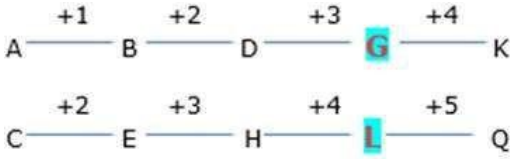
Solutions

Reasoning Ability

1. Ans. A.



Answer is option A

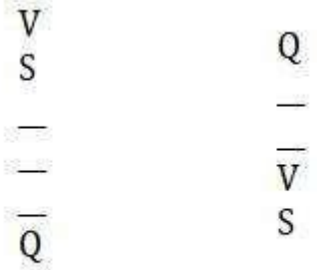
2. Ans. A.

P	R	O	A	C	T	I	V	E
A	C	E	I	O	P	R	T	V

Hence, option A is correct.

3. Ans. B.

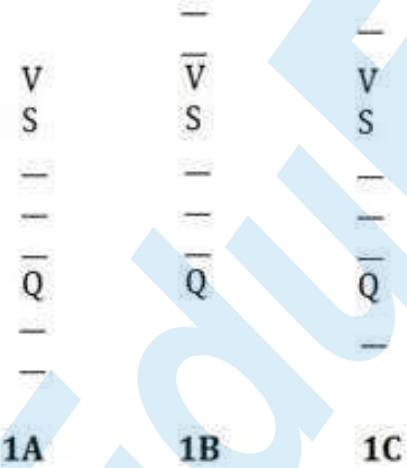
One box is between P and Q.
Three boxes are between Q and S. Box V is immediately above box S.



Case 1 **Case 2**

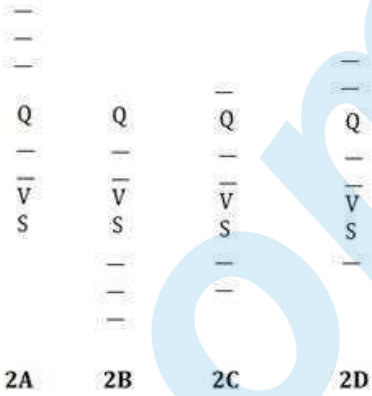
Now we can see that there is no direct information so we have to create diagram for every possibilities.

Case 1 diagram:



1A **1B** **1C**

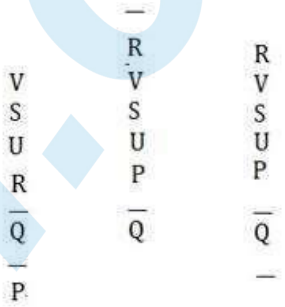
Case 2 diagram:



2A **2B** **2C** **2D**

Take Case 1:

One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P.

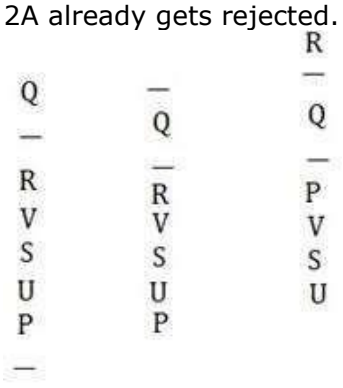


1A **1B** **1C**

There are as many boxes between R and W as W and S. But no diagram is follow this condition so all cases 1 gets rejected.

Take case 2:

One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P. As U is below V so case 2A already gets rejected.



2B **2C** **2D**

There are as many boxes between R and W as W and S. Only case 2D satisfy this condition.

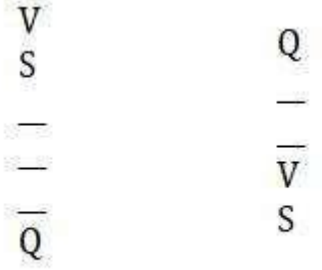
Here is the final arrangement:

R
T
Q
W
P
V
S
U

4. Ans. A.

Box R is at the top position.

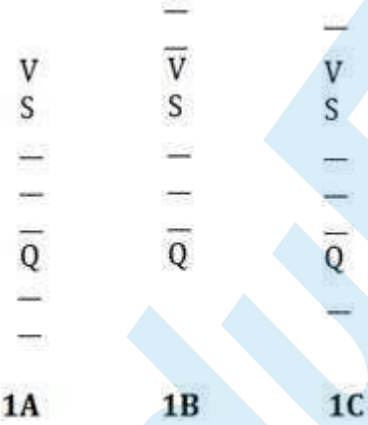
Three boxes are between Q and S. Box V is immediately above box S.



Case 1 **Case 2**

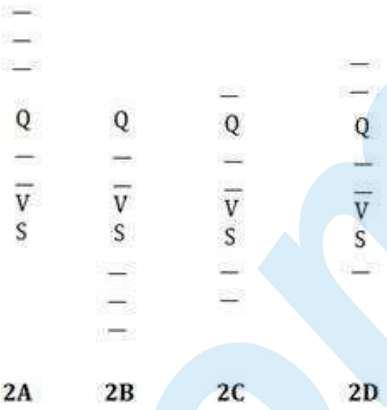
Now we can see that there is no direct information so we have to create diagram for every possibilities.

Case 1 diagram:



1A **1B** **1C**

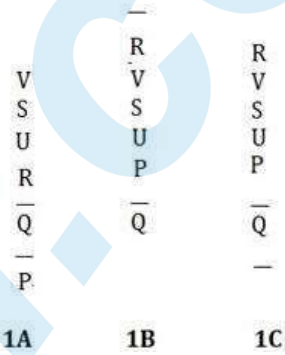
Case 2 diagram:



2A **2B** **2C** **2D**

Take Case 1:

One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P.

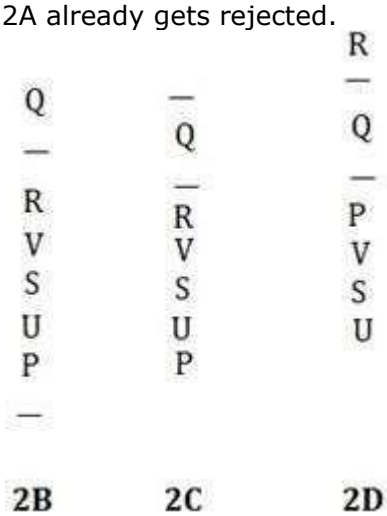


1A **1B** **1C**

There are as many boxes between R and W as W and S. But no diagram is follow this condition so all cases 1 gets rejected.

Take case 2:

One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P. As U is below V so case 2A already gets rejected.



