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INEQUALITIES QUIZ 1

Directions: In these questions, relationship between different elements is shown in the statements. The statements are followed by two conclusions. Choose the correct answer for inequality given below:

1. **Statements:**  
   \[ H = I < J, \quad I = K > L \geq M, \quad L > F \leq S < T \]

   **Conclusions:**  
   I. \( H > M \)  
   II. \( K > S \)

   A. Only conclusion I follows.  
   B. Only conclusion II follows.  
   C. Both conclusions follow.  
   D. Either conclusion I or conclusion II follows.  
   E. Neither of the conclusions follows.

2. **Statements:**  
   \[ A > B \geq C = D, \quad C < E = F > G \geq H, \quad F < K \leq L \]

   **Conclusions:**  
   I. \( C \leq L \)  
   II. \( D < E \)

   A. Only conclusion I follows.  
   B. Only conclusion II follows.  
   C. Both conclusions follow.  
   D. Either conclusion I or conclusion II follows.  
   E. Neither of the conclusions follows.
3. **Statements:** A = B \leq X \leq Y, \quad P \geq X = Z, \quad X \leq N < O > P

**Conclusions:**

I. P > B  
II. P = B

A. Only conclusion I follows.
B. Only conclusion II follows.
C. Both conclusions follow.
D. Either conclusion I or conclusion II follows.
E. Neither of the conclusions follows.

4. **Statements:** L = P \leq M \leq V \leq A, \quad Q \geq R = N > P

**Conclusions:**

I. Q > L  
II. N \leq A

A. None follows.
B. Only Conclusion I follows.
C. Either Conclusion I or Conclusion II follows.
D. Only Conclusion I follows.
E. Both Conclusion I and Conclusion II follow.

5. **Statements:** S \leq D > Q > V; \quad M \leq N < Q = W

**Conclusions:**

I. D \geq M  
II. N < D

A. Only Conclusion I follows
B. Neither Conclusion I nor Conclusion II follows
C. Only Conclusion II follows
D. Either Conclusion I or Conclusion II follows
E. Both Conclusion I and Conclusion II follow
6. **Statements:** \( E \geq G = V \leq Q \leq X = L, \quad M < V \geq Z \geq A \geq C \)

**Conclusions:**

I. \( C \leq X \)  
II. \( E \geq A \)

A. Neither Conclusion I nor Conclusion II follows.
B. Either Conclusion I or Conclusion II follows.
C. Both Conclusion I and Conclusion II follow.
D. Only Conclusion I follows.
E. Only Conclusion II follows.

7. **Statements:** \( M = N \leq O \leq P, \quad O \geq R > S = T \)

**Conclusions:**

I. \( N > T \)  
II. \( P > T \)

A. Only conclusion I follows
B. Only conclusion II follows
C. Either conclusion I or conclusion II follows.
D. Both the conclusion follow
E. None of the conclusions follows.

8. **Statements:** \( S > T \geq U = V, \quad U \geq W = X \geq Y \)

**Conclusions:**

I. \( T > Y \)  
II. \( T = Y \)

A. Only conclusion I follows
B. Only conclusion II follows
C. Either conclusion I or conclusion II follows.
D. Both the conclusion follow
E. None of the conclusions follows.
9. **Statements:** \( U = V < W, \ V \geq S = T, \ S < Y \leq Z \)

**Conclusions:**

I. \( W > T \)  
II. \( T < Y \)

A. Conclusion I follows  
B. Conclusion II follows  
C. Both the conclusions I and II follow  
D. Either conclusion I or II follows  
E. None of the conclusions follows.

10. **Statements:** \( A \geq B \geq C, \ B \geq E < F, \ E > G = H \)

**Conclusions:**

I. \( A > E \)  
II. \( A = E \)

A. Conclusion I follows  
B. Conclusion II follows  
C. Both the conclusions I and II follow  
D. Either conclusion I or II follows  
E. None of the conclusions follows.
CORRECT ANSWERS:-

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EXPLANATIONS:-

1.

Only conclusion I follows.

Option A, is hence the correct answer.

Common explanation:

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion. Whenever there are two or more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

Priority Order:
1.  > and <
2.  ≥ and ≤
3.  =

For conclusion I: H > M

Combining statements I and II:

H = I = K > L ≥ M

As, “>”, is the highest priority sign in the combination so, “H > M”, is the true relation between H and M.

Hence, Conclusion I follows.
For conclusion II: $K > S$

Combining statements II and III:

$K > L > F \leq S$

As, sign between “$K$” and “$S$” are in different direction so, this conclusion does not follow.

2.

Only conclusion II follows.

Option B, is hence the correct answer.

**Common explanation:**

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion. Whenever there are two or more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

**Priority Order:**

1. $>$ and $<$
2. $\geq$ and $\leq$
3. $=$

For conclusion I: $C \leq L$

Combining statements II and III:

$C < E = F < K \leq L$

As, “$<$”, is having highest priority, therefore, this conclusion does not follow.
For conclusion II: D < E

Combining statements I and II

E > C = D

As, “<”, is having highest priority, so the conclusion follows.

3.

Either conclusion I or conclusion II follows.

Option D, is hence the correct answer.

Common explanation:

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion. Whenever there are two or more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

Priority Order:
1. > and <
2. ≥ and ≤
3. =

For conclusion I: P > B

Combining statements I and II:

B ≤ X ≤ P

So, P > B, does not follow.

For conclusion II: P = B
Combining statements I and II:

\[ B \leq X \leq P \]

So, \( P = B \), does not follow.

Now, we can see that:

Both the objects of conclusions I and II are same i.e. ‘P’ and ‘B’.
Both the conclusions I and II are wrong.
On combining both the relations we get the actual relation i.e. \( P \geq B \)

So,

Either conclusion I or conclusion II follows.

