

Ch 9 CODED INEQUALITIES

ANSWERS AND EXPLANATIONS

1. (c) $M = K$ (i);
 $D \leq K$ (ii);
 $R < K$ (iii)
 From (i) and (ii), we get
 $M = K \geq D \Rightarrow M \geq D$
 Hence, either $M > D$ (conclusion II) or $M = D$ (conclusion I) is true
2. (d) $F \leq M$... (i); $M > R$... (ii); $E \geq F$... (iii)
 From (i) and (iii), no specific relation can be obtained between M and E . Similarly, no specific relation can be obtained between R and E .
3. (e) $H = K$... (i); $T < H$... (ii),
 $W \leq T$... (iii)
 From (i), (ii) and (iii), we get
 $K = H > T \geq W \Rightarrow K > W$ (conclusion I) and
 $T < K$ (conclusion II).
4. (b) $N > A$... (i), $A < L$... (ii), $F = N$... (iii)
 From (i) and (iii), we get
 $F = N > A \Rightarrow F > A$ (conclusion II). But no specific relation can be obtained between L and F . Hence, conclusion I is not necessarily true.
5. (b) $B \leq D$... (i); $D = M$... (ii);
 $F > M$... (iii)
 From (i), (ii) and (iii), we get
 $F > M = D \geq B \Rightarrow B \leq M$ and $F > B$ (conclusion II).
 Since, $B \leq M$, therefore, conclusion I is not necessarily true.
6. (e) $P \neq Q$... (i), $Q > R$... (ii), $P = R$... (iii)
 From (ii) and (iii), we get $Q > R = P \Rightarrow Q > P$.
 Hence, both I and II are true.
7. (a) $A = B$... (i), $B \neq C$... (ii), $C < A$... (iii) From (iii), conclusion I is true. II contradicts statement (ii), hence, it is not true.
8. (d) $Y \geq Z$... (i), $Z > Q$... (ii), $Q \neq P$... (iii)
 From (i) and (ii), we get $Y > Z > Q \Rightarrow Y > Q$... (A)
 Hence, I is not true. From (iii), two possible relationships between P and Q are;
Case I: When $P > Q$
 Now, using (A), we get $Y > Q < P \Rightarrow$ no conclusion.
Case II: When $Q > P$
 using (A), we get $Y > Q > P \Rightarrow Y > P$. Hence, II is not true.
9. (b) $E > F$... (i), $F > L$... (ii), $L = N$... (iii)
 From (ii) and (iii), we get $F > L = N \Rightarrow F > N$ or $N < F$.
 Hence, I may be true but not necessarily so.
 From (i) and (ii), we get $E > F \geq L \Rightarrow E > L$
 Hence, II is true.
10. (d) $H \geq J$... (i), $J < K$... (ii), $K > M$... (iii)
 From (ii) and (iii), we get $J < K > M \Rightarrow$ no relationship between J and M can be established. Hence, II can't be established. Again, combining all we can't conclude the relationship between H and M . Hence, I is not true.
11. (c) $M \geq T$... (i), $T = V$... (ii), $V < E$... (iii)
 From (i) and (ii), we get
 $M \geq T = V \Rightarrow M \geq V \Rightarrow$ either $V = M$ or $V < M$ is true.
12. (d) $L < U$... (i); $U > G$... (ii); $G > S$... (III)
 Combining (ii) and (iii), we get
 $U > G \geq S$... (IV)
 Now, from (i) and (iv), we do not get any specific relation between L and S . Hence, conclusion I ($L > S$) is not true. On a similar basis conclusion II



- ($G < L$) is also not true.
13. (e) $A \leq U$... (i) $U = L$... (ii), $J > L$... (iii)
Combining (i), (ii) and (iii), we get
 $J > U = L \geq A \Rightarrow J > A$ and $J > U$.
Hence, both the conclusions are true.
14. (a) $C \leq S$... (i) $S < D$... (ii); $D > M$... (iii)
Combining (i) and (ii), we get
 $D > S \geq C$... (iv)
From (iv), we get $D > C$. Hence, conclusion I is true. From (iii) and (iv), we do not get any specific relation between S and M . Hence, conclusion II is not true.
15. (c) $Y < G$... (i); $G \geq H$... (ii); $H = R$... (iii)
Combining (ii) and (iii), we get
 $G \geq H = R \Rightarrow R = G$ or $R < G$
Hence, either conclusion I or conclusion II is true.
16. (b) $P \geq Q$... (i), $D > P$... (ii); $S = D$... (iii)
Combining (ii) and (iii), we get
 $S = D > P \Rightarrow S > P$. Hence, conclusion II is true. But I is not true.
17. (b) $Z < N$... (i); $F \geq N$... (ii); $F \leq K$... (iii)
Combining all, we get
 $K \geq F \geq N > Z \Rightarrow K \geq N$ and $K > Z$
Hence, conclusion I ($K = N$) is not necessarily true but conclusion II ($K > Z$) is true.
18. (c) $D = T$... (i); $T \geq M$... (ii); $M < K$... (iii)
Combining (i) and (ii), we get
 $D = T \geq M \Rightarrow D \geq M \Rightarrow D = M$ or $D > M$
Hence, either conclusion I ($M = D$) or conclusion II ($D > M$) is true.
19. (c) $W \geq A$... (i); $B \leq A$... (ii); $B > M$... (iii)
Combining all, we get
 $W \geq A \geq B > M \Rightarrow B \leq W$
 $\Rightarrow B < W$ or $B = W$
Hence, either conclusion I or II is true.
20. (a) $J \leq M$... (i); $M = N$... (ii); $N < T$... (iii)
Combining all, we get
 $J \leq M = N < T \Rightarrow T > J$
- Hence, only conclusion I is true
21. (d) $V \leq F$... (i); $F > R$... (ii); $R \geq G$... (iii)
Combining (ii) and (iii), we get $F > R \geq G$... (iv)
Comparing (i) and (iv), we can't get any specific relationship between G and V . Hence, both conclusions are not true.
22. (d) $B = K$... (i);
 $K < D$... (ii);
 $D > M$... (iii)
From (i) and (ii), we get
 $D > K = B$... (iv)
From (iii) and (iv), no specific relation can be obtained between B and M . Therefore, $B = M$ (Conclusion I) and $B < M$ (Conclusion II) are not necessarily true.
23. (b) $H < N$... (i)
 $N > W$... (ii);
 $W \geq V$... (iii)
From (ii) and (iii), we get
 $N > W \geq V$... (iv)
From (i) and (iv), no specific relation can be obtained between H and V . Hence, $H < V$ (Conclusion I) is not necessarily true. But $V < N$ (Conclusion II) follows from equation (iv).
24. (c) $J \leq D$... (i);
 $Q \geq D$... (ii);
 $Q < M$... (iii)
Combining (i) and (ii), we get
 $Q \geq D \geq J \Rightarrow Q > J$ (Conclusion I) or $Q = J$ (Conclusion II)
Hence, either conclusion I or conclusion II is true.
25. (b) $F \geq G$... (i);
 $N = G$... (ii);
 $N > T$... (iii)
Combining all, we get
 $F \geq G = N > T \Rightarrow N \leq F$ (Conclusion II) and $T < F$
Hence, conclusion I ($T > F$) is not true but conclusion II is true.
26. (a) $M > R$... (i);