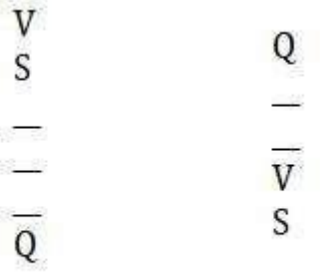
2B **2C** **2D**

There are as many boxes between R and W as W and S. Only case 2D satisfy this condition.

Here is the final arrangement:

R
T
Q
W
P
V
S
U

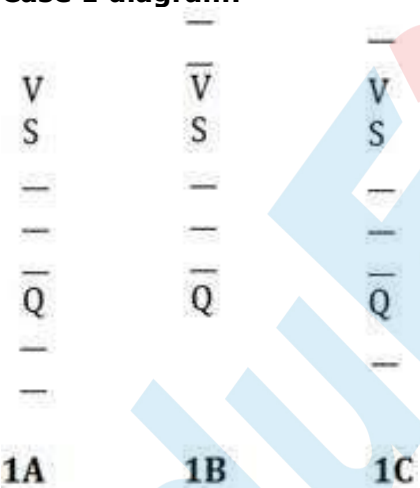
5. Ans. B.
S is at the 2nd last position.
Three boxes are between Q and S. Box V is immediately above box S.



Case 1 **Case 2**

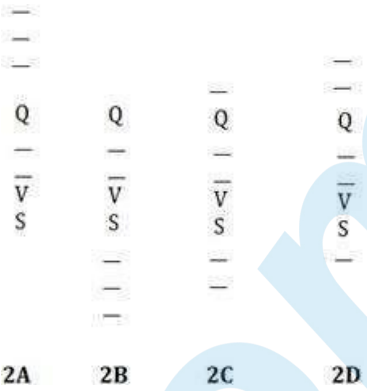
Now we can see that there is no direct information so we have to create diagram for every possibilities.

Case 1 diagram:



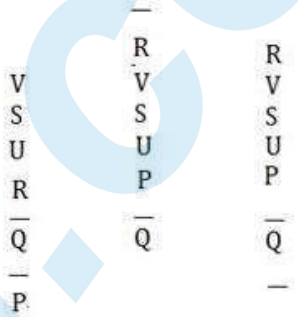
1A **1B** **1C**

Case 2 diagram:



2A **2B** **2C** **2D**

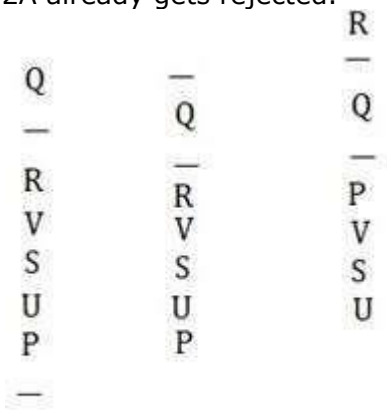
Take Case 1:
One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P.



1A **1B** **1C**

There are as many boxes between R and W as W and S. But no diagram is follow this condition so all cases 1 gets rejected.

Take case 2:
One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P. As U is below V so case 2A already gets rejected.



2B **2C** **2D**

There are as many boxes between R and W as

W and S. Only case 2D satisfy this condition.
Here is the final arrangement:

R
T
Q
W
P
V
S
U

Last but one position - 2nd from the bottom. So, that box is S.

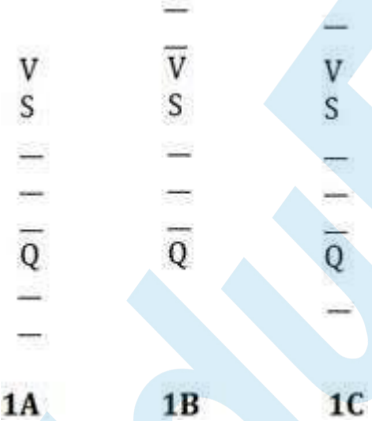
6. Ans. D.
Box T is above box W.
Three boxes are between Q and S. Box V is immediately above box S.

V
S
—
—
—
Q

Q
—
—
V
S

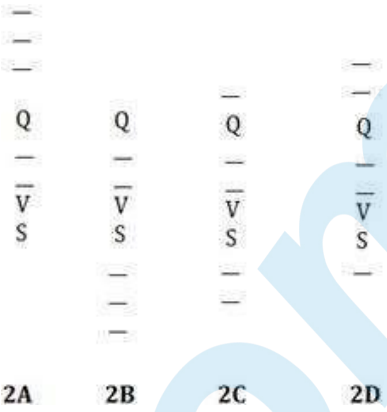
Case 1 **Case 2**

Now we can see that there is no direct information so we have to create diagram for every possibilities.
Case 1 diagram:



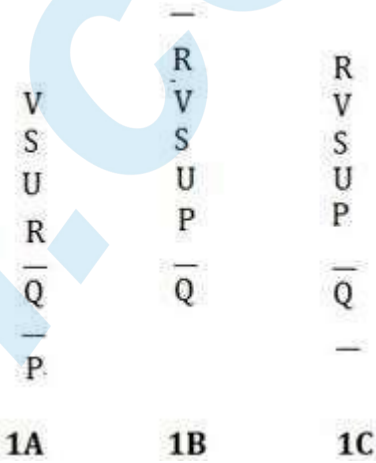
1A **1B** **1C**

Case 2 diagram:



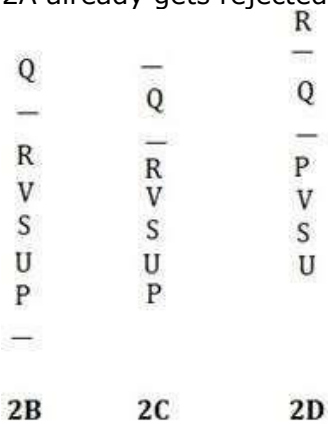
2A **2B** **2C** **2D**

Take Case 1:
One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P.



1A **1B** **1C**

There are as many boxes between R and W as W and S. But no diagram is follow this condition so all cases 1 gets rejected.
Take case 2:
One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P. As U is below V so case 2A already gets rejected.



2B **2C** **2D**

There are as many boxes between R and W as W and S. Only case 2D satisfy this condition.

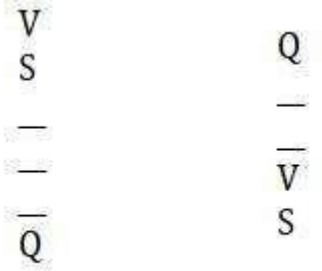
Here is the final arrangement:

R
T
Q
W
P
V
S
U

7. Ans. A.

No box is below U.

