SEBI Grade A Quantitative Aptitude (Solutions)

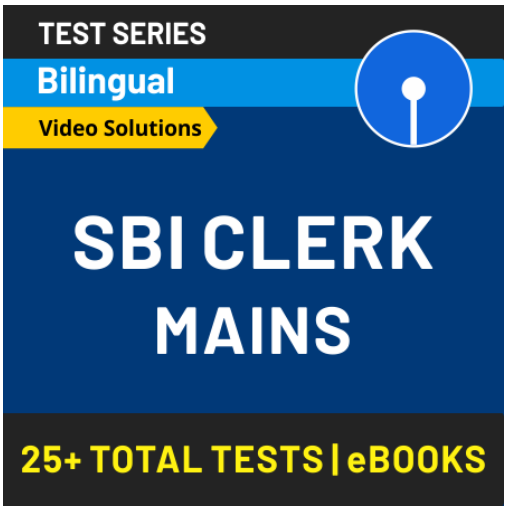
S1. Ans.(a)
Sol. In 1000 ml of mixture,
Alcohol = 700 ml
Water = 300 ml
Let x ml of alcohol is mixed.
According to question
$\frac{300}{1000+x} \times 100 = 15$
$1000 + x = 2000 \Longrightarrow x = 1000$ ml

S2. Ans.(e)
Sol. Present age of Meenakhi $= x$ years
Present age of Abhay $= y$ years
Now, according to question $= \frac{x+3}{y-3} = \frac{10}{9}$
$10y - 9x = 57$ .....(i)
and $\frac{x-3}{y+3} = \frac{17}{21}$
$21x - 17y = 114$ .....(ii)
∴ From eqn. (i) and (ii)
$x = 37$ and $y = 39$
∴ Meenakhi's present age = 37 years

S3. Ans.(a)
Sol. Let the no. be a, b & c, where c is the highest
$\frac{a+b+c}{3\times3} = c - 8$
$a + b + c = 9c - 72$ .....(i)
Again, $a + b = 16$
$16 + c = 9c - 72$
$c = 11$

S4. Ans.(a)
Sol. $(24 \times 65) + (30 \times 56) + (26 \times x) = 53.5 \times 80$
$x = 40$

S5. Ans.(a)
Sol. Let cost of 1 guava = x
cost of 1 banana = $0.75x$
Cost of 1 apple = $1.5x$
Initial cost = $3x + 3x + 3x = 9x$
Cost after increase = $\frac{110}{100} \times 9x = 9.9x$
% increase = $\frac{0.9x}{9x} = 10\%$



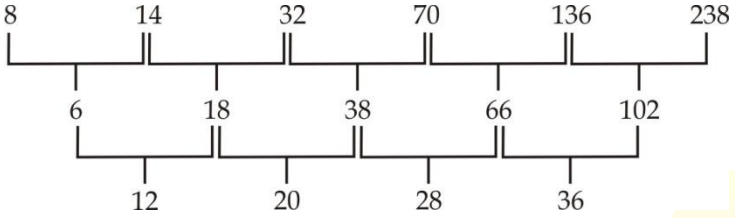
S6. Ans.(b)
Sol. 4 × 1.5 = 6, 6 × 1.5 = 9, 9 × 1.5 = 13.5, 13.5 × 1.5 = 20.25, 20.25 × 1.5 = 30.375, 30.375 × 1.5 = 45.5625

S7. Ans.(b)
Sol. 12 × 2 – 2 = 22, 22 × 3 + 3 = 69, 69 × 4 – 4 = 272, 272 × 5 + 5 = 1365, 1365 × 6 – 6 = 8184

S8. Ans.(c)
Sol. Series is $\times 2-2, \times 2+4, \times 2-6, \times 2+8, \times 2-10$

S9. Ans.(c)
Sol. 13×1+1=14, 14×2+2=30, 30×3+3=93, 93×4+4=376, 376×5+5=1885, 1885×6+6=11316

S10. Ans.(d)
Sol.



S11. Ans.(a)
Sol. $\times 0.5, \times 1, \times 1.5, \times 2, \times 2.5$……
∴ 78 × 2.5 = 195

S12. Ans.(d)
Sol.
$16 \times \frac{2.4}{100} ? = 288$
$? = 750$

S13. Ans.(b)
Sol.
$\frac{(-251 \times 21 \times (-12))}{?} = \frac{15813}{100}$
$? = 400$

S14. Ans.(c)
Sol. $3\frac{2}{7}$ of $2\frac{3}{23}$ of 123 -$14\frac{2}{7}$% of 847
$= \frac{23}{7} \times \frac{49}{23} \times 123 - \frac{100}{700} \times 847$
$= 7 \times 123 - \frac{847}{7}$
= 861 – 121
? = 740

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S15. Ans.(e)

Sol. $\frac{1313}{1300} - \frac{1414}{700} + \frac{5500}{5000} + \frac{1717}{1700}$

$= 1.01 - 2.02 + 1.1 + 1.01$

$? = 1.1$

S16. Ans.(c)

Sol.

