Quant Beginner Level for SSC CGL 24th November (Solutions)

S1. Ans.(b);

Sol.

Let A has x guavas and B has y guavas, the

$x - \frac{1}{4}x = \left(y + \frac{1}{4}x\right) + 2$ ...(i)

And $y - \frac{7}{10}y = x + \frac{1}{10}y - 4$ ...(ii)

Solving (i) and (ii), we get

x = 44, y = 20

Total guavas = 44 + 20 = 64

S2. Ans.(d);

Sol.

Income →	4	4.4	4.8	5.2	18.4	lakh
Saving →	2	1.76	1.44	1.04	6.24	lakh
Exp. →	2	2.64	3.36	4.16	12.16	lakh

So, $\frac{6.24}{12.16} \times 100 = 51\frac{6}{19}\%$

S3. Ans.(d);

Sol.

A + B + C + D = 56

B + C + D = 4.6A

⇒ A + B + C + D = 5.6 A (adding A in both side)

56 lakh = 5.6 A

⇒ A = 10 lakh

Similarly, $A + C + D = \frac{11}{3}B$

⇒ $A + B + C + D = \frac{14}{3}B$

⇒ B = 12 lakh

Similarly, 4(A + B + D) = C

⇒ A + B + D = 2.5C

⇒ A + B + C + D = 3.5C

⇒ C = 16 lakh

Therefore D = (A + B + C + D) − (A + B + C) = 18 lakh

S4. Ans.(b);
Sol.

Let Ram replaces x litres of 12% sol. with 39% solution.

Now, quality of 12% sol. in 27 litre $= \frac{27 \times 12}{100}$

$\therefore$ After replacing we have volume of 12% sol.

$$= \frac{27 \times 12}{100} - \frac{12x}{100} + \frac{39x}{100} = \frac{324 + 27x}{100}$$

This will be equal to 27 litre of 21% sol.

$$\therefore \frac{324 + 27x}{100} = \frac{21 \times 27}{100}$$

$$\therefore x = \frac{567 - 324}{27} = \frac{243}{27} = 9$$

S5. Ans.(a);
Sol.

Year	Rate of Commission	Commission in values
1	20%	$0.2 \times 20{,}000 = 4000$
	25% (bonus)	$0.25 \times 4000 = 1000$
2	16%	$0.16 \times 20{,}000 = 3200$
3	12%	$0.12 \times 20{,}000 = 2400$
4	10%	$0.1 \times 20{,}000 = 2000$
5-10	4%	$6 \times 0.04 \times 20{,}000 = 4800$

Total commission

$= (4000 + 3200 + 2400 + 2000 + 4800) + (1000) = 17{,}400$

S6. Ans.(a);
Sol.

House hold expenditure = 50%
Remaining = 50%
On Remaining amount he spends:-
Travelling = 25%
Entertainment = 30%
Shopping = 15%
Total = 70% ⇒ Remaining = (100 – 70) % of 50%
Rest amount ⇒ 900 = 30% of 50%
⇒ 15% = 900
100% = 6,000

S7. Ans.(c);
Sol.

Total marks of test = 80
Ankita scored = 65% of 40 Question (1 mark)
= 26
But she needs to score = 80% of entire 'test'
= 80% of 80
= 64 marks
So, she needs = (64 – 26) marks
= 38
Percentage ⇒ x% of 40 = 38
⇒ x = 95

S8. Ans.(c);

Sol.

No. of students = 60

No. of teachers = 5

No. of sweets each students got = 20% of (60)

= 12

Total sweets distributed among students

= 12 × 60 =720

No. of sweets each teacher got = 30% of (60)

= 18

Total sweets = 18 × 5 = 90

distributed among teachers

Total sweets = (720 + 90)

= 810

S9. Ans.(d);

Sol.

Let total votes = 100%

Invalid = 15%

Valid votes = 85%

1st candidate = 55% of 85%

So, 2nd candidate = 45% of 85%

According to the question,

100% → 15200

85% → 12920

Other candidate got = 45% of 12920

= 5814 vote

S10. Ans.(b);

Sol.

Total correct questions for getting 60% grade

$= \frac{60}{100} \times 250 = 150$

40% of 125 = 50 questions

∴ x% of 125 = 150 – 50

= 100 questions

$\Rightarrow x = \frac{100}{125} \times 100 = 80$

Required percentage = 80%

S11. Ans.(b);

Sol.

ATQ,

$$\frac{14}{15} \times \frac{3}{x} = \frac{2}{5}$$

$$x = 7 \text{ months}$$

S12. Ans.(a);
Sol.

	Zinc	Copper
A → 3 : 4 →	$\frac{3}{7}$	$\frac{4}{7}$
B → 5 : 9 →	$\frac{5}{14}$	$\frac{9}{14}$

Zinc in mixture of A & B $= \frac{2\times3}{7} + \frac{3\times5}{14} = \frac{27}{14}$

Copper in the mixture of A & B $= \frac{4\times2}{7} + \frac{3\times9}{14} = \frac{43}{14}$

Ratio $= \frac{27}{14} : \frac{43}{14} = 27 : 43$

S13. Ans.(a);

Sol.

1 year ago A : B → 4 : 3
3 years hence A : B → 6 : 5
Ratio difference = 2
2 r → 1 year + 3 years
1 r → 2 years
Present ages of Both $= 4 \times 2 + 1$
$= 9$ years & $3 \times 2 + 1 = 7$ years
Ratio of Ages 11 years from now
$= 9 + 11 : 7 + 11 = 20 : 18 = 10 : 9$

S14. Ans.(c);
Sol.