4.

Given Statements: \( X = S \leq T \leq W \leq A \), \( Q \geq C = E > S \)

Conclusions: I. \( Q > X \)   II. \( E \leq A \)

For Conclusion I, combining both the equations, we get

\[ Q \geq C = E > S = X \leq T \leq W \leq A \] \[ (i) \]

We can observe that between \( Q \) and \( X \), the common sign of inequality is of ‘>’ which confirms \( Q > X \) which is given as conclusion I.

For Conclusion II,

We can observe that between \( E \) and \( A \) the signs are getting reversed and hence we can't derive a definite conclusion between these two elements. Conclusion II, hence, doesn't follow.

Option D is hence the correct answer.
5.

**Statements:** \( S \leq D > Q > V; \quad M \leq N < Q = W \)

**Conclusions:** I. \( D \geq M \)  \quad II. \( N < D \)

Combining eq (i) and (ii) for the relation between \( B \) and \( L \) & \( K \) and \( B \), we get

\( D > Q > N \geq M \) and

\( N < Q < D \)

Common sign between \( D \) and \( M \) is of '>'. Thus, the given conclusion \( D \geq M \) is not valid.

Now, common sign between \( N \) and \( D \) (moving from \( N \) to \( D \)) is '<' and the given conclusion is \( N < D \). Hence Conclusion II follows.

Option C is hence the correct answer.

6.

**Statements:** \( E \geq G = V \leq Q \leq X = L, \quad M < V \geq Z \geq A \geq C \)

**Conclusions:** I. \( C \leq X \)  \quad II. \( E \geq A \)

Combining both the equations for the conclusions we get,

\( C \leq A \leq Z \leq V \leq Q \leq X \) \quad ................. (i) and

\( E \geq G = V \geq Z \geq A \) \quad ................. (ii)

From (i), between \( C \) and \( X \) the common sign of inequalities between \( C \) and \( X \) is '<'. Therefore, \( C \leq X \) is true. Conclusion I, hence, follows.

Now, between \( E \) and \( A \) the common sign of inequalities is '>'. Therefore, \( E \geq A \) is true as well.

Hence, Conclusion II follows as well.
Option C is hence the correct answer.

7.

Correct Option: B

Only conclusion II follows.

Option B, is hence the correct answer.

**Common explanation:**

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion. Whenever there are two or more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

**Priority Order:**

1. $>$ and $<$
2. $\geq$ and $\leq$
3. $=$

**For conclusion I: $N > T$**

Combining statement I and II:

$N \leq O \geq R > S = T$

As, the signs between $N$ and $T$ are in opposite direction, hence the relation cannot be concluded.

**Hence, the conclusion does not follow.**

**For conclusion II: $P > T$**
Combining statement I and II:

\[ P \geq O > R > S = T \]

As, “\(>\)” is having highest priority in all the signs present here, so \(P > T\) is the true relation.

**Hence, the conclusion follows.**

Only conclusion II follows

8.

Either conclusion I or conclusion II follows.

Option C, is hence the correct answer.

**Common explanation:**

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion. Whenever there are two or more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

**Priority Order:**
1. \(>\) and \(<\)
2. \(\geq\) and \(\leq\)
3. \(=\)

**For conclusion I: \(T > Y\)**

Combining statement I and II:

\[ T \geq U \geq W = X \geq Y \]
As, “ ≥” sign is having the highest priority here in all the signs, so,

\( T \geq Y \) is the actual relation.

Hence, the conclusion does not follow

**For conclusion II: \( T = Y \)**

Combining statement I and II:

\( T \geq U \geq W = X \geq Y \)

As, “ ≥” sign is having the highest priority here in all the signs, so,

\( T \geq Y \) is the actual relation.

Hence, the conclusion does not follow

**Now, we can see that:**

Both the objects of conclusions I and II are same i.e. ‘T’ and ‘Y’.

Both the conclusions I and II are wrong.

On combining both the relations we get the actual relation i.e. \( T \geq Y \)

So,

Either conclusion I or conclusion II follows.

9.

Both the conclusions I and II follow.

Option C, is hence the correct answer.

**Common explanation:**

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion.
Whenever there are two or more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

**Priority Order:**
1. > and <
2. ≥ and ≤
3. =

**For conclusion I:** $W > T$

Combining I and II:

$W > V ≥ S = T$

As, “>” is highest prior sigh here, so, the conclusion follows.

**For conclusion II:** $T < Y$

Combining statement II and III:

$T = S < Y$

As, “<” is highest prior sigh here, so, the conclusion follows.

10.

Either conclusion I or conclusion II follows.

Option D, is hence the correct answer.

**Common explanation:**

There is a priority order of the symbols according to which the priority of the symbol is decided to reach the conclusion. Whenever there are two or
more type of symbols are there between two objects whose relation is to be determine we have to use this order.

If the direction of sign is opposite between that two objects, no relation can be stated perfectly and we have to say that it does not follow.

**Priority Order:**
1. > and <
2. ≥ and ≤
3. =

**For conclusion I:** A > E
Combining statement I and II:

A ≥ B ≥ E

So, A ≥ E, hence this conclusion does not follows.

**For conclusion II:** A = E
Combining statement I and II:

A ≥ B ≥ E

So, A ≥ E, hence this conclusion does not follows.

**Now, we can see that:**
Both the objects of conclusions I and II are same i.e. ‘A’ and ‘E’.I
Both the conclusions I and II are wrong.
On combining both the relations we get the actual relation i.e. A ≥ E

So,
Either conclusion I or conclusion II follows.
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