50 Arithmetic Questions For SSC CGL Exam (Solutions)

S1. Ans.(c)

Sol. Both do the given work in 10 day

If they work together for 2 days they will finish $\frac{1}{5}$ th of the given work.

Remaining work $= \frac{4}{5}th$ of given work

B does $\frac{4}{5}$ of total work = 12 days

Time required for total work $= \frac{12\times5}{4}$

= 15 days

$\frac{1}{A}+\frac{1}{B}=\frac{1}{30};\frac{1}{A}=\frac{1}{30}-\frac{1}{15}$

$\frac{1}{A}=\frac{3-2}{30}=A=30$ days

S2. Ans.(b)

Sol.

$100 \xrightarrow{50\%} 50 \xrightarrow{-50\%} 25$

Total discount = 100 – 25 = 75%

S3. Ans.(d)

Sol. After 18 discount on MP

82% MP → 5330

$\frac{82}{100}MP \rightarrow 5330$

MP = $\frac{5330\times100}{82}$

= 6500

S4. Ans.(c)
Sol. Let the total is = 12 units
Then Raman invested = 3 units
Rohit Invested = 4 units
Raja Invested = 5 units
Hence,
Raman : Rohit : Raja = 3 : 4 : 5

S5. Ans.(b)
Sol. Let's assume
D = 1 then,
C = d + 3 = 4
b – c= 2 a -b = 1
b = 6 a = 7
$\frac{a+d}{c} = \frac{7+1}{4} = \frac{2}{1}$

S6. Ans.(d)
Sol.
$\frac{6}{7}x - 60 = \frac{4}{5}x$
or, $\frac{2x}{35} = 60$
or, x = 1050 l

S7. Ans.(a)
Sol. Let marked price be Rs. 100.
Therefore, cost price = Rs.75
Selling price $= 75 \times \frac{175}{100} = \text{Rs. } 131.25$
∴ Required profit percentage
$= \frac{131.25 - 100}{100} \times 100 = 31.25\ \%$

S8. Ans.(c)
Sol. Amount received by A $= 8400 \times \frac{6}{21} = 2400$
Amount received by B $= 8400 \times \frac{8}{21} = 3200$
Amount received by A $= 8400 \times \frac{7}{21} = 2800$
Saving of A $= \frac{400}{2} \times 3 = 600$
Saving of B = 400
Saving of C $= \frac{400}{2} \times 4 = 800$
Therefore, ratio of expenditure
= (2400 – 600) : (3200 – 400) : (2800 – 800)
= 1800 : 2800 : 2000 = 9 : 14 : 10

S9. Ans.(c)

Sol. Total age of 24 student = 24 × 12 = 288

Correct total = 288 – 6 = 282

$\therefore$ Correct average $= \frac{282}{24}$

$= 11.75$

S10. Ans.(c)

Sol.

70% of CP = 40% of SP

$\frac{SP}{CP} = \frac{7}{4}$

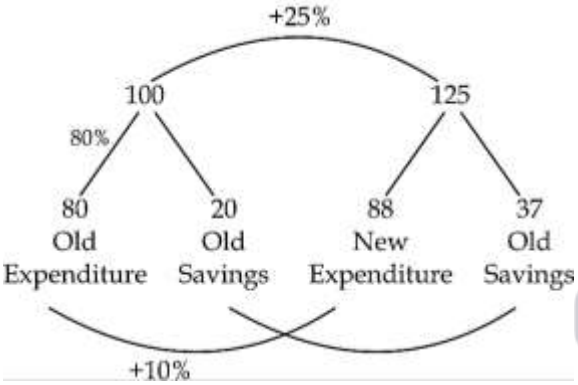
$\therefore$ Let CP be 4x and SP be 7x

$\therefore$ Profit percent $= \frac{7x-4x}{4x} \times 100$

$= \frac{3x}{4x} \times 100 = 75\%$

S11. Ans.(d)

Sol. Let his initial income be Rs 100



% increase in savings $= \frac{37-20}{20} \times 100 = 85\%$

S12. Ans.(a)

Sol. Let each trip be of 60 Km

60km/h	30km/h	15km/h	7.5km/h
1hr	2hr	4hr	8hr

$\text{Avg. speed} = \frac{\text{total distance}}{\text{total time}}$

$= \frac{60 \times 4}{1+2+4+8} = 16 \text{ km/h}$

S13. Ans.(c)

