T2 G1 20 Jan 2022

20 January 2022 15:05

③ Negation:- (Not, A' or $\bar{A}$)

Given any proposition p, the Negation of p is denoted by

$\sim p$ or $\neg p$

"It is not the case that p"

or

"It is false that p"

p :→ Paris is in France.

$\sim p$:→ It is not the case that Paris is in France ✓

It is false that Paris is in France ✓

or

Paris is not in France. ✓

p :→ $2+2=7$

$\sim p$:→ $2+2 \neq 7$.

Truth table for Negation

p	$\sim p$
T	F
F	T

only brave wins the race

18) If the statement 'None but the brave wins the race' is false which of the following statements can be claimed to be true?

Select the correct code:

(A) All brave persons win the race. ✗

(B) Some persons who win the race are not brave. ✓ True

(C) Some persons who win the race are brave. ✗

(D) No person who wins the race is brave. ✗

④ Conditional proposition :→ (If then) If p then q

④ **Conditional proposition :-** (If then) (if)

Let p and q be two propositions. Then the Conditional proposition between p and q is denoted by $q \to p$

$p \to q$

If p then q

ⓐ If Gufoor learn discrete mathematics then he will find a good job.

p q

ⓑ If it is Sunny then we will go outside.

F q

Truth table for Conditional proposition

p	q	p → q
T	T	T
T	F	F
F	T	T
F	F	T

Determine which conditional statement is false.

(a) If 1 + 1 = 2, then 2 + 2 = 5. → T F → False

b) If 1 + 1 = 3, then 2 + 2 = 4. → F → True

c) If 1 + 1 = 3, then 2 + 2 = 5. → F → True

d) If monkeys can fly, then 1 + 1 = 3. → F → True

⑤ **Biconditional proposition :-** (If and only if)

Let p and q be two propositions. The biconditional proposition is denoted by

denoted by

$$p \leftrightarrow q$$

p if and only if q.

(a) you can take the flight (p) if and only if (↔) you buy a ticket (q)

(b) $1+1=2$ (p) if and only if (↔) $2+2=4$ (q)

Truth table for Biconditional proposition

p	q	$p \leftrightarrow q$
T	T	T
T	F	F
F	T	F
F	F	T

∝ OR (+) ∝ and (×) ∝ NOT ∝ ∝

p	q	$p \vee q$	$p \wedge q$	$\sim q$	$p \rightarrow q$	$p \leftrightarrow q$
T	T	T	T	F	T	T
T	F	T	F	T	F	F
F	T	T	F	F	T	F
F	F	F	F	T	T	T

If the truth value of A v B is true, then truth value of ~A ∧ B can be

a) True if A is false
b) False if A is false
c) False if B is true and A is false
d) None of the mentioned

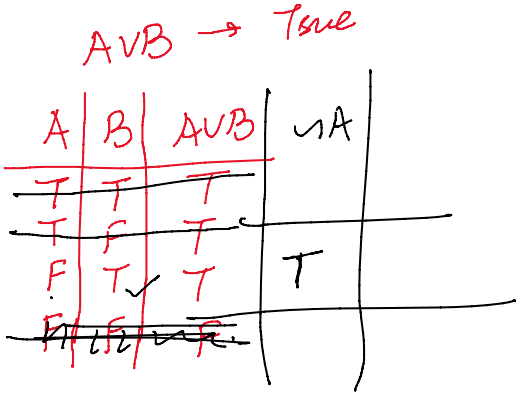
If the truth value of A v B is true, then truth value of ~A ∧ B can be

a) True if A is false

b) False if A is false

c) False if B is true and A is false

d) None of the mentioned



¬A ∧ B

T ∧ T = T