## Solutions

1. Ans. A.

- Only one person sits between Namith and Vaibhav and both are facing same directions.
- Namith sits fourth to the right of Viji, who doesn't sit in middle of the table.
- Vaibhav sits fourth to right of Naresh.
- Vani is sitting immediate right of Vaibhav.
- Nakul is to the immediate left of Vaibhav.
- Virat faces opposite direction of Vani and sits second to the left of Vani.
- Vani sits adjacent to Namith, who faces opposite direction of Vani.
- Viji is not a neighbour of Naresh and faces towards the centre.
- Nakul is sitting second to left of Nainika, who faces same direction as Viji.


2. Ans. B.

- Only one person sits between Namith and Vaibhav and both are facing same directions.
- Namith sits fourth to the right of Viji, who doesn't sit in middle of the table.
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3. Ans. C.

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4. Ans. E.

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6. Ans. E.

Statement:T $<P \leq U ; L>U \leq K ; P \geq R$
Conclusions:
$K \geq U \geq P \geq R$
I. $K \geq R=>$ True
$L>U \geq P \geq R$
II. $L>R=>$ True

Both Follows
7. Ans. C.

Statement: $\mathrm{H}=\mathrm{I} \leq \mathrm{R} ; \mathrm{M} \geq \mathrm{R}<\mathrm{S}$
Conclusions:I. M=I II. M > I
On combining Statement we get: $\mathrm{H}=\mathrm{I} \leq \mathrm{R} \leq \mathrm{M}<\mathrm{S}$ From the statement we can say $\mathrm{I} \leq \mathrm{M}$ true and I
8. Ans. B.

Statement:D $>\mathrm{H} \geq \mathrm{N}$; S > I $\leq \mathrm{H}$
Conclusions:I. N $\leq$ S II. N < D
On combining Statement we get: $\mathrm{S}>\mathrm{D}>\mathrm{H} \geq \mathrm{N} \geq \mathrm{I}$ or $\mathrm{D}>\mathrm{S}>\mathrm{H} \geq \mathrm{I} \geq \mathrm{N} . . .1$ )
For conclusion I: So from 1) $\mathrm{N} \leq \mathrm{S}$ does not hold true
For conclusion II: So from 2) N < D hold true. So II conclusion true
9. Ans. B.

Statement: P $\leq \mathrm{O}<\mathrm{I} ; \mathrm{P}>\mathrm{Y}>\mathrm{W}$
Conclusions:I. $\mathrm{Y} \leq$ I II. $\mathrm{O}>\mathrm{W}$
On combining Statement we get: W
For conclusion I: So from 1) Y $\leq$ I does not hold true
For conclusion II: So from 2) W < O hold true. So II conclusion true
10. Ans. A.

Statement: $A \geq B>C \geq F ; Z<C \leq D<E$ Conclusions:I. A > Z II. F > E On combining Statement we get: $A \geq B>E>D \geq$ $C \geq F>Z \ldots .1)$
For conclusion I: So from 1) A $>\mathrm{Z}$ hold true For conclusion II: So from 2) F > E does not hold true. So I conclusion true
11. Ans. C.

Since each couple has a son and a daughter and there are three couples in a three generation family A must be first generation and must be married to B. D, E must be $2^{\text {nd }}$ generation. C is B's daughter and H is E's niece. Also, J is B's granddaughter. It means J is E's daughter. As D is J's uncle which means D and E are not married. I and G must be males of $3^{\text {rd }}$ generation. If $F$ is $I^{\prime} s$ mother then $F$ must be married to either $D$ or $E$. If $F$ is married to
$D$ then $G$ must be the son of $F$ which is not possible. Therefore $F$ is married to $E$ and $D$ is married to N . D and C have children as H and J. E and $F$ have children as H and I .
Family Tree:

$F$ is mother of $J$.

