

B 20- Inequality



Introduction

Some of you might be thinking that it is such a simple topic just because they have studied it earlier but this article is for those who find this topic tedious and time taking. If you take extra time to solve the inequality question then you surely need to read this article. A concept already told by many but today we will not only learn it but we will work together.

First of all let's brush up our concepts. Just give 5 minutes to read the following golden points which we'll learn with the help of example:

Statement : $A > B = C \geq D < E = F \geq G \leq H$

Conclusion :

1. $A > D$
2. $A > E$ 5 $A > D$
3. $E \geq H$

4. $A=D$

Solution:

Conclusion (1.) is correct.

Reason- Priority order

HIGHEST PRIORITY		LOWEST PRIORITY
$>$ (greater than) Or $<$ (smaller than)	\geq (greater than or equal to) Or \leq (smaller than or equal to)	$=$ (equal to)

If you find all the three symbols or either two of them choose according to priority.

$A > B = C \geq D$	$B = C \geq D$
Here priority will be given to $>$ so the conclusion will be: $A > B$	Here priority will be given to \geq so the conclusion will be: $B \geq D$

Conclusions (2.) And (3.) are incorrect

Reason- when there is head on collision between ($>$ and $<$) or (\geq and \leq) then the conclusion is wrong.

$A > B = C \geq D < E$	$E = F \geq G \leq H$
Here we have $>$ and $<$ at the same time so conclusion $A > E$ will be incorrect.	Here we have \geq and \leq at the same time so conclusion $E \geq H$ is incorrect.

Conclusion (4.) and (5.) are incorrect but the answer will be either or

Reason- conditions for either or

- Conclusions should be incorrect.
- Should have same variables.
- The symbol should be ($< \& =$) or ($> \& =$) or ($< \& \geq$) or ($>$ or \leq).
- If none of the above rules applies then the answer is neither nor.

Let's work together. Try to solve the questions, first some simple one to understand the concept and then some typical one.

TYPE 1

In each of the following questions assuming the given statements to be true, find out which of the two conclusions I and II given below them is/ are definitely true. Give answer—

- (1) *If only conclusion I is true.*
- (2) *If only conclusion II is true.*
- (3) *If either conclusion I or conclusion II is true.*
- (4) *If neither conclusion I nor conclusion II is true.*
- (5) *If both conclusions I and II are true*

Ques 1.

Statement: $W \geq D < M < P < A = F$

Conclusion :

- I. $F > D$
- II. $P < W$

Answer (1): If only conclusion I is true.

Ques 2.

Statement: $H \geq M > F < A = B > S$

Conclusion:

I. $H > B$

II. $F < S$

Answer (4): If neither conclusion I nor conclusion II is true.

Ques 3.

Statement: $B > T > Q > R = F$

Conclusion:

I. $Q \geq F$

II. $T > F$

Answer (2): If only conclusion II is true.

Ques 4.

Statement: $A > B; B \geq C = D < E$

Conclusion:

I. $C < A$

II. $D \leq B$

Answer (5): If both conclusions I and II are true

Ques 5.

Statement: $L > U \geq K; Z < U < R$

Conclusion:

I. $L > Z$

II. $K < R$

Answer (5): If both conclusions I and II are true

Ques 6

Statement: $F \leq X < A; R < X \leq E$

Conclusion :

I. $F \leq E$

II. $R < F$

Answer: If only conclusion I is true

Ques 6.

Statement: $R = Q \leq I \geq M = E; I < Z$

Conclusion:

I. $Z > R$

II. $E < Z$

Answer (5): If both conclusions I and II are true

Ques 7.

Statement: $S < H = O \geq U > T \leq D$

Conclusion:

I. $S > T$

II. $D \leq O$

Answer (4): If neither conclusion I nor conclusion II is true

Ques 8.

Statement: $R \geq T < M = Z; C > T \geq B$

Conclusion:

I. $Z > C$

II. $B < Z$

Answer (2): If only conclusion II is true.

Ques 9.

Statement: $M \geq O \geq L \geq T = E \geq D$

Conclusion:

I. $D \leq O$

II. $M \geq E$

Answer (5): If both conclusions I and II are true

Ques 10.

Statement: $B > C = D \geq X; E \leq X; Z \geq D$

Conclusion :

I. $B > E$

II. $Z \geq B$

Answer (1): If only conclusion I is true

TYPE 2

Ques 1. Which of the following expressions will be true if the given expression ' $A > B \geq C < D < E$ ' is definitely true?

1. $A \geq C$

2. $E > C$

3. $D \geq B$

4. $A > D$
5. None is true

Ques 2. In which of the following expressions will the expressions ' $D \geq B$ ' as well as ' $C > F$ ' be definitely true?

1. $A \geq B \geq C > D = F$
2. $A < B \leq C = D > F$
3. $A < B \leq C \leq D > F$
4. $A < B \geq C = D > F$
5. None of these

Ques 3. Which of the following symbols should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expression in such a manner that makes the expressions ' $B > N$ ' as well as ' $D \leq L$ ' definitely true?

B _ L _ O _ N _ D

1. =, =, \geq , \geq
2. $>$, \geq , =, $>$
3. $>$, $<$, =, \leq
4. $>$, =, =, \geq
5. $>$, =, \geq , $>$

Ques 4. In which of the following expressions will the expression ' $P > S$ ' be definitely false?

1. $P > Q \geq R = S$
2. $S \leq R \leq Q < P$
3. $R = P > Q \geq S$
4. $S > Q \geq R < P$
5. $S < Q \leq R < P$

Answers

Ans 1. 2. $E > C$

Ans 2. 2. $A < B \leq C = D > F$

Ans 3. 3. $>$, $<$, =, \leq

Ans 4. 4. $S > Q \geq R < P$



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