SEBI Grade A Quantitative Aptitude (Solutions)

S1. Ans.(b)

Sol. Let two digits of number be a and b

A.T.Q.

$10a + b = 5 \times (a + b)$

5a=4b

$\frac{a}{b} = \frac{4}{5}$ -------I

ATQ,

10a+b+9=a+10b

9b-9a=9

b-a=1 ----------II

from statement I Let a= 4x and b = 5x

∴ putting in II

5x-4x=1

X=1

So digits 4x and 5x are 4 and 5

∴ number = 45.

S2. Ans.(a)

Sol. Let h.c.f of two number = H

Then lcm of two number=33H

ATQ,

H+33H=374

H=11(h.c.f)

And lcm=33× H=363

lcm× $hcf = multiple\ of\ two\ number$

363× $11 = 121 \times second\ number$

Second number=33

S3. Ans.(b)

Sol. Let total profit =7x

So, profit of A=x

And remaining profit is distributed among A and B equally

Profit of B = profit of C=3x

ATQ,

$3x - x = 2x = Rs.1750$

So, total profit =$7x = 7 \times \frac{1750}{2} = Rs.6125$

S4. Ans.(c)

Sol. Stoppage time per hour

$= \left(\frac{\text{Speed of bus without stoppage} - \text{Speed of bus with stoppage}}{\text{Speed of bus without stoppage}}\right) \times 100$

$= \frac{84-77}{84} \times 60$

= 5 min.

S5. Ans.(e)

Sol. Let speed of car = $100x$ Kmph

Speed of train = $125x$ Kmph

$\frac{150}{100x} - \frac{150}{125x} = \frac{45}{60}$

$x = 0.4$

Speed of train = 125 X .4 = 50 Kmph

Speed of car = 100 X .4 = 40 Kmph

S6. Ans.(d)

Sol. Let Distance = D km

$\frac{D}{4.5+1.5} + \frac{D}{4.5-1.5} = 18$

$\frac{D}{6} + \frac{D}{3} = 18$

$\frac{3D}{6} = 18$

D = 36 Km.

S7. Ans.(a)

Sol.

I. $x^2 + 9x - 22 = 0$

$x^2 + 11 - 2x - 22 = 0$

$(x+11)(x-2) = 0$

$x = 2, -11$

II. $y^2 - 16y + 64 = 0$

$(y-8)^2 = 0$

$y = 8$

so, $y > x$

S8. Ans.(e)

Sol.

I. $x^2 - 5x - 14 = 0$

$x^2 - 7x + 2x - 14 = 0$

$(x-7)(x+2) = 0$

$x = 7, -2$

II. $y^2 - 7y + 12 = 0$

$y^2 - 4y - 3y + 12 = 0$

$(y-4)(y-3) = 0$

$y = 4, 3$

So, No relation between x and y.

S9. Ans.(e)
Sol.
I. 3× + 4y = 7
II. 4x + 3y = 7
From (i) – (ii)
y – x = 0 ⇒ y= x

S10. Ans.(a)
Sol.
I. $x^2 + 13x + 40 = 0$
$x^2 + 8x + 5x + 40 = 0$
(x+8) (x+5) = 0
x = – 8, – 5
II. $2y^2 - 13y - 34 = 0$
$2y^2 - 17y + 4y - 34 = 0$
(y+2) (2y–17) = 0
$y = -2, \frac{17}{2}$
So, y > x

S11. Ans.(c)
Sol. Let total no. of young and middle-aged people in the state are 3x and 2x respectively.
Required ratio = $3x \times \frac{25+20}{100} : 2x \times \frac{40}{100}$
= 27: 16

S12. Ans.(b)
Sol. Let total no. of young, old and middle-aged people in the state are 3x, 5x and 2x respectively.
ATQ
$5x \times \frac{35+15}{2\times100} = 6750$
$x = 5400$
Required difference = $3x \times \frac{30}{100} - 2x \times \frac{15}{100} = \frac{60x}{100}$
$= \frac{60}{100} \times 5400$
= 3240

S13. Ans.(a)
Sol. Let total no. of young, old and middle-aged people in the state are 3x, 5x and 2x respectively
No. of old aged in south = $5x \times \frac{15}{100} = 0.75x$
No. of middle-aged in west= $2x \times \frac{30}{100} = 0.60x$
Required percentage = $\frac{0.75x-0.60x}{0.60x} \times 100 = 25\%$

S14. Ans.(e)

Sol. Let total no. of young, old and middle-aged people in the state are 3x, 5x and 2x respectively

ATQ

$3x \times \frac{25}{100} + 5x \times \frac{15}{100} + 2x \times \frac{15}{100} = 9720$

$\frac{180x}{100} = 9720$

$x = 5400$

So, 3x=16200

S15. Ans.(d)

Sol. Let total no. of young, old and middle-aged people in the state are 3x, 5x and 2x respectively

Total no. of young, middle-aged and old aged people in east region of state

$= 3x \times \frac{30}{100} + 5x \times \frac{35}{100} + 2x \times \frac{15}{100}$