## 12. Ans. B.

Since each couple has a son and a daughter and there are three couples in a three generation family A must be first generation and must be married to $B$. D, E must be $2^{\text {nd }}$ generation. $C$ is $B^{\prime} s$ daughter and $H$ is $E^{\prime}$ s niece. Also, J is B's granddaughter. It means J is E's daughter. As D is J's uncle which means $D$ and $E$ are not married. I and $G$ must be males of $3^{\text {rd }}$ generation. If $F$ is I's mother then $F$ must be married to either $D$ or $E$. If $F$ is married to $D$ then $G$ must be the son of $F$ which is not possible. Therefore $F$ is married to $E$ and $D$ is married to $N$. D and C have children as H and J. E and $F$ have children as $H$ and $I$.
Family Tree:

$B$ is grandmother of $G$.
13. Ans. C.

Since each couple has a son and a daughter and there are three couples in a three generation family A must be first generation and must be married to $B$. D, E must be $2^{\text {nd }}$ generation. $C$ is $B$ 's daughter and $H$ is $E^{\prime} s$ niece. Also, J is B's granddaughter. It means J is E's daughter. As D is J's uncle which means $D$ and $E$ are not married. I and $G$ must be males of $3^{\text {rd }}$ generation. If $F$ is $I^{\prime}$ s mother then $F$
must be married to either $D$ or $E$. If $F$ is married to $D$ then $G$ must be the son of $F$ which is not possible. Therefore $F$ is married to $E$ and $D$ is married to N. D and C have children as H and J. E and F have children as H and I .
Family Tree:

$D$ is son-in-law of $A$.
14. Ans. A.

15. Ans. E.

16. Ans. D.


Conclusion 1 does not follow, as some red are already orange. So, some red are orange is a possibility does not follow.
Because some red are Orange it definitely follows, so it's not a possibility.
17. Ans. A.

18. Ans. A.

19. Ans. D.

The code for 'damaging' is - either di or yu.
Below are the codes -
risk - nu
very - gl
also - fu
is - mi
low - se
associated - ta
that - po
large - ro
inherent - di/yu
damaging - yu/di
20. Ans. A.
'risk is very large' may represent by - gi mi nu ro Below are the codes -
risk - nu
very - gl
also - fu
is - mi
low - se
associated - ta
that - po
large - ro
inherent - di/yu
damaging - yu/di
21. Ans. C.
the code for 'associated' is - ta
Below are the codes -
risk - nu
very - gl
also - fu
is - mi
low - se
associated - ta
that - po
large - ro
inherent - di/yu
damaging - yu/di
22. Ans. E.
the code for 'inherent large risk' is - Cannot be determined
Below are the codes -
risk - nu
very - gl
also - fu
is - mi
low - se
associated - ta
that - po
large - ro
inherent - di/yu
damaging - yu/di
23. Ans. B.
'low risk associated industry' may represent by - ta hi nu se
Below are the codes -
risk - nu
very - gl
also - fu
is - mi
low - se
associated - ta
that - po
large - ro
inherent - di/yu
damaging - yu/di
24. Ans. D.

Thus $P$ lives on the $5^{\text {th }}$ number floor.

| 8 | W |
| :--- | :--- |
| 7 | Q |
| 6 | V |
| 5 | P |
| 4 | T |
| 3 | R |
| 2 | U |
| 1 | S |

Hence Option D is correct.
25. Ans. A.

U lives exactly between the floors of R and S .

| 8 | W |
| :--- | :--- |
| 7 | Q |
| 6 | V |
| 5 | P |
| 4 | T |
| 3 | R |
| 2 | U |
| 1 | S |

Hence Option A is correct
26. Ans. C.

W lives on the topmost floor.

| 8 | W |
| :--- | :--- |
| 7 | Q |
| 6 | V |
| 5 | P |
| 4 | T |
| 3 | R |
| 2 | U |
| 1 | S |

Hence Option C is correct
27. Ans. B.

