SEBI Grade A Quantitative Aptitude (Solutions)

S1. Ans.(a)
Sol.
$\frac{?}{5} \times 125 = \frac{3}{5} \times \frac{4}{7} \times 3430$
$? \times 25 = 1176$
$\Rightarrow ? = 47.04$

S2. Ans.(b)
Sol.
$? = \frac{13}{100} \times 450 + \frac{21}{100} \times 250 - \frac{24}{100} \times 80$
$= 58.5 + 52.5 - 19.2$
$= 91.8$

S3. Ans.(c)
Sol.
? = 21.715 + 18.18 – 10.45
= 29.445

S4. Ans.(d)
Sol.
4 ×? = 231 + 424
⇒ ? = 163.75

S5. Ans.(a)
Sol.
? = 9 + 28 + 4 – 7
= 34

S6. Ans.(d)
Sol. Let total voters = 100x
Total casted votes (in percentage) = 92x
$(52 - 48) \times \frac{92x}{100} = 1840$
$x = 500$
$\Rightarrow 100x = 50000$

S7. Ans.(a)
Sol. Let CP of each cow = Rs x
$\therefore 20 \times \frac{115x}{100} + 40 \times \frac{119x}{100} + 16 \times \frac{125}{100} - 76x = 6570$
$\Rightarrow \frac{9060x - 7600x}{100} = 6570$
⇒ x = Rs. 450

S8. Ans.(b)

Sol. Percentage discount = $\frac{360-240}{360} \times 100 = 33\frac{1}{3}\%$

S9. Ans.(e)

Sol.

$S = \frac{F}{6}$, $F + 10 = 2(V + 10)$, $V - 2 = 8$

$\therefore V = 10$ years

$F = 2(10 + 10) - 10 = 30$ years.

So, Shikha's present age = 5 years.

S10. Ans.(a)

Sol. Let the efficiency of P be x units/day

And that of Q be y units/day

Total work = 5 (x + y) units = $4\left(2x + \frac{y}{2}\right)$ units

$\Rightarrow 5x + 5y = 8x + 2y$

$\Rightarrow 3x = 3y \Rightarrow x = y$

Total work = 5 (2x) = 10x units

Time taken by P = $\frac{10x}{x}$ = 10 days

S11. Ans.(d)

Sol. $2 \times 1 + 2 = 4$

$4 \times 2 + 4 = 12$

$12 \times 3 + 6 = 42$

$42 \times 4 + 8 = 176$

$176 \times 5 + 10 = 890$

S12. Ans.(c)

Sol. $2 + 1^3 = 3$

$3 + 2^2 = 7$

$7 + 3^3 = 34$

$34 + 4^2 = 50$

$50 + 5^3 = 175$

S13. Ans.(a)

Sol. $\frac{1760}{2} = 880$

$\frac{880}{2} = 440$

$\frac{440}{2} = 220$

$\frac{220}{2} = 110$

$\frac{110}{2} = 55$

S14. Ans.(d)
Sol. $500 \times 0.5 = 250$
$250 \times 1 = 250$
$250 \times 1.5 = 375$
$375 \times 2 = 750$
$750 \times 2.5 = 1875$

S15. Ans.(a)
Sol. 14 + 6= 20
20 – 8 = 12
12 + 10 = 22
22- 12 = 10
10 + 14 = 24

S16. Ans.(d)
Sol. I. $8x^2 + 26x + 15 = 0$
$\Rightarrow 8x^2 + 20x + 6x + 15 = 0$
$\Rightarrow 4x(2x + 5) + 3(2x + 5) = 0$
$\Rightarrow (2x + 5)(4x + 3) = 0$
$\Rightarrow x = -5/2, -3/4$
II. $4y^2 + 24y + 35 = 0$
$\Rightarrow 4y^2 + 10y + 14y + 35 = 0$
$\Rightarrow 2y(2y + 5) + 7(2y + 5) = 0$
$\Rightarrow (2y + 5)(2y + 7) = 0$
$\Rightarrow y = -5/2, -7/2$
$\therefore x \geq y$

