

1. Bila terdapat pernyataan berikut : Jika seseorang ingin wawasannya luas, maka ia harus rajin membaca dan ia juga harus sering bertukar pikiran dengan orang lain.

- A. Ubah ke dalam ekspresi logika (10 point).
- B. Ubah ke dalam ekspresi maple (10 point) .
- C. Nyatakan nilai-nilai kebenaran dari ekspresi tersebut dengan tabel (20 point).
- D. Buktikan kebenaran bagian c. dengan perintah maple (20 point).

JAWABAN:

Atomik:

P = Seseorang ingin wawasannya luas.

Q=Ia harus rajin membaca.

R= Ia harus bertukar pikiran dengan orang lain.

A. $(P \rightarrow (Q \wedge R))$

B.

```

> with(Logic);
[&and, &iff, &implies, &nand, &nor, &not, &or, &xor, BooleanGraph, BooleanSimplify, Canonicalize, Complement, Contradiction, Dual, Environment,
Equivalent, Export, Implies, Import, Normalize, Random, Satisfiable, Satisfy, Tautology, TruthTable, Tsetin]
> P := "Seseorang ingin wawasannya luas";
P := "Seseorang ingin wawasannya luas"
> Q := "Ia harus rajin membaca";
Q := "Ia harus rajin membaca"
> R := "Ia harus bertukar pikiran";
R := "Ia harus bertukar pikiran"
> S := "Orang lain";
S := "Orang lain"
> P &implies Q;
Logic:-&implies("Seseorang ingin wawasannya luas", "Ia harus rajin membaca")
> &and R Export S;
("Ia harus bertukar pikiran") Logic:-Export "Orang lain"
> (P)&implies(Q)&and(&or R Export S);
"Seseorang ingin wawasannya luas" => "Ia harus rajin membaca" ^ ( (( "Ia harus bertukar pikiran" ) Export "Orang lain" )
> [

```

C.

D.

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with(Logics);
[dand, diff, dmples, dncand, dncor, dncor, dncor, BooleanGraph, BooleanSimplify, Canonicalize, Complement, Contradiction, Dual, Environment, Equivalent, Export, Imply, Import, Normalize, Random, Satisfiable, Satisfy, TruthTable, Tsemin]

T1 := TruthTable(P&imples(Q&and C)), [P, Q, R];

	C	P	Q	value
1	false	false	false	true
2	false	false	true	true
3	false	true	false	false
4	false	true	true	false
5	true	false	false	true
6	true	false	true	true
7	true	true	false	false
8	true	true	true	true

[P, Q, R]

T1[true, true, true];

	C	P	Q	value
1	false	false	false	true
2	false	false	true	true
3	false	true	false	false
4	false	true	true	false
5	true	false	false	true
6	true	false	true	true
7	true	true	false	false
8	true	true	true	true

[P, Q, R] [true, true, true]

T1[true, true, false];

	C	P	Q	value
1	false	false	false	true
2	false	false	true	true
3	false	true	false	false
4	false	true	true	false
5	true	false	false	true
6	true	false	true	true
7	true	true	false	false
8	true	true	true	true

[P, Q, R]

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T1[true, false, true];

	C	P	Q	value
1	false	false	false	true
2	false	false	true	true
3	false	true	false	false
4	false	true	true	false
5	true	false	false	true
6	true	false	true	true
7	true	true	false	false
8	true	true	true	true

[P, Q, R] [true, false, true]

T1[true, false, false];

	C	P	Q	value
1	false	false	false	true
2	false	false	true	true
3	false	true	false	false
4	false	true	true	false
5	true	false	false	true
6	true	false	true	true
7	true	true	false	false
8	true	true	true	true

[P, Q, R] [true, false, false]

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7 true true false false

8 true true true true

T1[false, true, true];

C	P	Q	value
1	false	false	true
2	false	false	true
3	false	true	false
4	false	true	false
5	true	false	true
6	true	false	true
7	true	true	false
8	true	true	true

[P, Q, R] [false, true, true]

T1[false, true, false];

C	P	Q	value
1	false	false	true
2	false	false	true
3	false	true	false
4	false	true	false
5	true	false	true
6	true	false	true
7	true	true	false
8	true	true	true

[P, Q, R] [false, true, false]

T1[false, true, true];

C	P	Q	value
1	false	false	true
2	false	false	true

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Palettes Workbook

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Text Math Drawing Plot Animation

C 2D Input Times New Roman 12 B T U

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4 false true true false

5 true false false true

6 true false true true

7 true true false false

8 true true true true

T1[false, true, true];

C	P	Q	value
1	false	false	true
2	false	false	true
3	false	true	false
4	false	true	false
5	true	false	true
6	true	false	true
7	true	true	false
8	true	true	true

[P, Q, R] [false, true, false]

T1[false, true, false];

C	P	Q	value
1	false	false	true
2	false	false	true
3	false	true	false
4	false	true	false
5	true	false	true
6	true	false	true
7	true	true	false
8	true	true	true

[P, Q, R] [false, true, false]

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2. Dik: p= true.

Dit:Manakah pernyataan yang salah?

q=true.

r=false.

s=false.

- $(p \rightarrow r) \leftrightarrow (q \rightarrow s)$
- $(r \rightarrow p) \leftrightarrow (s \rightarrow q)$
- $(\sim s \vee q) \leftrightarrow (\sim r \vee p)$
- $(\sim p \vee q) \leftrightarrow (\sim r \wedge s)$

JAWABAN:

a. $(p \rightarrow r) \leftrightarrow (q \rightarrow s)$
 $F \leftrightarrow T$ (True).

b. $(r \rightarrow p) \leftrightarrow (s \rightarrow q)$
 $T \leftrightarrow T$ (True).

c. $(\sim s \vee q) \leftrightarrow (\sim r \vee p)$
 $T \leftrightarrow T$ (True).

d. $(\sim p \vee q) \leftrightarrow (\sim r \wedge s)$
 $T \leftrightarrow F$ (False).

```

> with(Logic);
[&and, &iff, &implies, &nand, &nor, &not, &or, &xor, BooleanGraph, BooleanSimplify, Canonicalize, Complement, Contradiction, Dual, Environment, Equivalent, Export, Implies, Import, Normalize,
Random, Satisfiable, Satisfy, Tautology, TruthTable, Tsetin]
(1)

> p := true;
p := true;
(2)

> q := true;
q := true;
(3)

> r := false;
r := false;
(4)

> s := false;
s := false;
(5)

> TruthTable(p&implies r)&iff(q&implies s);
T1 := Logic:-&iff(
  value
  1 false
, Logic:-&implies(true, false)
)
(6)

> TruthTable(r&implies p)&iff(s&implies q);
Logic:-&iff(
  value
  1 true
, Logic:-&implies(false, true)
)
(7)

> TruthTable(&not s&or q)&iff(&not r&or p);
Logic:-&iff(
  value
  1 true
, ~false ∨ true
)
(8)

> TruthTable(&not p&or q)&iff(&not r&or s);
Logic:-&iff(
  value
  1 true
, ~false ∨ false
)
(9)

```