All the others occur at odd places except $V$ which occurs at even place. Thus V does not belong to the group.

| 8 | W |
| :--- | :--- |
| 7 | Q |
| 6 | V |
| 5 | P |
| 4 | T |
| 3 | R |
| 2 | U |
| 1 | S |

Hence Option B is correct

## 28. Ans. E.

The solution to the above puzzle is:
4 persons that is $\mathrm{V}, \mathrm{P}, \mathrm{T}$ and R live between Q and U.

| 8 | W |
| :--- | :--- |
| 7 | Q |
| 6 | V |
| 5 | P |
| 4 | T |
| 3 | R |
| 2 | U |
| 1 | S |

Hence Option E is correct

## 29. Ans. B.

From I,
Is=7, energy/ good= 6/3.
So I alone is not sufficient
From II,
Mistakes/are=1/4, good=6.
So II alone is sufficient to answer the question.
30. Ans. D.

Neither Statement I or II alone are sufficient to answer the question.
Description: Since from statement I we cannot get clearly that the clear picture of seating of $C$ and $B$. From statement II also we cannot get identify where A, B, C, D, and E are seating. Thus both I and II statement are insufficient to answer.
31. Ans. B.

## From I:

$D>X=P$ and $S>R, D>R \ldots R$ can be shorter or taller than $P$ or $X$. So, from statement $I$ we can not decide who is shortest.
From II:
$X=P>R, D>X=P, S>X=P$ thus it is clear that $R$ is shortest.
Hence, data in statement II alone is sufficient to answer the question.
32. Ans. E.

From statement I- The number of students of class are $21,22,23,24,25$ or 26.
From statement II- The number of students in the class are 25 or 30.
From both the statements, there are 25 students in the class.
Hence, option E is correct.
33. Ans. D.

## Explanation



There are four such pairs
34. Ans. B.

35. Ans. D.

36. Ans. A.

Arrangement will be as

37. Ans. D.

Arrangement will be as


Hence option D is correct
38. Ans. C.

Arrangement will be as
$\begin{array}{llllll}\text { Soluth } & H & J & F & G & I\end{array}$
While all other four are sitting in the extreme corners Hence option C is correct
39. Ans. C.

Arrangement will be as


I faces X and third person to the right of I is J Hence option C is correct
40. Ans. B.

Arrangement will be as


An immediate neighbour of $V$ is $Z$ who faces $F$ Hence option B is correct
41. Ans. C.
I. $X=7,8$
II. $y=+8$

Remember that if $y^{2}=64$ then $y=+8$ and -8 but if $Y=\sqrt{64}$ then $y$ will only be +8
42. Ans. C.
I. $X=-3$
II. $y=6,-3$

Hence answer=(c) $x \leq y$
43. Ans. E.
I. $x=3,-2$
II. $\mathrm{Y}=2,4$

Hence answer=(e)
44. Ans. C.
$x^{2}-11 x-80=0$
$x^{2}-16 x+5 x-80=0$
$x(x-16)+5(x-16)=0$
$(x+5)(x-16)=0$
$x=+16,-5$
$y^{2}+9 y-52=0$
$y^{2}+13 y-4 y-52=0$
$y(y+13)-4(y+13)=0$
$(y-4)(y+13)=0$
$y=+4,-13$
Therefore, relationship between $x$ and $y$ can't be determined.

$$
\begin{aligned}
& \text { 45. Ans. } A \text {. } \\
& 4 x^{2}+12 x+9=0 \\
& 4 x^{2}+6 x+6 x+9=0 \\
& 2 x(2 x+3)+3(2 x+3)=0 \\
& (2 x+3)(2 x+3)=0 \\
& 2 x+3=0 \text { or } 2 x+3=0 \\
& 2 x=-3 \text { or } 2 x=-3 \\
& x=-\frac{3}{2} \text { or } x=-\frac{3}{2} \\
& x=-1.5 \text { or } y=-1.5 \\
& 2 y^{2}+11 y+14=0 \\
& 2 y^{2}+7 y+4 y+14=0 \\
& y(2 y+7)+2(2 y+7)=0 \\
& (2 y+7)(y+2)=0 \\
& 2 y+7=0 \text { or } y+2=0 \\
& 2 y=-7 \text { or } y=-2 \\
& y=-\frac{7}{2} \text { or } y=-2 \\
& y=-3.5 \text { or } y=-2 \\
& x>y
\end{aligned}
$$