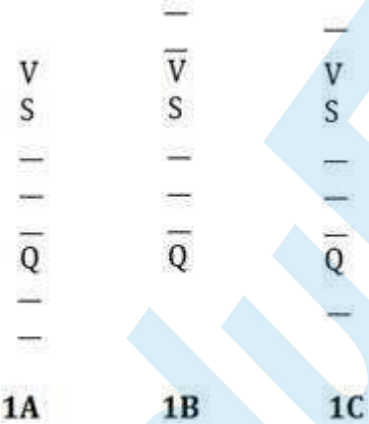
Three boxes are between Q and S. Box V is immediately above box S.



Case 1 **Case 2**

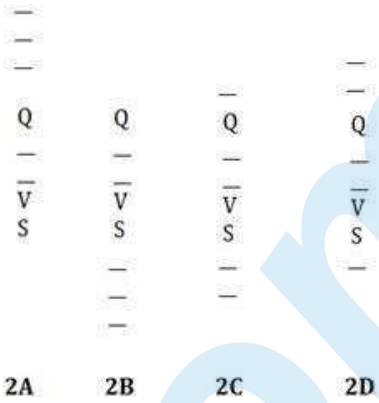
Now we can see that there is no direct information so we have to create diagram for every possibilities.

Case 1 diagram:



1A **1B** **1C**

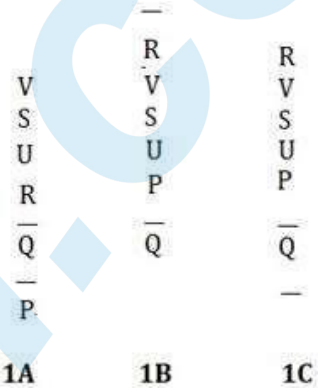
Case 2 diagram:



2A **2B** **2C** **2D**

Take Case 1:

One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P.

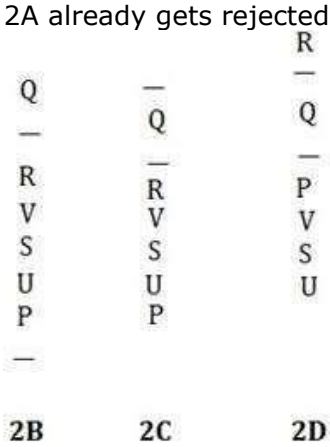


1A **1B** **1C**

There are as many boxes between R and W as W and S. But no diagram is follow this condition so all cases 1 gets rejected.

Take case 2:

One box is kept between V and U. Box U is below box V. 3 boxes are kept between R and P. Box R is above P. As U is below V so case 2A already gets rejected.



2B **2C** **2D**

There are as many boxes between R and W as W and S. Only case 2D satisfy this condition.

Here is the final arrangement:

R
T
Q
W
P
V
S
U

8. Ans. C.
Either conclusion I or conclusion II is true
Explanation:
A ≥ J = N; H > Y > I < S = N
From the statements we have,
A ≥ J = N. So, A ≥ N
Conclusions:
I. A = N
II. A > N
So, I and II are complementary

9. Ans. B.
Only conclusion II is true
Explanation:
U > J ≤ H = S; T ≤ J > F
From the statements we have,
U > J > F. So, U > F.
Also, U > J ≥ T. So, U > T
Conclusions:
I. F ≤ U: it is FALSE
II. U > T: it is TRUE

10. Ans. A.
Only conclusion I is true.
Explanation:
Y > U ≤ H = Q; R ≤ U > M
From the statements we have,
R ≤ U ≤ H = Q. So, R ≤ Q
Also, M < U ≤ H = Q. So, Q > M
Conclusions:
I. R ≤ Q: It is TRUE
II. Q ≥ M: It is FALSE

11. Ans. D.
Neither conclusion I nor conclusion II is true
Explanation:
H < S = L ≥ F > G ≤ Q
From the statements we have,
H < L > G . So, relation between H and G cannot be established.
Also, L > G ≤ W. So, relation between L and W cannot be established.
Conclusions:
I. H > G: It is FALSE
II. W ≤ L: It is FALSE

12. Ans. B.
Statements: T > U ≥ V ≥ W; X < Y = W > Z
After combining both statements:
T > U ≥ V ≥ W=Y >X; W = Y > Z
Conclusions: I. Z > U (not true) {W>Z & W ⇒ U > Z}
II. W < T (true) {U> W & T>U ⇒ T>W}
Therefore only conclusion II is true.

13. Ans. B.
Given number - 8367284
As per the question - 2' is subtracted from each even digit and '1' is added to each odd digit

8 -2 = 6
3 + 1 =4
6 -2 = 4
7 + 1 = 8
2 - 2 = 0
8 - 2 = 6
4 - 2 = 2

New number formed - is 6448062

Only two digits appear twice in the new number thus formed which is 6 & 4.

14. Ans. D.
Before rearranging as descending order:935126
After rearranging as descending order: 965321
9, 5 and 2 are on the same place as before.
So, there are 3 digits

15. Ans. E.

1	2	3	4	5	6	7	8	9	10	11
S	P	O	N	T	A	N	E	O	U	S

Meaningful words = NEST, SENT, NETS, TENS

16. Ans. B.
The code for 'mind' is - dh

The codes are given below -

Intellectual - ga

bright - pa/la

and - la/pa

mind - dh

students - mt

Fresh - ni

Clear - mi

thoughts -pz/ma

in - ma/pz

17. Ans. C.
The code for 'bright and clear' - la pa mi

The codes are given below -

Intellectual - ga

bright - pa/la

and - la/pa

mind - dh

students - mt

Fresh - ni

Clear - mi

thoughts -pz/ma

in - ma/pz

18. Ans. A.
The code 'ni' stand for fresh

The codes are given below -

Intellectual - ga

bright - pa/la

and - la/pa

mind - dh

students - mt

Fresh - ni

Clear - mi

thoughts -pz/ma

in - ma/pz

19. Ans. D.
The code for 'thoughts' is either - pz/ma

The codes are given below -

Intellectual - ga

bright - pa/la

and - la/pa

mind - dh

students - mt

Fresh - ni

Clear - mi

thoughts -pz/ma

in - ma/pz

20. Ans. A.
The code 'ga' stand for - Intellectual

The codes are given below -

Intellectual - ga

bright - pa/la

and - la/pa

mind - dh

students - mt

Fresh - ni

Clear - mi

thoughts -pz/ma

in - ma/pz

21. Ans. B.
R bought car in August.
Case 1: If U bought car in June-
U bought a car in a month which was having 30 days but not in September. So U bought

car either in June or November.

