

NAME -

Wasef ullah

Id NO

15391

Degree

B.S (Computer science)

Paper

Discrete structure

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QUESTION - No - 1

PART : 'A'

ANSWER:-

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

Hence it is not a tautology.

ANSWER :-

P	q	$(P \wedge q)$	$\neg P$	$\neg q$	$(P \wedge \neg q)$	$(\neg P \vee (P \wedge \neg q))$	$(P \wedge q) \vee (\neg P \vee (P \wedge \neg q))$
T	T	T	F	F	F	F	T
T	F	F	F	T	T	T	T
F	T	F	T	F	F	T	T
F	F	F	T	T	F	T	T

Hence it is a tautology.

PART 'B' :-

ANSWER:-

Express in proposition.

1:- $P \rightarrow q$

2:- $\neg q \rightarrow r$

3:- $(\neg p \wedge \neg q) \rightarrow r$:

ANS:-

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QUESTION - NO - 2

PART : 'A'

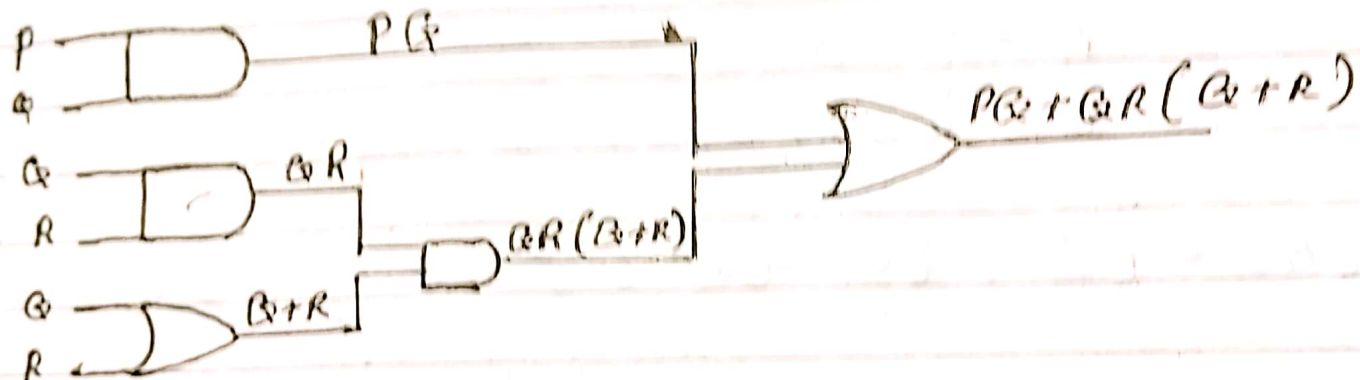
ANS:-

P	q	$(P \rightarrow q)$	$(P \rightarrow q) \wedge q$	$[(P \rightarrow q) \wedge q] \rightarrow \neg q$
T	T	T	T	T
T	F	F	F	T
F	T	T	T	F
F	F	T	F	T

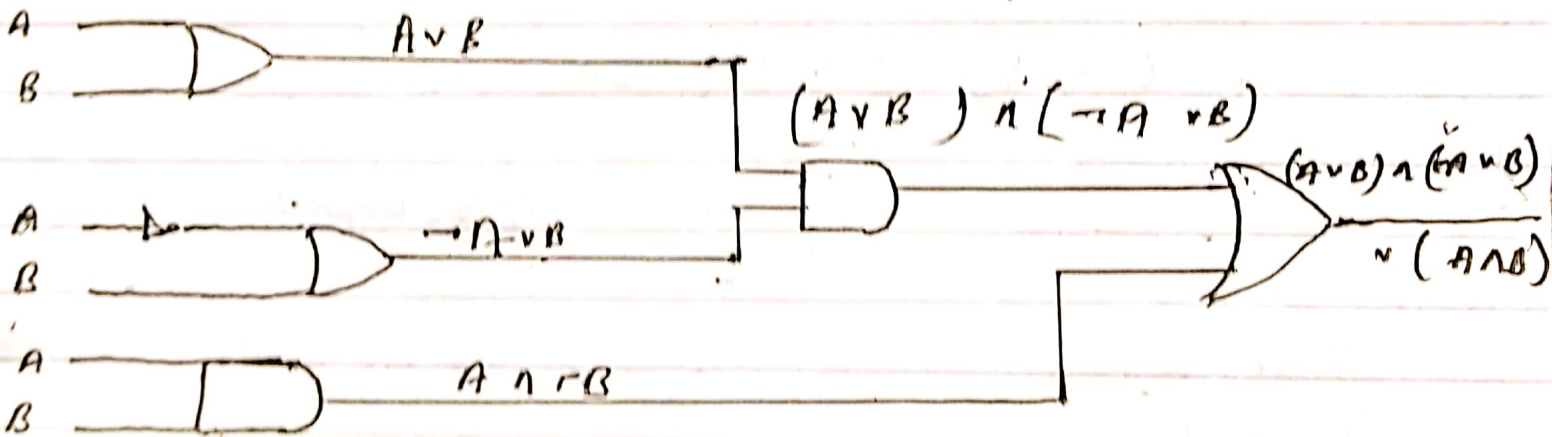
Since it's this the argument as a single statement is not always true we could say the argument is invalid so that is really the conclusion the question was whether or not the argument is valid or not the answer is INVALID.

PART 'B' :-

1:- $PQ + QR(Q+R)$



2:- $(A \vee B) (\neg A \vee B) \vee (A \wedge \neg B)$



QUESTION - No - 3

PART : A

$$A = \{ a, b, c \}$$

$$B = \{ 1, 2, 3, 4 \}$$

$$P(A) = \{ \emptyset, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, \{a, b, c\} \}$$

$$P(B) = \{ \emptyset, \{1\}, \{2\}, \{3\}, \{4\}, \{1, 2\}, \{2, 3\}, \{3, 4\}, \{1, 2, 3\}, \{2, 3, 4\}, \{1, 2, 3, 4\} \}$$

ANSWER :

PART 'B' :-

ANSWER :-

1: Tabular Form :-

Listing all the elements of a set, separated by commas and enclosed within braces or curly brackets {}.

EXAMPLE:-

$A = \{ 1, 2, 3, 4, 5 \}$ is the set of first five Natural Numbers.

$B = \{ 2, 4, 6, 8, \dots, 50 \}$ is the set of Even Number up to 50.

2: Descriptive form :-

the elements of a set. ^{stating} in words.

EXAMPLE:-

$A = \{ \}$ set of first five Natural Numbers.

$B = \{ \}$ set of positive even integers less or equal to fifty.

3: SET BUILDER FORM:-

symbolic form the ^{Writing} common characteristics shared by all the elements of the set.

EXAMPLE:-

$$A = \{ x \in \mathbb{N} \mid x \leq 5 \}$$

$$B = \{ x \in \mathbb{E} \mid 0 < x \leq 50 \}$$

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