S17. Ans.(e)
Sol. I. $2x^2 + 9x + 9 = 0$
$\Rightarrow 2x^2 + 6x + 3x + 9 = 0$
$\Rightarrow (x + 3)(2x + 3) = 0$
$\Rightarrow x = -3, -3/2$
II. $2y^2 + 17y + 36 = 0$
$\Rightarrow 2y^2 + 8y + 9y + 36 = 0$
$\Rightarrow (y + 4)(2y + 9) = 0$
$y = -4, -9/2$
$\therefore x > y$

S18. Ans.(a)
Sol. I. $5x^2 + 29x + 20 = 0$
$\Rightarrow 5x^2 + 25x + 4x + 20 = 0$
$\Rightarrow (x + 5)(5x + 4) = 0$
$\Rightarrow x = -5, -4/5$

II. $25y^2 + 25y + 6 = 0$
$\Rightarrow 25y^2 + 15y + 10y + 6 = 0$
$\Rightarrow (5y + 3)(5y + 2) = 0$
$\Rightarrow y = -3/5, -2/5$
$\therefore x < y$

S19. Ans.(a)
Sol. I. $3x^2 - 16x + 21 = 0$
$\Rightarrow 3x^2 - 9x - 7x + 21 = 0$
$\Rightarrow (x - 3)(3x - 7) = 0$
$\Rightarrow x = 3, 7/3$
II. $3y^2 - 28y + 65 = 0$
$\Rightarrow 3y^2 - 15y - 13y + 65 = 0$
$\Rightarrow (y - 5)(3y - 13) = 0$
$\Rightarrow y = 5, 13/3$
$\therefore x < y$

S20. Ans.(b)
Sol. . I. $8x^2-26x+15=0$
$\Rightarrow 8x^2 - 20x - 6x + 15 = 0$
$\Rightarrow 4x(2x - 5) - 3(2x - 5) = 0$
$x = \frac{3}{4}, \frac{5}{2}$
II. $2y^2-17y+30=0$
$2y^2 - 12y - 5y + 30 = 0$
$2y(y - 6) - 5(y - 6) = 0$, $y = \frac{5}{2}, 6$
$\therefore x \leq y$

S21. Ans.(c)
Sol.
Let total distance=21x km(lcm of 3 and 7)
ATQ,
$\frac{1}{3}$rd of journey$(1/3 \times 21x = 7x)$ at the speed of 35kmph
$\frac{3}{7}$th of journey $(\frac{3}{7} \times 21x = 9x)$ at the speed of 30kmph
Rest of journey$(21x - 7x - 9x = 5x)$at the speed of 25kmph
So,
$\frac{7x}{35} + \frac{9x}{30} + \frac{5x}{25} = 7$
$x = 10$
Total distance$= 21x = 210$km

S22. Ans.(b)

Sol. Let cost price = Rs. 100x

Marked price= Rs. 120x

Let discount percentage =D %

ATQ,

$120x \times (\frac{100-D}{100}) = 110x$

$\frac{100-D}{100} = \frac{11}{12}$

So, $D = \frac{100}{12}\% = 8\frac{1}{3}\%$

S23. Ans.(c)

Sol. Let length of rectangle = 100L unit

And breadth of rectangle = 100B unit

ATQ,

$\text{Required \%} = \frac{106\frac{1}{4}L \times 88\frac{4}{17}B - 100L \times 100B}{100L \times 100B} \times 100$

=6.25%

S24. Ans.(d)

Sol. Let second number is 5x

Then first number = $\frac{3}{5} \times 5x = 3x$

ATQ,

$525 \times 35 = 5x \times 3x$

$x = 35$

So, larger number =5x=5× 35=175.

S25. Ans.(a)

Sol. Average weight of 30 members =60 kg

Total weight of 30 members=60 × 30kg

New average weights=$\frac{60 \times 30 - 48 + 72}{30}$

=60.8 kg

S26. Ans.(b)

Sol. ATQ,

Let the C.P be x and we know profit is calculated on C.P

$\therefore$ 20% of x = 270

X= 1350 lakhs

According to question income = 120 % of C.P

$\therefore$ income $= \frac{120}{100} \times 1350 = 1620$

S27. Ans.(d)

Sol. ATQ,

Required % = $\frac{15+18+20+22+25+30}{6}$

= 21.66%

S28. Ans.(a)

Sol. Average percentage profit of company honor, Google and Huawei in 2014 = $\frac{22+17+18}{3}$ = 19%

average percentage profit of company Nokia, Samsung and Sony in 2018 = $\frac{10+15+10}{3}$ ≈ 11.66%

so, required difference ≈ 7.33%

S29. Ans.(e)

Sol. Required %=$\frac{30-15}{15}$ × 100

=100%

S30. Ans.(c)

Sol. In 2015 profit percentage of Samsung is maximum.