Three persons bought cars between U and T. So T bought car in October. Two persons bought cars between T and Q so Q bought car in July. P bought car one of the months before Q so this case gets rejected.

Month	Person
June(30)	U
July(31)	Q
August(31)	
September(30)	
October(31)	T
November(30)	
December(31)	

Case 2: If U bought car in November-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in July. Two persons bought cars between T and Q so Q bought car in October. Three persons bought cars between Q and P. Two persons bought cars between P and V so V bought car in September. S bought car one of the months after V so S bought car in December and R bought car in August.
Here is the final table:

Month	Person
June(30)	P
July(31)	T
August(31)	R
September(30)	V
October(31)	Q
November(30)	U
December(31)	S

22. Ans. D.
All the persons bought the car in a month which was having 31 days except P
Case 1: If U bought car in June-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in October. Two persons bought cars between T and Q so Q bought car in July. P bought car one of the months before Q so this case gets rejected.

Month	Person
June(30)	U
July(31)	Q
August(31)	
September(30)	
October(31)	T
November(30)	
December(31)	

Case 2: If U bought car in November-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in July. Two persons bought cars between T and Q so Q bought car in October. Three persons bought cars between Q and P. Two persons bought cars between P and V so V bought car in September. S bought car one of the months after V so S bought car in December and R bought car in August.
Here is the final table:

Month	Person
June(30)	P
July(31)	T
August(31)	R
September(30)	V
October(31)	Q
November(30)	U
December(31)	S

23. Ans. A.
Only one person bought car between P and R.
Case 1: If U bought car in June-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in October. Two persons bought cars between T and Q so Q bought car in July. P bought car one of the months before Q so this case gets rejected.

Month	Person
June(30)	U
July(31)	Q
August(31)	
September(30)	
October(31)	T
November(30)	
December(31)	

Case 2: If U bought car in November-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in July. Two persons bought cars between T and Q so Q bought car in October. Three persons bought cars between Q and P. Two persons bought cars between P and V so V bought car in September. S bought car one of the months after V so S bought car in December and R bought car in August.

Here is the final table:

Month	Person
June(30)	P
July(31)	T
August(31)	R
September(30)	V
October(31)	Q
November(30)	U
December(31)	S

24. Ans. E.
None is correct.
Case 1: If U bought car in June-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in October. Two persons bought cars between T and Q so Q bought car in July. P bought car one of the months before Q so this case gets rejected.

Month	Person
June(30)	U
July(31)	Q
August(31)	
September(30)	
October(31)	T
November(30)	
December(31)	

Case 2: If U bought car in November-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in July. Two persons bought cars between T and Q so Q bought car in October. Three persons bought cars between Q and P. Two persons bought cars between P and V so V bought car in September. S bought car one of the months after V so S bought car in December and R bought car in August.

Here is the final table:

Month	Person
June(30)	P
July(31)	T
August(31)	R
September(30)	V
October(31)	Q
November(30)	U
December(31)	S

25. Ans. B.
2 persons bought car after Q.
Case 1: If U bought car in June-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in October. Two persons bought cars between T and Q so Q bought car in July. P bought car one of the months before Q so this case gets rejected.

Month	Person
June(30)	U
July(31)	Q
August(31)	
September(30)	
October(31)	T
November(30)	
December(31)	

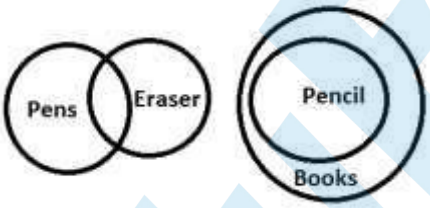
Case 2: If U bought car in November-
U bought a car in a month which was having 30 days but not in September. So U bought car either in June or November.

Three persons bought cars between U and T. So T bought car in July. Two persons bought cars between T and Q so Q bought car in October. Three persons bought cars between Q and P. Two persons bought cars between P and V so V bought car in September. S bought car one of the months after V so S bought car in December and R bought car in August.

Here is the final table:

Month	Person
June(30)	P
July(31)	T
August(31)	R
September(30)	V
October(31)	Q
November(30)	U
December(31)	S

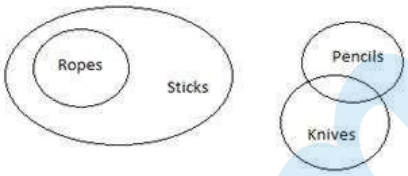
26. Ans. D.



Conclusion I is false

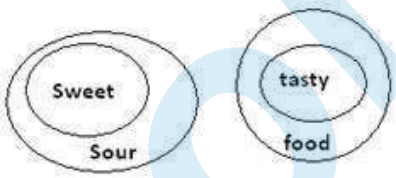
Conclusion II is false

27. Ans. D.

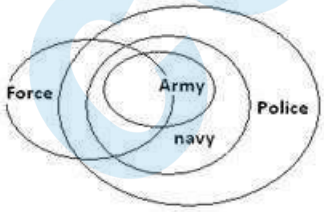


if neither Conclusion I nor II follows.

28. Ans. E.

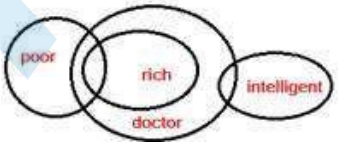


29. Ans. A.



Only **Conclusion** I follows

30. Ans. E.

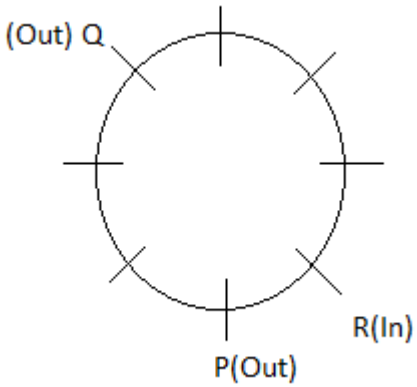


Some intelligent are doctor. So, All intelligent being doctors is a possibility.