46. Ans. B.
$?=11^{2}+4^{3} \times 4$
$?=377 \approx 376$
47. Ans. C.
$423.62-269.89 \div(11.9 \%$ of 74.98$)=$ ?
$423.62-269.89 \div(12 \%$ of 75$)=$ ?
$\Rightarrow 424-269 \div 9=$ ?
$\Rightarrow 424-30=$ ?
$\Rightarrow ?=394 \approx 395$
48. Ans. C.
$23 \times 15-60+? \div 31=292$
$345-60+? \times \frac{1}{31}=292$
$285+? \times \frac{1}{31}=292$
$?=31 \times 7$
$?=217$.
49. Ans. C.

By taking approximate values
$151-119 \div 17-?^{2}=80$
$151-7-?^{2}=80$
$144-?^{2}=80$
$?^{2}=64$
$?=8$.
50. Ans. A.
$? \div 4+5 \times 9=132$
$\frac{?}{4}=87$
? $=348$.
51. Ans. C.

Sony: $0.5 / 7.5 \times 100=6.66 \%$
Microsoft: $2 / 10 \times 100=20 \%$
Nintendo: $7 / 9 \times 100=77.77 \%$
Mitashi: $3 / 10 \times 100=30 \%$
ROG: $3 / 8 \times 100=37.5 \%$
52. Ans. D.

Sony: $0.5 / 7.5 \times 100=6.66 \%$
Microsoft: $2 / 10 \times 100=20 \%$
Nintendo: $7 / 9 \times 100=77.77 \%$
Mitashi: $3 / 10 \times 100=30 \%$
ROG: $3 / 8 \times 100=37.5 \%$
53. Ans. C.

Total sale in $2016-2017=8+12+16+13+11=60$ (in thousands)=60,000
Total sale in $2017-2018=7.5+10+9+10+8=44.5$ (in thousands) $=44,500$
Absolute change or Difference $=60,000-$
$44,500=15,500$
54. Ans. D.

Combined sale of Sony and Nintendo in 2016$2017=7.5+9=16.5$
Combined sale of Sony and Nintendo in 2017$2018=8+16=24$
Percentage increase $=7.5 / 16.5 \times 100=45.45 \%$
55. Ans. C.

Total sale of Microsoft $=12+10=22$ (in thousands)
=22,000
Total sale of ROG $=11+8=19$ (in thousands)
=19,000
Difference $=22,000-19,000=3,000$
56. Ans. B.

Appeared students from institute D in $2013=1765$ Qualified students from institute D in 2013 = 1567 $\%$ of qualified students over appeared students from institute $D$ in $2013=\frac{1567}{1765} \times 100=88.78 \%$
Appeared students from institute D in $2014=1574$
Qualified students from institute D in $2014=1024$
$\%$ of qualified students over appeared students from institute $D$ in $2014=\frac{1024}{1574} \times 100=65.06 \%$
Appeared students from institute D in $2015=1754$ Qualified students from institute D in $2015=1210$ $\%$ of qualified students over appeared students from institute $D$ in $2015=\frac{1210}{1754} \times 100=68.98 \%$
Appeared students from institute D in $2016=1364$ Qualified students from institute D in $2016=1145$ $\%$ of qualified students over appeared students from institute $D$ in $2016=\frac{1145}{1364} \times 100=83.94 \%$
Appeared students from institute D in 2017 = 1510 Qualified students from institute D in $2017=1214$
\% of qualified students over appeared students from institute $D$ in $2017=\frac{1214}{1510} \times 100=80.39 \%$ Hence, the lowest percentage of institute $D$ is in 2014.
57. Ans. D.