ATQ

$x \times \frac{21}{5} \times \frac{20}{3} = 2 \times y \times \frac{11}{4} \times 4$

$x : y = 33 : 42$

S15. Ans.(a);
Sol.

Let total – 1
Males – $\frac{2}{3}$
Females – $\frac{1}{3}$
Temporary Males $= \frac{3}{8} \times \frac{2}{3} = \frac{1}{4}$
Permanent Males $= \frac{2}{3} - \frac{1}{4} = \frac{5}{12}$
Permanent Females $= \frac{1}{3} \times \frac{2}{5} = \frac{2}{15}$
Temporary Females $= \frac{1}{3} - \frac{2}{15} = \frac{1}{5}$
Required ratio $= \frac{3}{7} \times \frac{5}{12} : \frac{2}{5} \times \frac{1}{5}$
$= 125 : 56$

S16. Ans.(a);

Sol.

Fourth proportion of 6, 18, 12 $= \frac{18\times12}{6} = 36$

Mean proportion of 3 & 27 $= \sqrt{3 \times 27} = 9$

Required Ratio $= 36 : 9 = 4 : 1$

S17. Ans.(c);

Sol.

Let the numbers be x and y

Then,

$\frac{1}{4}$of (60% of x) $= \frac{2}{5}$ of (20% of y)

$= \left(\frac{1}{4} \times \frac{60}{100} \times x\right) = \left(\frac{2}{5} \times \frac{20}{100} \times y\right) \Rightarrow \frac{3x}{4} = \frac{2y}{5}$

$x : y = 8 : 15$

S18. Ans.(b);

Sol.

Let the number of girls be x.

Then, number of boys $= 116\%\ of\ x = \frac{29}{25}x$

$\therefore$ Required ratio $= \frac{29}{25}x : x = 29 : 25$

S19. Ans.(c);

Sol.

Let the number of boys be x. then, number of girls= 120% of $x = \frac{6x}{5}$

$\therefore x + \frac{6x}{5} = 66 \Rightarrow \frac{11x}{5} = 66 \Rightarrow x = \frac{66\times5}{11} = 30$

Number of girls = 36

New number of girls = 40

Ratio of Boys & girls = 30 : 40 = 3: 4

S20. Ans.(b);

Sol.

Let C's income be Rs x. Then B's income

$= 80\%\ of\ Rs\ x = Rs\ \left(\frac{4x}{5}\right)$

A's income $= 110\%\ of\ Rs\ \left(\frac{4x}{5}\right)$

$= Rs\ \left(\frac{110}{100} \times \frac{4x}{5}\right) = Rs\ \left(\frac{22x}{25}\right)$

$\therefore A : B : C = \frac{22x}{25} : \frac{4x}{5} : x = 22 : 20 : 25$

S21. Ans.(b);

Sol.

$63\frac{7}{11}\% = \frac{7}{11}$ & $93\frac{3}{29}\% = \frac{27}{29}$

$B = \left(1 + \frac{7}{11}\right) \times A$

$B : A = 18 : 11$

$B \rightarrow 18,\ A \rightarrow 11$

$C = \left(1 + \frac{27}{29}\right)(A + B)$

$= \frac{56}{29}(18 + 11)$

$= 56$

$\% = \frac{56-11 \times 100}{11} = \frac{4500}{11} = 409.9\%$

S22. Ans.(a);

Sol.

70% of $x = 288 + 30\%$ of x

$x = 720$

$66\frac{2}{3}\%\ x - 38\%$ of x

$= \frac{2}{3} \times 720 - \frac{38}{100} \times 720$

$= 480 - 273.6$

$= 206.4$

S23. Ans.(b);

Sol.

$18\frac{2}{3}\% = \frac{1}{6}$

$x - 18\frac{2}{3}\%$ of $x - 25\%$ of $x = x - \frac{1}{6}x - \frac{1}{4}x$

$= \frac{24x-4x-6x}{24} = \frac{14x}{24} = \frac{7}{12}x$

$\%\text{less} = \frac{x-\frac{7}{12}x}{x} \times 100 = \frac{5}{12} \times 100 = \frac{125}{3}$

$\%\text{ of error} = \frac{\frac{125}{3}-30}{\frac{125}{3}} \times 100$

$= \frac{\frac{35}{3}}{\frac{125}{3}} \times 100$

$= 28\%$

S24. Ans.(b);

Sol.

$18\frac{2}{3}\% = \frac{1}{6}, 28\frac{4}{7}\% = \frac{2}{7}$ and $36\frac{4}{11}\% = \frac{4}{11}$

$$\text{Total dues} = \frac{36000}{6} + 28000 \times \frac{2}{7} + 33000 \times \frac{4}{11}$$
$$= 6000 + 8000 + 12000$$
$$= 26000$$

S25. Ans.(a);

Sol.

$$120\left(\frac{100-x}{100}\right) = 40\left(\frac{100+x}{100}\right)$$
$$30 - 3x = 100 + x$$
$$4x = 200$$
$$x = 50\%$$
$$50\% \text{ of } 210 = 105$$
$$70\% \text{ of } 180 = 126$$
$$\text{Required } \% = \frac{21}{126} \times 100 = 16\frac{2}{3}\%$$