Sol. ATQ,

$2059 = \frac{P}{100}(3 \times 3 + 4 \times 5 + 6 \times 7)$

$\Rightarrow P = 2900$

S14. Ans.(b)

Sol. $100 \xrightarrow{-10\%} 90 \xrightarrow{-10\%} 81\% \xrightarrow{-10\%} 72.9\%$

If 72.9% = 36450

×500

Then 100% ⇒ 100 × 500 = Rs 50000

S15. Ans.(c)

Sol. 36 kmph $= \frac{36}{18} \times 5 = 10\ ms^{-1}$

54 kmph $= 54 \times \frac{5}{18} = 15\ ms^{-1}$

Relative speed if they are travelling in opposite direction

= (10 + 15) ms^{-1} = 25 ms^{-1}

Distance travelled in 10 sec = 25 × 1 = 25 seconds

S16. Ans.(d)

Sol. Let the usual time be 't' hrs and usual speed be 'x' km/h

ATQ,

126 = xt .....(i)

And 126 = (x-6)×(t +$\frac{3}{60}$)

126 = (x-6) ×($\frac{126}{x} + \frac{1}{20}$) .....(ii)

Solving eqn (i) and eqn (ii), we get

x = 126 km/h

S17. Ans.(d)

Sol.

$x \xrightarrow{6yrs} 3x$

81 ⇒ (3^4)

Hence, 6 × 4 yrs = 24 yrs

S18. Ans.(d)

Sol.

Int = $\frac{5400 \times 5 \times 12}{100}$ =3240

S19. Ans.(a)

Sol.

CP MP/1360

+15.6% SP -15%

1156

SP $= 1360 \times \frac{85}{100} =$ Rs 1156

CP $= 1156 \times \frac{100}{115.6} = 1000$

S20. Ans.(c)

Sol. Initial weight = 15

Initial price = $(15)^2$ = 225 units

New price = $3^2 + 5^2 + 7^2$ = 83 units

Now, loss = (225 – 83) units = 142 units

⇒ 142 units → Rs 42,600

$225 \rightarrow \frac{42600}{142} \times 225$ = Rs 67500

S21. Ans.(b)

Sol. Let x be the age of 50th student

ATQ,

32 × 100 = 30 × 49 + 50 × 34 + x

⇒ x = 30

S22. Ans.(d)

Sol. SP of 1 pen $= \frac{80}{90} = \frac{8}{9}$

CP of 1 pen $= \frac{8}{9} \times \frac{100}{80} = \frac{10}{9}$

CP of 90 pens $= \frac{10}{9} \times 90 = 100$

SP of 90 pens for 20% profit $= 100 \times \frac{120}{100} = 120$

S23. Ans.(d)

Sol. I ⇒ 75% → 100 $\xrightarrow{-50\%}$ 50 $\xrightarrow{-50\%}$ 25% (75% Discount)

II ⇒ 76% → 100 $\xrightarrow{-60\%}$ 40 $\xrightarrow{-40\%}$ 24% (76% Discount)

III ⇒ 79% → 100$\xrightarrow{-70\%}$ 30% $\xrightarrow{-30\%}$ 21% (79% Discount)

IV ⇒ 75% → $\frac{100}{400}$ = 25% (75% Discount)

S24. Ans.(a)

Sol.

a : b : c = 2 : 3 : 4

$\frac{a+b+c}{b} = \frac{9}{3} = 3$

S25. Ans.(c)

Sol.

$\frac{2x + y}{3x} = \frac{2}{1}$

2x + y = 6x

y = 4x ℓtr

Vol. of initial mixture = 5x

% added $= \frac{4x}{5x} \times 100\% = 80\%$

S26. Ans.(a)
Sol. Avg. of B & C ⇒ x; Total of B & C = 2x
Avg. of A & B ⇒ (x – 15); Total of A & B = 2(x – 15)
Difference b/w both the totals ⇒ (A + B) – (B + C)
= 2x – 30 – 2x
A – C = – 30
A – 65 = – 30
A = 35

S27. Ans.(c)
Sol. Sum of squares of first 10 natural nos.
$= \frac{(n)(n+1)(2n+1)}{6}$
$= \frac{10\times11\times21}{6} = 385$
Average $= \frac{385}{10} = 38.5$

S28. Ans.(d)
Sol. Given ⇒ 13x – 9x = 4x = 320
x = 80
C.P. + S.P. = 13x + 9x
= 22x =1760

S29. Ans.(a)
Sol.
$125 \rightarrow \frac{60}{64}$
$60 \rightarrow \frac{60\times60}{64\times125} = \frac{3600}{8000} = \frac{36}{80}$
Hence for 40% loss he will sell 80 apples for Rs 36.