Qualified students from all the institutes in $2017=$ 6840
Appeared students from all the students in $2017=$ 7984
Required percentage $=\frac{6840}{7984} \times 100=86 \%$

## 58. Ans. E.

Appeared students from institute B in $2014=1654$ Qualified students from institute B in $2014=1566$
Not qualified students from institute B in $2014=$ $1654-1566=88$
Appeared students from institute B in $2016=1440$
Qualified students from institute B in $2016=1165$
Not qualified students from institute B in $2016=$ $1440-1165=275$
Required difference $=275-88=187$
59. Ans. C.

Required value $=\frac{1530+1886+1806+1478+1645}{5}=$
1669
60. Ans. A.

Required percentage $=\frac{7072}{8460} \times 100=83.59 \%$
61. Ans. E.

Average weight of 17 students $=90 \mathrm{~kg}$
Let, the weight of teacher be $x$
So, the average weight is increased by 200 grams
Therefore, $\frac{(17 \times 90)+\mathrm{x}}{18}=90+\frac{200}{1000}$
$1530+x$
$\frac{1530+x}{18}=90.2$
$1530+\mathrm{x}=1623.6$
$\mathrm{x}=1623.6-1530=93.6 \mathrm{kgs}$
Therefore, the weight of the teacher $=93.6 \mathrm{kgs}$
So option (e) is the correct answer.
62. Ans. A.

Speed downstream $=8+2=10 \mathrm{kmph}$
Speed upstream $=8-2=6 \mathrm{kmph}$

Let the required distance be d km .
Then, $\frac{d}{10}+\frac{d}{6}=2 ; 6 d+10 d=120$
$16 d=120 ; d=7.5 \mathrm{~km}$
63. Ans. C.

Let the sum be Rs. $P$.
S.I. = Rs. (900-P)

So, $\frac{\mathrm{P} \times 10 \times 5}{100}=900-\mathrm{P}$
$50 \mathrm{P}=90000-100 \mathrm{P}$
150 P = 90000
$\mathrm{P}=$ Rs. 600
Now, $P=600, R=15 \%, T=\frac{5}{2}$ years
S.I. $=\frac{600 \times 15 \times 5}{100 \times 2}=$ Rs. 225

Hence, amount $=600+225=$ Rs. 825
64. Ans. E.

Profit ratio of $A, B$ and $C$,
$A: B: C=(10,000 \times 12):(7500 \times 12):(10,000 \times$
9) $=4: 3: 3$

Hence, B's share $=(3 / 10) \times 12000=$ Rs. 3600
65. Ans. B.

Let Rubina's monthly salary $=x$
According to question,
$75 \%$ of $16 \%$ of $x=6567$
$x=\frac{6567 \times 100 \times 100}{75 \times 16}$
$x=\frac{65670000}{1200}=$ Rs. 54725
66. Ans. C.

Let capacity of tank $=60$ units
Efficiency of $A=\frac{60}{12}=5$ units/hour
Efficiency of $B=\frac{60}{15}=4$ units/hour
Efficiency of $C=\frac{60}{6}=-10$ units/hour
Efficiency of $A$ and $B$ together $=5+4=9$
units/hour
Tank filled in 5 hours $=9 \times 5=45$ units
Efficiency of $A, B$ and $C$ together $=5+4-10=-1$
unit/hour
Hence, time taken to empty the tank $=\frac{45}{1}=45$
hours
67. Ans. C.

Let the present age of the man and his son be $x$ and y respectively
So,
$x-5=4(y-5)+3$
$x-4 y=-12(i)$
Again
$X+3=3(y+3)-6$
$x-3 y=0$ (ii)
By solving, we get
$X=36, y=12$
Sum of their ages $=48$
Hence after 16 years the sum of their ages will be 80 years.
68. Ans. E.

Let the incomes of Ram and Sham be $5 x$ and $4 x$ respectively.
Now,
$(5 x-1200) /(4 x-1200)=3 / 2$
$x=600$
Income of Ram $=5 x=3000$
69. Ans. A.