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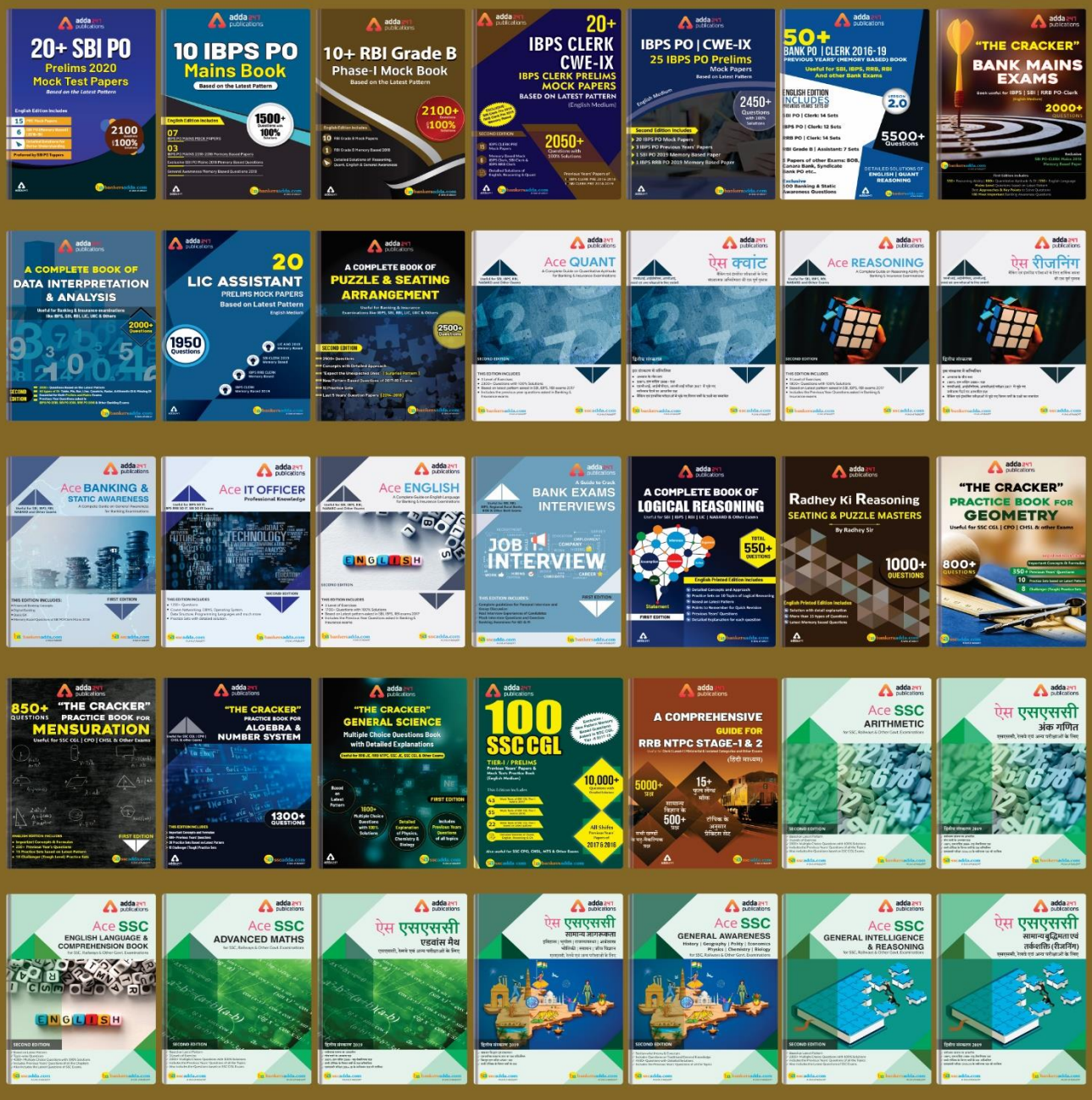

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