S30. Ans.(c)
Sol. 18% copper by weight means,
∵ For 18 Kg of copper ⇒ 100 Kg of mixture is required.
∴ for 81 Kg of Copper, mixture required = $(\frac{100}{18})$*81 =450Kg

S31. Ans.(b)
Sol. Let initial value be 10000
So first discount $= \frac{20}{100} \times 10000 = 2000$
Second discount $= 8000 \times \frac{10}{100} = 800$
Third discount $= \frac{30}{100} \times 7200 = 2160$
Resulting value after 3rd discount = 7200 – 2160 = 5040
So, Net discount = 49.6%

S32. Ans.(d)

Sol. Let total capacity of one vessel = 48 litre

Milk in Ist vessel $= \frac{5}{12} \times 48 = 20$ liter

Milk in IInd vessel $= \frac{7}{16} \times 48 = 21$ liter

Milk in IIIrd vessel $= \frac{2}{3} \times 48 = 32$ liter

Percentage of milk in resulting mixture

$= \frac{20+21+32}{48\times3} \times 100$

$= \frac{73}{144} \times 100$

= 50.7%

S33. Ans.(b)

Sol. Let average expenditure be x

$\frac{14\times7+(21+x)}{8} = x$

$\Rightarrow 98 + 21 + x = 8x$

$\Rightarrow 119 + x = 8x$

$\Rightarrow 7x = 119$

$\Rightarrow x = 17$

total amount spend

= 14 × 9 + 21 + 17

= 98 + 38

= 136

S34. Ans.(d)

Sol. Let C.P. = x

So, $x + \frac{x}{100} \times x = 24$

$x + \frac{x^2}{100} = 24$

$\Rightarrow 100x + x^2 = 2400$

$\Rightarrow x^2 + 100x - 2400 = 0$

$\Rightarrow x^2 + 120x - 20x - 2400 = 0$

$\Rightarrow x(x + 120) - 20(x + 120) = 0$

$\Rightarrow x = 20, -120$

so x = 20

best way is to go through options

S35. Ans.(c)

Sol. A will get $= \frac{64}{100} \times 145 = 92.8$

$\frac{116}{100} C = 92.8$

C = 80

S36. Ans.(b)
Sol. Distance covered in 6 hours after repairing
= 54 × 6 = 324 km
Required time $= \frac{324}{48}$
= 6 hours 45 min.

S37. Ans.(c)
Sol. Let principle be x
So interest = 2x
$2x = \frac{x}{100} \times \frac{16}{3} \times R$
$\frac{600}{16}\% = R$
R = 37.5%

S38. Ans.(c)
Sol. ATQ,
48 × CP = 32 × SP
$\Rightarrow \frac{CP}{SP} = \frac{32}{48}$
$\therefore$ Profit % $= \frac{16}{32} \times 100 = 50\%$

S39. Ans.(d)
Sol. Let the initial sum be x
$\therefore$ ATQ,
(x – 0.12x) – 0.25 × 0.88x = 2508
$\Rightarrow$ 0.88x – 0.22x = 2508
$\Rightarrow x = \frac{2508}{0.66} = 3800$

S40. Ans.(a)
Sol. Relative speed of both trains
= (30 + 45) km/h
$= \left(75 \times \frac{5}{18}\right)$ m/s
$\therefore$ Time taken to cross each either
$= \left(\frac{1000}{75 \times \frac{5}{18}}\right)$ sec = 48 sec

S41. Ans.(b)
Sol.
$SI = \frac{PRT}{100}$
$\Rightarrow P + 500 = \frac{P \times 10 \times 20}{100}$
$\Rightarrow$ P = 500

S42. Ans.(b)

Sol. $T_7 = -4$

$a + 6d = -4$ ...(i)

$T_4 = 11$

$a + 3d = 11$ ...(ii)