$= \frac{90x+175x+30x}{100}$

$= \frac{295}{100}x$

Required percentage = $\frac{295x}{100 \times 10x} \times 100 = 29.5\%$

S16. Ans.(c)

Sol. $\sqrt{15.9987} \times 1598.998 \div 3198.0125 + \sqrt{2208.997}$

$= 4 \times \frac{1599}{3198} + 47$

$?^2 = 49$

$? = \pm 7$

So, ?=7

S17. Ans.(e)

Sol. $37.992 \times \sqrt{143.956} \div 2.001^7 \times \sqrt{4095.998} \div 56.998$

$= 38 \times 12 \div 128 \times 64 \div 57$

$= 38 \times \frac{12}{128} \times \frac{64}{57}$

$= 4$

S18. Ans.(a)

Sol. $34.001 \times 17.997 \times 23.995 \div 16.999$

$= 34 \times 18 \times 24 \div 17$

$= \frac{34 \times 18 \times 24}{17}$

$= 864$

S19. Ans.(d)

Sol. 0.2% of 329.995 +1% of 169.995-0.4% of 419.995

$= \frac{2}{1000} \times 330 + \frac{1}{100} \times 170 - \frac{4}{1000} \times 420$

$= 0.66+1.70-1.68$

$= 0.68$

S20. Ans.(b)

Sol. 16.66% of 108.123+7.69% of 168.998-5.88% of 173.4

$= \frac{1}{6} \times 108 + \frac{1}{13} \times 169 - \frac{1}{17} \times 173.4$

= 20.8

S21. Ans.(e)

Sol. We have $\frac{S-1}{G-1} = \frac{3}{4} \Rightarrow 4S - 3G \Rightarrow 1$ (1)

And $\frac{S+1}{G+1} = \frac{10}{13} \Rightarrow 13S - 10G \Rightarrow -3$ (2)

Solving (1) & (2), we have, S= 19 years.

S22. Ans.(d)

Sol. Original amount $= \frac{5760 \times 100 \times 100 \times 100}{(100-25)(100-50)(100-75)} = 61440$

S23. Ans.(c)

Sol. 8% of 20,000 = 1600

5% of 10,000 = 500

& 7% of 36,000 = 2,520

⇒ Remaining discount = 420

⇒ On 6000, 7% discount can be allowed.

S24. Ans.(b)

Sol. A + B + C = 4 days

B + C = $\frac{10}{3} \times 2 = \frac{20}{3}$ days

A = $\frac{1}{\frac{1}{4} - \frac{3}{20}} = \frac{1}{\frac{5-3}{20}}$

$= \frac{20}{2} = 10$ days

S25. Ans.(c)

Sol. Let length of train A be 'L' m and speed be 'V' m/s

ATQ –

V = $\frac{L}{8}$ ---------- (i)

And, V = $\frac{L+180}{17}$ ---------- (ii)

From (i) & (ii)

$\frac{L}{8} = \frac{L+180}{17}$

$17L - 8L = 1440$

L = 160 m

And V = 20 m/s

Let length of train B be 'S' m

So, $108 \times \frac{5}{18} + 20 = \frac{160+S}{8}$

S = 400 −160

S = 240 m

Let time taken by train B to cross platform P be t sec

So, $108 \times \frac{5}{18} = \frac{240+180}{t}$

$t = \frac{420}{30} = 14\ sec$

S26. Ans.(d)

Sol. The wrong no. in this Series is 1645.

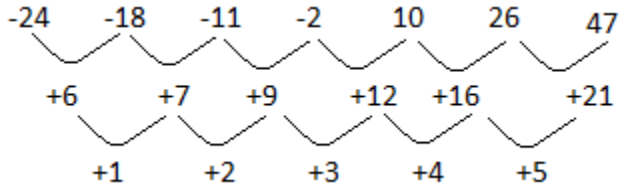
The series is $\times 1 + 2, \times 2 + 3, \times 3 + 4, \times 4 + 5, \ldots\ldots\ldots\ldots$

$321 \times 5 + 6 = 1605 + 6 = 1611$

So, there should be 1611 instead of 1645.

S27. Ans.(e)

Sol. The wrong no. in this series is 52 (26+21=47).



S28. Ans.(d)

Sol. The wrong no. in this series is 52.

The series is $\times 2 + 1, \times 1 + 2$ alternately

So, there should be 27 instead of 52.

S29. Ans.(e)

Sol. The wrong no. in this series is 160.

The series is $\times 1.5, \times 2, \times 2.5, \times 3, \ldots..$

So, there should be 157.5 instead of 160.

S30. Ans.(c)

Sol. the wrong no. in this series is 40.

The pattern of the number series is :

$7 + 1 \times 11 = 7 + 11 = 18$

$18 + 3 \times 11 = 18 + 33 = 51$

$51 + 5 \times 11 = 51 + 55 = 106$

$106 + 7 \times 11 = 106 + 77 = 183$

$183 + 9 \times 11 = 183 + 99 = 282$

So, there should be 51 instead of 40.

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