31. Ans. C.

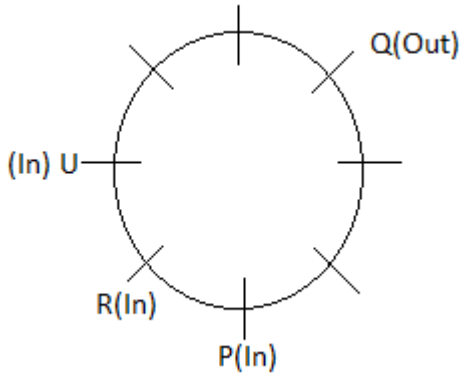
According to first clue, P is either facing inside or outside

Scenario I: P is facing outside

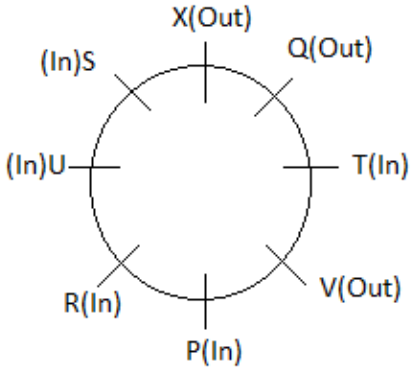


U sits immediate left of R which is not possible in this scenario.

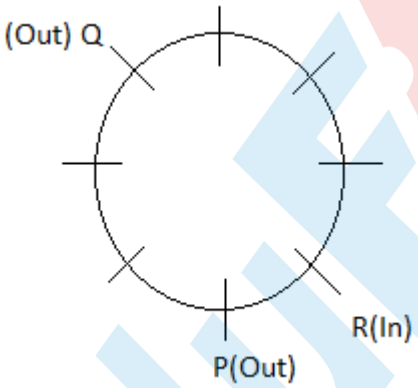
Scenario II: P is facing inside



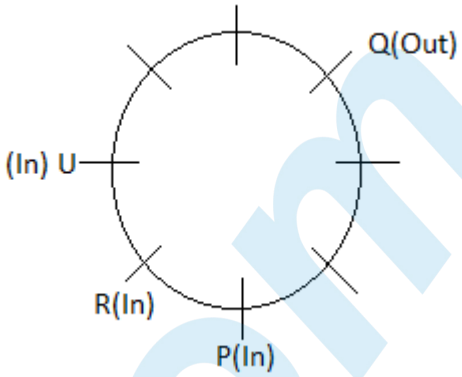
Using the other clues, we get



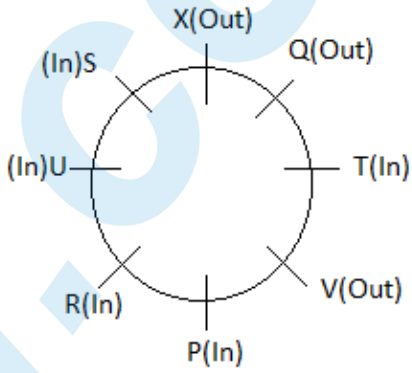
32. Ans. D.
According to first clue, P is either facing inside or outside
Scenario I: P is facing outside



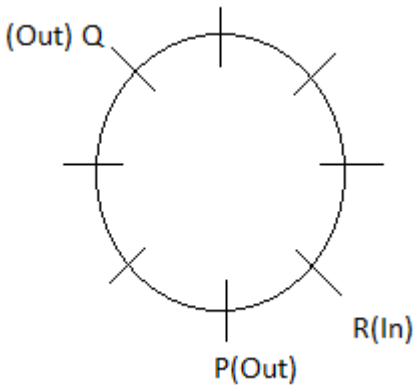
U sits immediate left of R which is not possible in this scenario.
Scenario II: P is facing inside



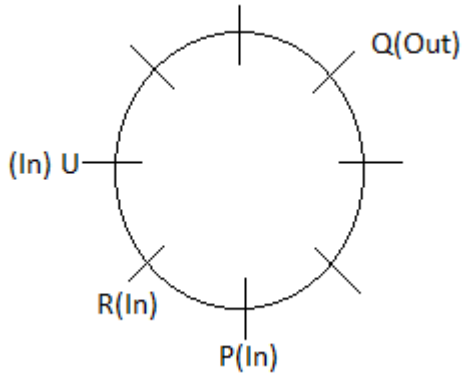
Using the other clues, we get



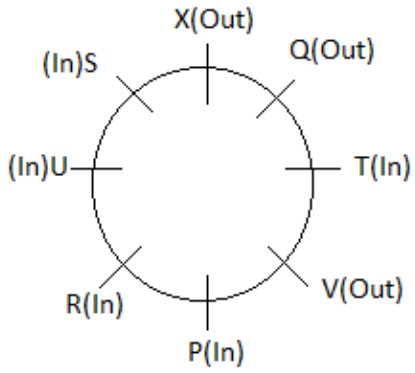
33. Ans. D.
According to first clue, P is either facing inside or outside
Scenario I: P is facing outside



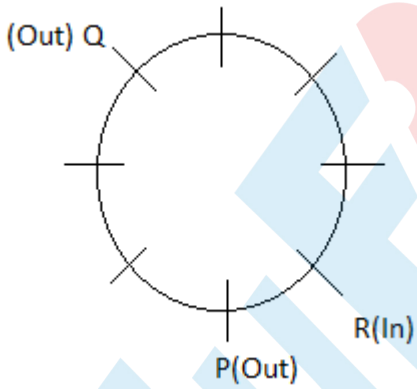
U sits immediate left of R which is not possible in this scenario.
Scenario II: P is facing inside



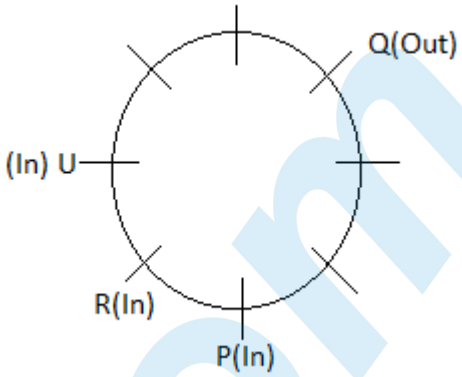
Using the other clues, we get



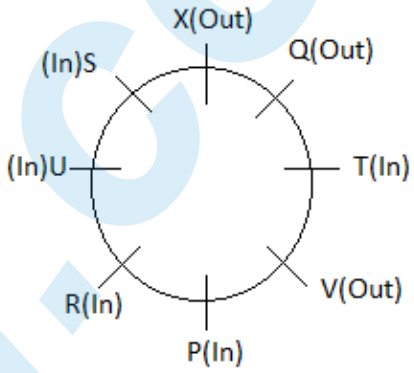
34. Ans. B.
According to first clue, P is either facing inside or outside
Scenario I: P is facing outside



