## DECISION MAKING

1. $A$ and $B$ are brothers, $C$ and $D$ are brothers $A^{\prime} s$ son is $D$ 's brother, how is $B$ related to $C$.
$=>\quad A$ and $B$ are Males, so as $C$ and $D$, If $C$ is $A$ 's son then $D$ is also son of $A$. then, B will be Uncle of C and D .
2. Murali's present age is half of his fathers's age before 10 years his father's age was thrice his age. Find the persent age of murali and his father .

| $=>$ | present age $=x$ |
| :--- | :--- |$\quad$ Easy to go from

Murali age $=x$
Father age $=2 \mathrm{x}$
$\frac{x-10}{2 x-10}=\frac{1}{3}$
$3 x-30=2 x-10$
$X=20$
option
20, 40
20-10, 40-10
$10: 30$
3. Aruns age is half as his father. Twelve years age his fathers age was 3 times that of aruns

What is present age of Arun ?

$$
\begin{aligned}
& \frac{x-12}{2 x-13}=\frac{1}{3}=\quad 3 x-36=2 x-12 \\
& \quad=>\quad x=24
\end{aligned}
$$

4. The sum of ages of rani and mari is 14 years more than the sum of ages of mari and nancy. Find how many years nancy is younger than rani?

Rani + M/ari $=$ Mári + nancy +14
Rani - nancy $=14$ ( Difference )
5. A mother is 20 years older than her daughter 4 years before she was 5 times of her daughters age at that time how old is the daughter how ?
$=>$ Let $X$ be daughter age,$X+20$ be mothers age
$\frac{x-4}{x+20-4}=\frac{1}{5}=>5 x-20=x+16$

$$
\begin{gathered}
=>4 x=36 \\
x=9
\end{gathered}
$$

6 . Ram state from a point A and walks 6 Km north then turns left and walks 8 km , then left and walks 12 km upto the point B . What is the direction of Ram ?

7. In a row of students the place of rahul from right is $12^{\text {th }}$ and from left is $4^{\text {th }}$ How many students should be added to make the total no.of students 28 ?

12 th


So $3+1+11=>15$ students
To get 28 students we must add $15+13$
13 students
8. A persons travels from $A$ to $B$ at an average speed of $60 \mathrm{Km} / \mathrm{hr}$ and $B$ to $C$ at $50 \mathrm{Km} / \mathrm{hr}$ and $C$ to $D 40 \mathrm{Km} / \mathrm{hr}$ The distance from $A$ to $B, B$ to $C, C$ to $D$ are equal ,

Find average speed ?
Average speed $=\frac{3 x y z}{x y+y z+z x}$

$$
\begin{aligned}
=\frac{3 \times 60 \times 50 \times 40}{60 \times 50+50 \times 40+60 \times 40} & =\frac{3,60,000}{7100} \\
& =48.65 \mathrm{~km} / \mathrm{hr}
\end{aligned}
$$

9. From trichy bus stand if we buy 3 tickets to karur and 2 ticket to pudukkottai, the cost is 85 , but if we buy 2 ticket to karur and one to pudukkottai the cost is 50 Find fare ?

Let karur be $X$, pudukkottai be $Y$

$$
\begin{gathered}
3 x+2 y=85------\gg 1 \\
2 x+y=50--------\gg 2
\end{gathered}
$$

Multiply equation $2 \times 2$

$$
\begin{gathered}
4 x+2 y=100 \\
3 x+2 y=85 \\
\hline x=15
\end{gathered}
$$

substitue $X=15$ in equation 2 ,
$2(15)+y=50$

$$
\begin{aligned}
& Y=50-30 \\
& Y=20
\end{aligned}
$$

10. Three shirts four pants cost is 3680 . Two pants and one shirts is 1680 . Find cost of shirt and pant?

Let ' $S$ ' be shirt and ' $P$ ' be Pants,
$=>3 s+4 p=3680$------->> 1
$1 s+2 p=1680---->2$
Multiply Equation $2 \times 2$, and by solving we get $s=320$,
Subtract $s=320$ in 2

$$
320+2 p=1680
$$

$$
2 p=1680-320
$$

$$
2 p=1360
$$

$$
P=680
$$

$S=320, p=680$
11. An employee spends on Rs. 2500 for 8 months and 1500 rs for next 4 months if he saves

10,000 that year. Find his monthly income
$=>(8 \times 2500)+(4 \times 1500)+$ salary
$=>20000+6000+10,000$
$=>36000$ yearly salary
=>36000/12 (for monthly)
= > 3000 monthly
12. the income in 3 months of a person is same as his expenditute in 4 months if his annual saving is Rs. 600 What is his monthly income ?

Savings $=$ Income - Expenditute

$$
600=3 x-4 x
$$

SO $x=600$
3 months income $=600$
For one month $=200$
13. In a group of cows and hens the number of legs are 114 more than twise the number of heads. The number of cow is?

Head count for cow and hens $=(x+y)$
Leg count for cow and hens $=(2 x+4 y)$
$2 x+4 y=2(x+y)+14$
$2 x+4 y=2 x+2 y+14$

$$
\begin{gathered}
4 y-2 y=14 \\
2 y=14 \\
Y=7
\end{gathered}
$$

14. There are deer and peacock is 200 . total number of head is 80 . The total number of heads is 80 . The total number of legs is 200 . How many peacock are there?