Let total work $=36$ units ( LCM of 12 and 18)
Efficiency of $A=\frac{36}{12}=3$ units/day
Efficiency of $B=\frac{36}{18}=2$ units/day
1 day work of $A$ and $B$ together $=3+2=5$
units/day
Last 2 days' work of $B=2 \times 2=4$ units
Hence, rest work compelted together $=36-4=32$ units.
Hence, days the rest work is completed by $A$ and $B$
$=\frac{32}{5}$ days
So, total days $=2+\frac{32}{5}=\frac{42}{5}$ days
70. Ans. E.

Relative speed $=50+40=90 \mathrm{~km} / \mathrm{h}=90 \times \frac{5}{1 \mathrm{~g}}=$
$25 \mathrm{~m} / \mathrm{sec}$
Distance covered $=750+750=1500$ meters
Required time $=\frac{1500}{25}=60$ seconds
71. Ans. A.
$8 \times 1+1=9$
$9 \times 1.5+1.5=15$
$15 \times 2+2=32$
$32 \times 2.5+2.5=82.5$
$82.5 \times 3+3=250.5$
72. Ans. A.
$2+1^{3}+2=5$
$5+2^{3}-4=9$
$9+3^{3}+6=42$
$42+4^{3}-8=98$
$98+5^{3}+10=233$
73. Ans. B.
$100 \times 1=100$
$100 \times 0.5=50$
$50 \times 0.25=12.5$
$12.5 \times 0.125=1.5625$
74. Ans. A.
$12 \times 1.5+2=20$
$20 \times 1.5+4=34$
$34 \times 1.5+6=57$
$57 \times 1.5+8=93.5$
75. Ans. D.
$1023-36=987$
$987-72=915$
$915-108=807$
$807-144=663$
76. Ans. D.

Both the statements individually do not answer the question.
Combining statement 1 \& 2:
The train takes 2 seconds to cross 50 m distance.
Therefore, speed of the train $=50 / 2=25 \mathrm{~m} / \mathrm{s}$
And, length of the train $=25 * 5=125 \mathrm{~m}$.
Hence, option is 4.
77. Ans. A.
$3 / 4^{\text {th }}$ work in 6 hours. Total work can be completed in 8 hours.
From statement 1:
$1 / a+1 / b=1 / 8$
$\Rightarrow 1 / b=1 / 10$
Therefore, A finishes the work in 40 hours.
Statement 2 alone is not sufficient.
Hence, option is 1.
78. Ans. D.

From I, Pravin $=$ Aman +1200
From II and III, $\frac{\text { Aman }}{\text { Vimal }}=\frac{5}{3}$
$\frac{\text { Aman }}{\text { Aman }-1000}=\frac{5}{3}$
$\therefore$ All statements are necessary to get the monthly salary of Pravin.
79. Ans. D.

From statement I:
SP = Selling Price
MP = Marked Price
$\mathrm{CP}=$ Cost price
SP = 90\% MP
SP = 9MP/10
From statement II:
When no discount is given,
$S P=M P$
Profit = SP - CP
$35=(\mathrm{SP}-\mathrm{CP}) * 100 / \mathrm{CP}$
$35 C P=100 S P-100 C P$
$135 C P=100 S P$
CP = 100SP/135
$C P=100 \mathrm{MP} / 135$
From both I and II:
Profit\% $=(9 \mathrm{MP} / 10-100 \mathrm{MP} / 135) * 100 /$ (100MP/135) \%
$=(9 / 10-100 / 135) * 135 \%$
Hence, both the statements are required to answer this question
80. Ans. D.

From I. There are 11 students in the class.
From II. The average age of students and class teacher is 14 years.
From III. The average age of class teacher is 3 years more than that of students.
Now, combining all there statements, we have
Average age of (students + teacher) $=14 \times 12=$ 168 years
Average age of 11 students $=14-3=11$ years
Total age of 11 students $=11 \times 11=121$ years
Teacher's age $=168-121=47$ years.
This requires all statements to complete the calculations.