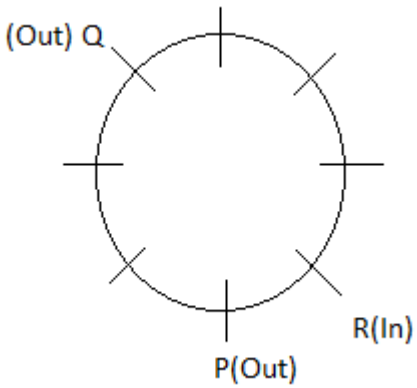
U sits immediate left of R which is not possible in this scenario.
Scenario II: P is facing inside



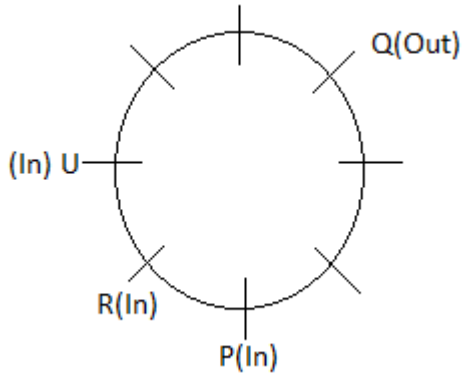
Using the other clues, we get

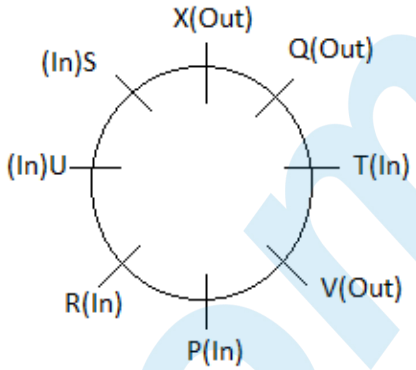


35. Ans. B.
According to first clue, P is either facing inside or outside
Scenario I: P is facing outside



U sits immediate left of R which is not possible in this scenario.
Scenario II: P is facing inside





Using the other clues, we get

36. Ans. C.

All the persons are at the end except B.

• Two persons are sitting between M and N. Neither of them is at corner. The one who is facing D is neighbor of N.

Case 1A:

Row 1		N			M	
Row 2	D					

Case 1B:

Row 1		N			M	
Row 2			D			

Case 2A:

Row 1		M			N	
Row 2						D

Case 2B:

Row 1		M			N	
Row 2				D		

Take case 1A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	D					F

Take case 1B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the left end. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	E		D			F

Take case 2A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M it means 3 people are between them but from this

cannot be possible so this case gets rejected.

Row 1	O	M	Q		N	
Row 2			F			D

Take case 2B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the right end. More than two people sit between C and B it means at least 3 people sit between C and B so either C or B at the left end. P is not at any corner so P is facing D and R must be at the end. The immediate neighbor of R is facing B it means N is facing B and C must be at the end and A is facing M.

Here is the final arrangement:

Row 1	O	M	Q	P	N	R
Row 2	C	A	F	D	B	E

37. Ans. D.

D is facing P.

• Two persons are sitting between M and N. Neither of them is at corner. The one who is facing D is neighbor of N.

Case 1A:

Row 1		N			M	
Row 2	D					

Case 1B:

Row 1		N			M	
Row 2			D			

Case 2A:

Row 1		M			N	
Row 2						D

Case 2B:

Row 1		M			N	
Row 2				D		

Take case 1A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	D					F

Take case 1B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the left end. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	E		D			F

Take case 2A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than

2 people sit between E and the one who is facing M it means 3 people are between them but from this cannot be possible so this case gets rejected.

Row 1	O	M	Q		N	
Row 2			F			D

Take case 2B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the right end. More than two people sit between C and B it means at least 3 people sit between C and B so either C or B at the left end. P is not at any corner so P is facing D and R must be at the end. The immediate neighbor of R is facing B it means N is facing B and C must be at the end and A is facing M.

Here is the final arrangement:

Row 1	O	M	Q	P	N	R
Row 2	C	A	F	D	B	E

38. Ans. D.

3 persons sit between O and N.

• Two persons are sitting between M and N. Neither of them is at corner. The one who is facing D is neighbor of N.

Case 1A:

Row 1		N			M	
Row 2	D					

Case 1B:

Row 1		N			M	
Row 2			D			

Case 2A:

Row 1		M			N	
Row 2						D

Case 2B:

Row 1		M			N	
Row 2				D		

Take case 1A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	D					F

Take case 1B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the left end. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	E		D			F

Take case 2A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than

2 people sit between E and the one who is facing M it means 3 people are between them but from this cannot be possible so this case gets rejected.

Row 1	O	M	Q		N	
Row 2			F			D

Take case 2B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the right end. More than two people sit between C and B it means at least 3 people sit between C and B so either C or B at the left end. P is not at any corner so P is facing D and R must be at the end. The immediate neighbor of R is facing B it means N is facing B and C must be at the end and A is facing M.

Here is the final arrangement:

Row 1	O	M	Q	P	N	R
Row 2	C	A	F	D	B	E

39. Ans. B.

R is 3rd to the left of Q.

• Two persons are sitting between M and N. Neither of them is at corner. The one who is facing D is neighbor of N.

Case 1A:

Row 1		N			M	
Row 2	D					

Case 1B:

Row 1		N			M	
Row 2			D			

Case 2A:

Row 1		M			N	
Row 2						D

Case 2B:

Row 1		M			N	
Row 2				D		

Take case 1A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	D					F

Take case 1B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the left end. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	E		D			F

Take case 2A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than

2 people sit between E and the one who is facing M it means 3 people are between them but from this cannot be possible so this case gets rejected.

Row 1	O	M	Q		N	
Row 2			F			D

Take case 2B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the right end. More than two people sit between C and B it means at least 3 people sit between C and B so either C or B at the left end. P is not at any corner so P is facing D and R must be at the end. The immediate neighbor of R is facing B it means N is facing B and C must be at the end and A is facing M.

Here is the final arrangement:

Row 1	O	M	Q	P	N	R
Row 2	C	A	F	D	B	E

40. Ans. C.

A and M are facing each other.

• Two persons are sitting between M and N. Neither of them is at corner. The one who is facing D is neighbor of N.

Case 1A:

Row 1		N			M	
Row 2	D					

Case 1B:

Row 1		N			M	
Row 2			D			

Case 2A:

Row 1		M			N	
Row 2						D

Case 2B:

Row 1		M			N	
Row 2				D		

Take case 1A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	D					F

Take case 1B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the left end. More than two people sit between C and B it means at least 3 people sit between C and B from this cannot be possible so this case gets rejected.

