| 4 | B | S | S | B | B | B | S | S | S | S |
| 5 | S | B | B | S | S | B | B | S | B | B |
| 6 | S | B | S | S | B | S | B | B | B | B |
| 7 | S | S | B | B | S | B | B | B | B | B |
| 8 | S | S | S | B | B | S | B | S | B | B |

1. (p →(q →r)) ∧ (p ⋁ ¬ s) ∧ q → (s →r)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| interpretasi | p | q | r | s | ¬ s | q → r | p → (q →r) | p ⋁ ¬ s | (p →(q →r)) ∧ (p ⋁ ¬ s) | (p →(q →r)) ∧ (p ⋁ ¬ s) ∧ q | s →r | (p →(q →r)) ∧ (p ⋁ ¬ s) ∧ q → (s →r) |
| 1 | B | B | B | B | S | B | B | B | B | B | B | B |
| 2 | B | B | B | S | B | B | B | B | B | B | B | B |
| 3 | B | B | S | B | S | S | S | B | S | S | S | B |
| 4 | B | S | S | S | B | B | B | B | B | S | B | B |
| 5 | B | S | B | B | S | B | B | B | B | S | B | B |
| 6 | B | S | B | S | B | B | B | B | B | S | B | B |
| 7 | S | B | S | B | S | S | B | S | S | S | S | B |
| 8 | S | B | S | S | B | S | B | B | B | B | B | B |
| 9 | S | B | B | B | S | B | B | S | S | S | B | B |
| 10 | S | S | B | S | B | B | B | B | B | S | B | B |
| 11 | S | S | S | B | S | B | B | S | S | B | S | S |
| 12 | S | S | S | S | B | B | B | B | B | S | B | B |