$17.98^2 + \sqrt[4]{(15.98)^2} + \sqrt[3]{?^{37}} = 329$

$18^2 + \sqrt[4]{16^2} + \sqrt[3]{?^{37}} = 329$

$324 + 16^{\frac{2}{4}} + \sqrt[3]{?^{37}} = 329$

$\sqrt[3]{?^{37}} = 1$

$? = 1$

S17. Ans.(b)

Sol.

$(21.99 \div 11.13)^3 \times 12.5\% \text{ of } 380 - (19.995)^2 = 40.001 - ?$

$(22 \div 11)^3 \times \frac{12.5}{100} \times 380 - (20)^2 = 40 - ?$

$8 \times \frac{1}{8} \times 380 - 400 = 40 - ?$

$? = 60$

S18. Ans.(a)

Sol.

$425.995 \times 0.66 + (14.995)^2 + (10.99)^2 - 4.995 = ?^2$

$426 \times \frac{2}{3} + 15^2 + 11^2 - 5 = ?^2$

$284 + 225 + 121 - 5 = ?^2$

$625 = ?^2$

$? = 25$

S19. Ans.(c)

Sol. $\frac{5}{6} \times \frac{2}{9} \times \frac{9}{4} \times \frac{7}{6} = \frac{35}{72} \cong 0.49$

S20. Ans.(c)

Sol. $\frac{15 \times 62.5}{100} + 0.48 \cong 10$

S21. Ans.(e)

Sol. Number of male teachers in mathematics = $\left(1 - \frac{1}{5}\right) = \frac{4}{5}^{th}$ of total teachers in mathematics

ATQ,

$= \frac{\frac{4}{5} \times \frac{20}{100} \times 3000}{\frac{25}{100} \times 3000} \times 100$

$= 64\%$

S22. Ans.(d)

Sol. Number of teachers in mathematics= 20% total teachers

Number of teachers in chemistry= 10% total teachers

Number of teachers in physics= 15% total teachers

So, total number of teachers of mathematics, chemistry and physics= 45% of total teachers

$= \frac{45}{100} \times 3000$

$= 1350$

S23. Ans.(c)

Sol. Total number of teachers in mathematics and English=20%+10%=30% total teachers

And total number of teachers in physics and chemistry=15%+10%=25% total teachers

So, their difference=30%-25%

= 5% total teachers

$= \frac{5}{100} \times 3000$

$= 150$

S24. Ans.(c)

Sol. Number of teachers in mathematics=20% total teachers

Number of teachers in chemistry and statistics =10%+25%=35%

respective ratio = 20:35

= 4:7

S25. Ans.(d)

Sol. Number of teachers in English, Mathematics and Physics=10%+20%+15%=45%

Their average=$\frac{45\%}{3}$ =15%

Number of teachers in Chemistry, Statistics and Hindi= 10%+25%+20%=55%

Their average=$\frac{55\%}{3}$

Ratio=15:$\frac{55}{3}$

= 9:11

S26. Ans.(b)

Sol. Let cost price of the article=Rs.100p

And selling price of the article= Rs.112p

If he had bought it at 10% more than actual cost price

So, new cost price= Rs.110p

ATQ

$110p \times \frac{110}{100} = 112p + 108$

P=12

Therefore, cost price= Rs.100p

= Rs.1200

S27. Ans.(a)

Sol. The ratio between the profit of A, B and C = 105×12:40×6+60×6:36×12
=105:50:36
Let the profit of A=Rs 105p
Profit of B=Rs 50p
Profit of C=Rs 36p
So, the difference between the profit of A and C = $\frac{105p-36p}{105p+50p+36P}$ ×38200
= $\frac{69}{191}$×38200
=Rs. 13800

S28. Ans.(b)

Sol. Amount in 2 years = P $\left(1+\frac{r}{100}\right)^2$ = 5750 _____(1)
Amount in 3 years = P $\left(1+\frac{r}{100}\right)^3$ = 8625 _____(2)
$\frac{8625}{5750}$ = $\left(1+\frac{r}{100}\right)$ {Divide (2) ÷ (1)
$\frac{r}{100}=\frac{2875}{5750}$
r = 50 %

S29. Ans.(e)

Sol. Let milk and water in 1st Container = $2x$ and $3x$ respectively
And milk and water in 2nd Container = 11 y and 14 y respectively.
since both quantities are same capacity
$2x+3x=11y+14y$
$\frac{x}{y}=\frac{5}{1}$
So, Ratio of milk and water in final mixture
$=\frac{2x+11y}{3x+14y}$
$=\frac{2\times5+11\times1}{3\times5+14\times1}$
$=\frac{21}{29}$

S30. Ans.(c)

Sol. Volume of cone = $\frac{1}{3}\times\pi r^2h$
= $\frac{1}{3}\times\frac{22}{7}\times10\times10\times27.3$
= 2860 cm^3

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