On solving (i) & (ii) we get,

$a = 26$ & $d = -5$

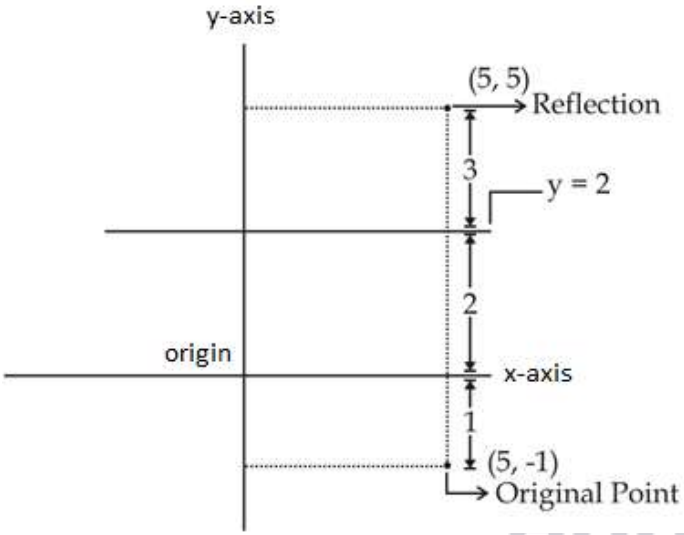
$T_{15} = a + (n - 1)d$

$= 26 + (15 - 1)(-5)$

$= 26 - 70 = -44$

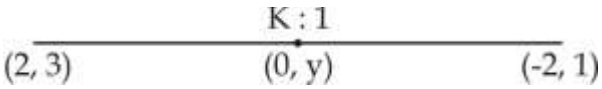
S43. Ans.(c)

Sol.



S44. Ans.(b)

Sol. Let the ratio be k : 1.



By section formula,

$\frac{-2k + 2}{k + 1} = 0$

$-2K + 2 = 0$

$K = 1$

$\therefore$ the ratio is 1 : 1

S45. Ans.(a)

Sol. $2x - 5y = 12$

$y = \frac{2}{5}x - \frac{12}{5}$

Compare the above Eqn. with $y = mx + c$

$\therefore$ Slope$(m) = \frac{2}{5}$

S46. Ans.(d)

Sol.

$a + 2d = -8$ ..(i)

$a + 8d = 10$ ..(ii)

Solving (i) and (ii) we get

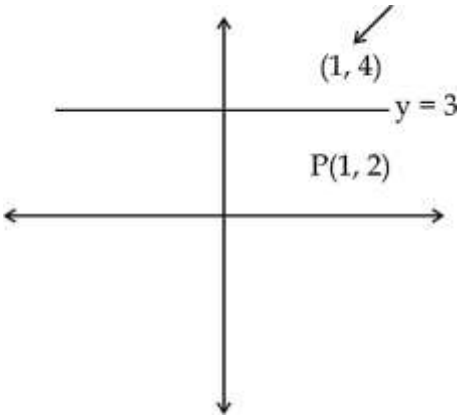
$a = -14$ and $d = 3$

$\therefore 16^{th}$ then $= a + 15d$

$= -14 + 15 \times 3 = 31$

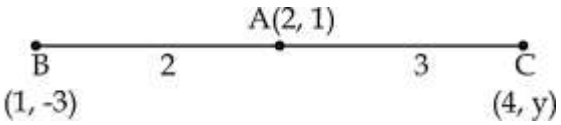
S47. Ans.(b)

Sol.



S48. Ans.(d)

Sol.



$$\frac{2 \times y - 3 \times 3}{2 + 3} = 1$$

$\Rightarrow 2y - 9 = 5$

$\Rightarrow y = 7$

S49. Ans.(c)

Sol. At x-axis, value of y is 0

$\therefore 2x + 5y = -6$

$\Rightarrow 2x = -6$

$\Rightarrow x = -3$

$\therefore$ Required coordinate = (-3, 0)

S50. Ans.(b)

Sol. Let speed of express train be x km/h

And speed of Duronto train be y km/h

∴ ATQ,

$\frac{432}{x} - \frac{432}{y} = 1$ ... (i)

and $\frac{432}{y} - \frac{432}{1.5x} = 2$ ... (ii)

⇒ solving (i) and (ii)

x = 48 km/h

And,

y = 54 km/h