

# Assignment 1.1

CSE 103

Discrete Mathematics

ID : 1705066

Ataf Fazledin Ahamed

Problem :- 36

# Problem #36

#1705066

(a) Truth Table for  $(p \vee q) \vee r$

$p$	$q$	$r$	$(p \vee q)$	$(p \vee q) \vee r$
F	F	F	F	F
F	F	T	F	T
F	T	F	T	T
F	T	T	T	T
T	F	F	T	T
T	F	T	T	T
T	T	F	T	T
T	T	T	T	T

(b) Truth Table for  $(p \vee q) \wedge r$

$p$	$q$	$r$	$(p \vee q)$	$(p \vee q) \wedge r$
F	F	F	F	F
F	F	T	F	F
F	T	F	T	F
F	T	T	T	T
T	F	F	T	F
T	F	T	T	T
T	T	F	T	F
T	T	T	T	T

© Truth Table for  $(p \wedge q) \vee r$ .

$p$	$q$	$r$	$(p \wedge q)$	$(p \wedge q) \vee r$
F	F	F	F	F
F	F	T	F	T
F	T	F	F	F
F	T	T	F	T
T	F	F	F	F
T	F	T	F	T
T	T	F	T	T
T	T	T	T	T

© Truth Table for  $(p \wedge q) \wedge r$

$p$	$q$	$r$	$(p \wedge q)$	$(p \wedge q) \wedge r$
F	F	F	F	F
F	F	T	F	F
F	T	F	F	F
F	T	T	F	F
T	F	F	F	F
T	F	T	F	F
T	T	F	T	F
T	T	T	T	T

② Truth Table for  $(p \vee q) \wedge \neg r$

p	q	r	$\neg r$	$(p \vee q)$	$(p \vee q) \wedge \neg r$
F	F	F	T	F	F
F	F	T	F	F	F
F	T	F	T	T	T
F	T	T	F	T	F
T	F	F	T	T	T
T	F	T	F	T	F
T	T	F	T	T	T
T	T	T	F	T	F

⑤ Truth Table for  $(p \wedge q) \vee \neg r$

p	q	r	$\neg r$	$(p \wedge q)$	$(p \wedge q) \vee \neg r$
F	F	F	T	F	T
F	F	T	F	F	F
F	T	F	T	F	T
F	T	T	F	F	F
T	F	F	T	F	T
T	F	T	F	F	F
T	T	F	T	T	T
T	T	T	F	T	T