Row 1		N		O	M	Q
Row 2	E		D			F

Take case 2A:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than

2 people sit between E and the one who is facing M it means 3 people are between them but from this cannot be possible so this case gets rejected.

Row 1	O	M	Q		N	
Row 2			F			D

Take case 2B:

O is 2nd to the right of Q. O is not neighbor of N. The one who is facing O is 2 nd to the left of F. More than 2 people sit between E and the one who is facing M so E must be at the right end. More than two people sit between C and B it means at least 3 people sit between C and B so either C or B at the left end. P is not at any corner so P is facing D and R must be at the end. The immediate neighbor of R is facing B it means N is facing B and C must be at the end and A is facing M.

Here is the final arrangement:

Row 1	O	M	Q	P	N	R
Row 2	C	A	F	D	B	E

Quantitative Aptitude Solutions

1. Ans. B.
131 – 64 = 67
67 – 32 = 35
35 – 16 = 19
19 – 8 = 11
11 – 4 = 7

2. Ans. C.
25 + 3 = 28
28 – 6 = 22
22 + 9 = 31
31 – 12 =19
19 + 15 = 34

3. Ans. A.
7 x 0.5 + 1 = 4.5
4.5 x 1 + 1.5 = 6
6 x 1.5 + 2 = 11
11 x 2 + 2.5 = 24.5

4. Ans. B.
1 + 3 = 4
4 + 5 = 9
9 + 9 = 18
18 + 17 = 35
Again we have to check here -
3 + 2 = 5
5 + 4 = 9
9 + 8 = 17
17 + 16 = 33
We will add 33 in 35 = 68

5. Ans. D.
3.5 x 2 – 3 = 4
4 x 3 – 4 = 8
8 x 4 – 5 = 27
27 x 5 – 6 = 129
129 x 6 – 7 = 767

6. Ans. E.
$2x^2 + 11x + 14 = 0$
$2x^2 + 4x + 7x + 14 = 0$
$2x (x+2) + 7 (x+2) = 0$
$(x+2) (2x+7) = 0$
i.e. x = -2 or -7/2
$2y^2 + 13y + 21 = 0$
$2y^2 + 6y + 7y + 21 = 0$
$2y (y+3) + 7 (y+3) = 0$
$(2y+7) (y+3) = 0$
i.e. y = -3 or -7/2
Thus, Relationship cannot be established.

7. Ans. B.
$x^2 – 9x + 20 = 0$
$x^2 – 5x – 4x – 20 = 0$
$(x-5) (x-4) = 0$
i.e. x = 4 or 5
$y^2 = 16$
y = (16)1/2
y = 4 or -4
Thus, x >= y

8. Ans. C.
$x^2 – 7x + 12 = 0$
$x^2 – 4x – 3x + 12 = 0$
$x (x-4) -3 (x-4) = 0$
i.e. x = 3 or 4
$y^2 – 11y + 30 = 0$
$y^2 – 5y – 6y + 30 = 0$
$y (y-5) -6 (y-5) = 0$
i.e. y = 5 or 6
Thus, y > x

9. Ans. C.
$x^2 – 8x + 15 = 0$
$x^2 – 5x – 3x + 15 = 0$
$x (x-5) -3 (x-5) = 0$

i.e. x = 5 or 3
y^2 - 12y + 36 = 0
y^2 – 6y – 6y + 36 = 0
y (y-6) -6 (y-6) = 0
i.e. y = 6
Thus, y > x

10. Ans. E.
$2x^2$ + 9x + 7 = 0
$2x^2$ + 7x + 2x + 7 = 0
x (2x+7) + 1 (2x+7) = 0
i.e. x = -1 or -7/2
y^2 + 4y + 4 = 0
y^2 + 2y + 2y + 4 = 0
y (y+2) + 2 (y+2) = 0
i.e. y = -2
Thus, Relationship cannot be established between X & Y.

11. Ans. A.
Required Average = (3750+3000+2500+3750+3500)/5 = 3300

12. Ans. B.
Total number of students (males and females together) in University P = (3000 + 3750) = 6750
Total number of students (males and females together) in University R = 2500+4250 = 6750
Ratio = 1:1

13. Ans. B.
Required ratio = (3750 + 3000) : (4250 + 2750) = 27 : 28

14. Ans. D.
Required percentage = [4000/(3750+3000+2500+3750+3500)]*100 = (4000/16500)*100 = 24% (approx)

15. Ans. C.
Required number = 2750 + 50% of 2750 + 3500 = 7625

16. Ans. A.
Number of teachers in physics subject = 1800 $\times\frac{17}{100}$
= 306
Number of female teachers in physics = 306× $\frac{2}{9}$
= 68
Number of male teachers in physics = 306 – 68
= 238

Number of teachers in chemistry subject = 1800× $\frac{23}{100}$
= 414

Required percentage = $\frac{238}{414}$
= 57 % (approx).

17. Ans. B.
Number of teachers in Chemistry subject = 1800 × 23%= 414
Number of teachers in English subject = 1800 × 27%= 486
Number of teachers in Biology subject = 1800 × 12% = 216
Required number = 414 + 486 + 216= 1116

18. Ans. B.
Total number of teachers English and Physics = 486 + 306= 792
Total number of teachers Mathematics and Biology = 234 + 216= 450
Required difference = 792 – 450= 342

19. Ans. E.
Number of teachers in Mathematics subject= 1800×13% = 234
Number of teachers in Hindi subject = 1800×8% = 144
Required ratio = 234 : 114
= 13 : 8

20. Ans. C.
Number of increased Mathematics teachers = 234 + 234×50% = 351
Number of decreased Hindi teachers = 144 – 144×25% = 108
Required total number = 351 + 108
= 459

21. Ans. A.
Average number of students, who appeared for Physics from the year, 2011 to 2015 = (650 + 250 + 350 + 600 + 350)/ 5 = 440

22. Ans. D.
Total number of students who appeared for Physics from 2013 to 2015 = (350 + 600 + 350) = 1300
Total number of students, who appeared for Chemistry from 2011 to 2013 = (800 + 630 + 550) = 1980
Required ratio = 1300 : 1980 = 65:99

23. Ans. B.
Students who did not pass in Physics in the year 2011 = 70/100 * 650 = 455
Students who did not pass in Physics in the year 2015 = 30/100 * 350 = 105
Average = (455 + 105)/2 = 280

24. Ans. D.
Total number of students, who passed in Chemistry in 2011 = 50/100 * 800 = 400
Total number of students who did not pass in Physics in 2015 = 30/100 * 350 = 105
Difference = 400 – 105 = 295

25. Ans. B.
Total number of students who did not pass Physics in 2013 = 50/100 * 350 = 175
Total number of students who did not pass Chemistry in 2013 = 80/100 * 550 = 440
Percentage = 175/440 * 100 = 39.77% = 40%

26. Ans. A.
Take nearest values
21.003 × 39.998 – 209.91 = 126 × ?
630 = 126 × ?
? = 5 (approx)

27. Ans. C.
$(\frac{47}{100}\times 1442-\frac{36}{100}\times 1412)\div 63$
= (677.74 – 508.32) ÷ 63 = 169.42/63 = 2.689 = 3 (Approx)
Hence option C is correct

28. Ans. D.
$?=2418.065+88\div 14.2\times 6$
$?=2418.065+88\times\frac{1}{14.2}\times 6$
? = 2418.065 + 6.197 × 6
? = 2418.065 + 37.18
? = 2455.25
? = 2455 (Approx.)

