ASSIGNMENT

Date

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Construct a truth table for each of these compound proposition.

$P \rightarrow \neg P$

(28)

P	¬P	P→¬P
T	F	F
F	T	T

$P \leftrightarrow \neg P$

P	¬P	P↔¬P
T	F	F
F	T	F

$P \oplus (P \vee q)$

P	q	P∨q	P⊕(P∨q)
T	T	T	F
F	T	T	T
T	F	T	F
F	F	F	F

d) $(P \wedge q) \rightarrow (P \vee q)$

P	q	P∧q	P∨q	(P∧q)→(P∨q)
T	T	T	T	T
F	T	F	T	T
T	F	F	T	T
F	F	F	F	T

e) $(q \rightarrow \neg P) \leftrightarrow (P \leftrightarrow q)$

P	q	¬P	q→¬P	P↔q	(q→¬P)↔(P↔q)
T	T	F	F	T	F
T	F	F	T	F	F
F	T	T	T	F	F
F	F	T	T	T	T

f) $(P \leftrightarrow q) \oplus (P \leftrightarrow \neg q)$

P	q	¬q	P↔q	P↔¬q	(P↔q)⊕(P↔¬q)
T	T	F	T	F	T
F	T	F	F	T	T
T	F	T	F	T	T
F	F	T	T	F	T

Construct a truth table for each of these compound proposition.

$(P \lor q) \rightarrow (P \oplus q)$ (29)

P	q	P∨q	P⊕q	(P∨q)→(P⊕q)
T	T	T	F	F
T	F	T	T	T
F	T	T	T	T
F	F	F	F	T

$P \oplus \neg P$ 30(c)

P	¬P	P⊕¬P
T	F	T
F	T	T

$(P \oplus q) \rightarrow (P \land q)$

P	q	P⊕q	P∧q	(P⊕q)→(P∧q)
T	T	F	T	T
F	T	T	F	F
T	F	T	F	F
F	F	F	F	T

Gracy

c) $(P \lor q) \oplus (P \land q)$

P	q	P∨q	P∧q	(P∨q) ⊕ (P∧q)
T	T	T	T	F
T	F	T	F	T
F	T	T	F	T
F	F	F	F	F

d) $(P \leftrightarrow q) \oplus (\neg P \leftrightarrow q)$

P	q	¬P	P↔q	¬P↔q	(P↔q) ⊕ (¬P↔q)
T	T	F	T	F	T
F	T	T	F	T	T
T	F	F	F	T	T
F	F	T	T	F	T

e) $(P \leftrightarrow q) \oplus (\neg P \leftrightarrow \neg q)$ Last me 7r hai but 7~
likha gya akhri me chuck k~

P	q	¬P	¬q	P↔q	¬P↔¬q	(P↔q) ⊕ (¬P↔¬q)
T	T	F	F	T	T	F
T	F	F	T	F	F	F
F	T	T	F	F	F	F
F	F	T	T	T	T	F

$(P \oplus q) \rightarrow (P \oplus 7v)$

P	q	7v	P⊕q	P⊕7v	(P⊕q)→(P⊕7v)
T	T	F	F	T	T
F	T	F	T	F	F
T	F	T	T	F	F
F	F	T	F	T	T

Construct a truth table for each of these compound proposition:

1) P ⊕ P

P	P⊕P
T	F
F	F

1) P ⊕ 7P

P	7P	P⊕7P
T	F	T
F	T	T

c) $P \oplus \neg V$

P	V	¬V	P⊕¬V
T	T	F	T
T	F	T	F
F	T	F	F
F	F	T	T

d) $\neg P \oplus \neg V$

P	V	¬P	¬V	¬P ⊕ ¬V
T	T	F	F	F
T	F	F	T	T
F	T	T	F	T
F	F	T	T	F

e) $(P \oplus V) \vee (P \oplus \neg V)$

P	V	¬V	P⊕V	P⊕¬V	(P⊕V)∨(P⊕¬V)
T	T	F	F	T	T
F	T	F	T	F	T
T	F	T	T	F	T
F	F	T	F	T	T

$(P \oplus \neg) \wedge (P \oplus \neg \nu)$

P	ν	$\neg \nu$	$P \oplus \nu$	$P \oplus \neg \nu$	$(P \oplus \nu) \wedge (P \oplus \neg \nu)$
T	T	F	F	T	F
T	F	T	T	F	F
F	T	F	T	F	F
F	F	T	F	T	F

Construct a truth table for each of these compound proposition.

$P \to \neg \nu$

P	ν	$\neg \nu$	$P \to \neg \nu$
T	T	F	F
T	F	T	T
F	T	F	T
F	F	T	T

$\neg P \longleftrightarrow \nu$

P	ν	$\neg P$	$\neg P \longleftrightarrow \nu$
T	T	F	F
T	F	F	T
F	T	T	T
F	F	T	F

Gracy

c) $(p \to q) \lor (\neg p \to q)$

p	q	$\neg p$	$p \to q$	$\neg p \to q$	$(p \to q) \lor (\neg p \to q)$
T	T	F	T	T	T
F	T	T	T	T	T
T	F	F	F	T	T
F	F	T	T	F	T

d) $(p \to q) \land (\neg p \to q)$

p	q	$\neg p$	$p \to q$	$\neg p \to q$	$(p \to q) \land (\neg p \to q)$
T	T	F	T	T	T
T	F	F	F	T	F
F	T	T	T	T	T
F	F	T	T	F	F

e) $(p \leftrightarrow q) \lor (\neg p \leftrightarrow q)$

p	q	$\neg p$	$p \leftrightarrow q$	$\neg p \leftrightarrow q$	$(p \leftrightarrow q) \lor (\neg p \leftrightarrow q)$
T	T	F	T	F	T
T	F	F	F	T	T
F	T	T	F	T	T
F	F	T	T	F	T

1) $(\neg P \leftrightarrow \neg q) \leftrightarrow (P \leftrightarrow q)$

¬q	¬P	q	P	¬P↔¬q	P↔q	(¬P↔¬q)↔(P↔q)	
F	F	T	T	T	T	T	
F	T	T	F	F	F	T	
T	F	F	T	F	F	T	
T	T	F	F	T	T	T	

Construct a truth table for each of this compound proposition.

$(P \lor q) \lor r$ 32

P	q	r	P∨q	(P∨q)∨r	
T	T	T	T	T	
F	T	T	T	T	
T	F	T	T	T	
F	F	T	F	T	
T	T	F	T	T	
F	T	F	T	T	
T	F	F	T	T	
F	F	F	F	F	

Gracy

b) $(P \lor q) \land r$

P	q	r	P∨q	(P∨q)∧r
T	T	T	T	T
F	T	T	T	T
T	F	T	T	T
F	F	T	F	F
T	T	F	T	F
F	T	F	T	F.
T	F	F	T	F
F	F	F	F	F

29(c) $(P \leftrightarrow q) \oplus (\neg P \leftrightarrow \neg r)$

P	q	r	¬P	¬r	P↔q	¬P↔¬r	(P↔q)⊕(¬P↔¬r)
T	T	T	F	F	T	T	F
T	T	F	F	T	T	F	T
T	F	T	F	F	F	T	T
T	F	F	F	T	F	F	F
F	T	T	T	F	F	F	F
F	T	F	T	T	F	T	T
F	F	T	T	F	T	F	T
F	F	F	T	T	T	T	F