Head and leg for deer is ---- $>x$ and $4 x$ respectively
Head and leg for peacock is ----- >y and 2 y respectively
multiply equation $2 \times 2$

$$
\begin{aligned}
2 x+4 y & =200 \\
22 x+2 y & =160 \\
\hline 2 y & =40 \\
\Rightarrow>y & =20
\end{aligned}
$$

15. A train 150 m long passes a telegraph post in 12 sec Find the speed ?

Speed $=\frac{\text { Distance }}{\text { time }}$
$=\frac{150}{12}$
$\mathrm{m} / \mathrm{s}$----- $>$ Km/hr multiply by $18 / 5$
$\frac{150}{12} X \frac{18}{15}=>45 \mathrm{~km} / \mathrm{hr}$
16. A book contains 144 pages each pages contain 25 lines How many page will the book contain if every page has 24 line ?
$=>\frac{\text { Total page } \times \text { lines }}{\text { no.of pages }}=\frac{144 \times 25}{24}=150$
17. If a particular amount distributed to each of 14 students is Rs. 80 more than the amount distributed to each of 18 students Find the answer ?

Let unknown be $X$,
$\frac{x}{14}=\frac{x}{18}+80$
$\frac{x}{14}-\frac{x}{18}=80$
$\frac{4 x}{252}=80,4 x=80 \times 252$
$x=\frac{80 \times 252}{4}$
$X=5040$
18. A car is travelling at the average speed at $50 \mathrm{Km} / \mathrm{hr}$ Find the distance coverd in 12 minutes?

Speed $=50 \mathrm{~km} / \mathrm{hr}$
Convert in $\mathrm{m} / \mathrm{s}==>\frac{50 \times 5}{18}=\frac{250}{18} \mathrm{~m} / \mathrm{s}$
250m ----- > 18 sec
for $12 \min =>\frac{250 \times 12 \times 60}{18}$

$$
\begin{aligned}
& =10000 \mathrm{~m} \\
& =10 \mathrm{Km}
\end{aligned}
$$

19. In a clock the angle traced by the hour hand in 12 hour is ?

For 1 hour angle $=30^{\circ}$
For 12 hour angle $=360^{\circ}$
20. If two third of four fifth of even eigth of a number is 63 then the number is ?
$=>\frac{2}{3} \times \frac{4}{5} \times \frac{7}{8} x=63$
$x=63 \times \frac{8}{7} \times \frac{5}{4} \times \frac{3}{2}$
$X=135$
21. Average of non zero number and its equal is 5 times the number then the number is Let Unknown be x ,

So , $\quad\left(x+x^{2}\right) / 2=5 x$
$x+x^{2}=10 x$
$x^{2}=9 x$
$x=9$
22. If the sum of rational number and its reciprocal is $13 / 6$ Find the number is $13 / 6$ Find the number?

From option $\frac{2}{3} \times \frac{3}{2}=\frac{4+9}{6}=\frac{13}{6}$
So $2 / 3$ or $3 / 2$
23. What integer must be added to each of the four number $10,18,22,38$ so that they become a proportion ?
$=>10,18,22,38$
$\frac{10+x}{18+x}=\frac{22+x}{38+x}=\frac{12}{20}=\frac{24}{40}$
Both are in same proportion
So $x$ will be 2
24.3 _ 25 here , which of the following number is suitable so that the number will be perfect square
$--->3025-\rightarrow 55^{2}$
0 will be the number .

25 . How many numbers from 1 to 100 are there each of which is not only exactly divisile by 4 But also that 4 as a digit
-----> the numbers are $4,24,40,44,48,64,84$
Total 7 numbers .
27. If $235=38$ and $452=45$ then $345=$ ?
$2+3+5=38 \quad(4+9+25)$
$4+5+2=45 \quad(16+25+4)$
$3+4+5+50 \quad(9+16+25)$
So, $345=(9+16+25)=50$
26 . If the fraction $1 / 2,2 / 3,5 / 9,6 / 13,7 / 19$ are arranged in ascending order of their values which one will be the fourth ?

Ascending order $--0.46,0.5,0.56,0.67,0.78$
Fourth $--->0.67=2 / 3$
27. If $5+3=34$ and $6+2=40$ then value of $7+1=$ ?
$5+3=25+9=>34\left(5^{2}+3^{2}\right)$
$6+2=36+4=>40\left(6^{2}+2^{2}\right)$
$7+1=49+1=>50\left(7^{2}+1^{2}\right)$
$7+1=50$
29. If $5^{a}=6,6^{b}=7,7^{c}=5$ then find value of $a b c$ ?

By identify $x^{a}=y \quad y^{b}=z \quad z^{c}=x$
$a b c=1 ;$
So $5^{a}=6 \quad 6^{b}=7 \quad 7^{c}=5$
$a b c=1$
$30 \cdot 1 / 2$ of $3 / 4$ of $4 / 9$ of a number is 60 . Then the number ?

$$
\begin{aligned}
& \frac{1}{2} \times \frac{3}{4} \times \frac{4}{9} \times x=60 \\
& x=60 \times \frac{9}{3} \times \frac{4}{3} \times \frac{2}{1} \\
& X=360
\end{aligned}
$$