29. Ans. E.
1200 ÷ 15 x 20 + 400 = 80 x 20 + 400
= 1600 + 400 = 2000 (Approx)
Hence option E is correct

30. Ans. E.
$?=726\times\frac{15.2}{100}\times 643\times\frac{12.8}{100}$
= 110.352 × 82.304
= 9082.41
$\approx$ 9082 (approx)

31. Ans. A.
Third Number = (128 × 5) - (118 × 2) - (126 × 2) = 152

32. Ans. A.
Let present age of Anita= 'x' years
And present age of Bablu= 'y' years
Now, $\frac{\frac{x-4}{2}}{4(y-4)}=5/12$
$12x-48=40y-160$
$3x-10y+28=0$ .....(i)
And,
$\frac{1}{2}(x+8)=(y+8)-2$
$x+8=2y+12$
$x-2y=4$ .....(ii)
Now, from eqn. (i) & (ii)
Bablu present age, Y=10 years

33. Ans. B.
Let 100 (CP)
80 (SP) 110 (SP)
Diff. 30
30 units → 24
1 unit → $\frac{24}{30}$
100 units → $\frac{24}{30}\times 100$ = Rs. 80
CP = Rs. 80

34. Ans. A.
A started a business with investing Rs. 8000 and after some months, B joined with investing Rs. 5000.
Equivalent capital of A
= Rs. 8000 × 12
= Rs. 96000
Let B joined after x months.
So, equivalent capital of B
= Rs. 5000 × (12 – x)
= Rs. 60000 – 5000x
Total profit after one year = Rs. 4250
Share of A = Rs. 3000. Then, the share of B = Rs. 4250 – 3000 = Rs. 1250
So, the ratio of their share;
A : B = 3000 : 1250 = 12 : 5
Now, we can write,
96000/(60000 – 5000x) = 12/5
⇒ 60000 – 5000x = 96000 × (5/12)
⇒ 60000 – 5000x = 8000 × 5
⇒ 5000x = 60000 – 40000
⇒ x = 20000/5000 ⇒ x = 4
∴ After 4 months, B joined in the business.

35. Ans. D.
Let the length of train P and Q are 5a and 4a.
speed of train P = 5a/6
therefore,
(5a/6 + 21)*4 = 5a/3 + 4a
-5a/3 + 4a = 84
a = 36
speed of train P = 36*5/6 = 30m/s

36. Ans. D.
Total no of balls = 8 + 7 + 6 = 21
Let, E be the event where the ball can be selected which is neither yellow nor black
Number of events where the ball can be selected which is neither yellow nor black = 7
P(E) = 7/ 21 = 1/3

37. Ans. D.
Ratio of days of B and C = 2:1

$$\frac{1}{A}+\frac{1}{B}=\frac{1}{60}.....1)$$

$$\frac{1}{A}+\frac{1}{C}=\frac{1}{45}.....2)$$

$$\frac{1}{A}+\frac{2}{B}=\frac{1}{45}.....3)$$

$$1)\ and\ 2)$$

$$\frac{1}{B}=\frac{1}{180}\Rightarrow B=180\ days$$

From equation 1) A =90 days, and C = 90 days
One day work of A, B and C

$$=\frac{1}{90}+\frac{1}{90}+\frac{1}{180}=\frac{2+2+1}{180}=\frac{1}{36}$$

Days = 36 days.

38. Ans. B.
First and second varieties of pulses are mixed in equal proportions
∴Their average price = INR (32+45)/2 = INR 38.5/kg
Let the price of third variety pulse be INR x/kg
The mixture is formed by mixing two varieties becomes one at INR 38.5/kg
By the rule of allegation:

Cost of 1 kg of 1st + 2nd variety INR 38.5 — Cost of 1 kg of 3rd variety INR x

Mean price INR 88

(x − 88) — 49.5

$$\therefore \frac{x-88}{49.5}=\frac{1}{1}$$

⇒ x − 88 = 49.50
⇒ x = 137.50
Hence, the price of the third variety per kg will be INR 137.50/kg

39. Ans. D.
The time required to travel a certain distance upstream is five times than that of downstream for the same distance.
Let the speed of the boat in upstream be x km/hr. and in downstream be 5x km/hr.
We know that if the speed of the downstream is x km/hr and the speed of the upstream is y km/hr, then the speed in still water = 1/2 × (x + y) km/hr.
So, the speed of the boat in still water
= 1/2 × (x + 5x) km/hr.
= 1/2 × 6x km/hr.
= 3x km/hr.
Given, the speed of a boat in still water is (27/4) km/hr.
So, we can write now,
3x = 27/4
⇒ x = 9/4
So, the speed of the boat in upstream = 9/4 km/hr.
And the speed of the boat in downstream = 5 × (9/4) km/hr. = 45/4 km/hr.
Again, we know that if the speed of the downstream is x km/hr and the speed of the upstream is y km/hr, then the speed of the stream = 1/2 × (x − y) km/hr.
∴ The speed of the stream = 1/2 × [(45/4) − (9/4)] km/hr.
= 1/2 × 9 km/hr.
= 9/2 km/hr.
= 4.5 km/hr.

40. Ans. C.
Curved Surface Area of Cylinder = 2πrh
Total Surface Area of Cylinder = 2πr (h+r)
According to question, 2πrh : 2πr (h+r) = 3:5
i.e. h/ (h+r) = 3/5
i.e., 2h = 3r − (a)
Also, Curved surface area of the cylinder = 1848 metre square
i.e. 2πrh = 1848
From (a), 2π (2/3h) * h = 1848
On solving the above equation, h = 21m