MEMORY BASED QUANTITATIVE APTITUDE QUESTIONS OF SSC CHSL TIER-I

Direction: *Read the sentence to find out whether there is any error in it. The error,*

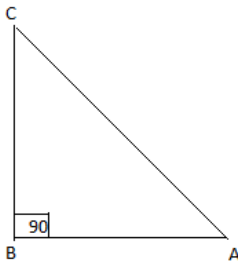**1 .What is the value of $(\frac{1}{3} - Tan30°)$?**

1. $\frac{1-\sqrt{3}}{3}$

2. $\frac{2-\sqrt{3}}{3}$

3. $\frac{3-\sqrt{3}}{3}$

4. $\frac{3-\sqrt{3}}{2}$

Sol.1. $\frac{1}{3} - \frac{1}{\sqrt{3}} =$

$\frac{\sqrt{3}-3}{3\sqrt{3}} = \frac{\sqrt{3}(1-\sqrt{3})}{3\sqrt{3}} = \frac{1-\sqrt{3}}{3}$

2.ΔABC is right angled at B. If tanA = 4/3, then what is the value of sinC?

1. 3/4

2. 2/5

3. 3/5

4. 4/3

Sol.3.

TanA $= \frac{BC}{AB} = \frac{4}{3}$

SinC $= \frac{AB}{AC} = \frac{AB}{\sqrt{(AB)^2+(BC)^2}}$

$= \frac{3}{\sqrt{(4)^2+(3)^2}} = \frac{3}{5}$

3. What is the simplified form of (Cosec A + Sin A) (Cosec A-Sin A)?

1. Cosec^{2}A + cos^{2}A

2. Cot^{2}A + cos^{2}A

3. Cot^{2}A + tan^{2}A

4. Cot^{2}A + sin^{2}A

Sol.2. (Cosec A + Sin A) (Cosec A – Sin A)

= Cosec^{2}A – Sin^{2}A

= Cot^{2}A + 1 – Sin^{2}A

= Cot^{2}A + cos^{2}A

4. If CosecA + cotA = x, then find the value of x.

1. $\sqrt{\frac{1+secA}{1-cosecA}}$

2. $\sqrt{\frac{1+sinA}{1-sinA}}$

3. $\sqrt{\frac{1+cosA}{1-cosA}}$

4. $\sqrt{\frac{1+cosecA}{1-secA}}$

Sol.3. $\frac{1}{SinA} + \frac{CosA}{SinA} =$

$\frac{1+\cos A}{SinA} = \sqrt{\frac{(1+cosA)^2}{sin^2A}}$

$= \sqrt{\frac{(1+cosA)^2}{1-cos^2A}} = \sqrt{\frac{1+cosA}{1-cosA}}$

5. If Sinθ = 35/37, then what is the value of sec θ?

1. 12/37

2. 10/35

3. 37/12

4. 35/37

Sol.3. Sinθ = 35/37

Cosθ$=\sqrt{1-sin^2θ}$

Cosθ$= \sqrt{1-\frac{35^2}{37}}$

Cosθ=12/37

Secθ=37/12

6. Two labourers P and Q are paid a total of Rs 1050 per day. If P is paid 150 percent of what is paid to Q, how much (in Rs) is Q paid?

1. Rs 420

2. Rs 240

3. Rs 220

4. Rs 150

Sol. Let the amount paid to Q = x

Then amount paid to P = 150%of x

Total amount paid to both the labour = 1050

x + 1.5x = 650

2.5x = 1050

x =Rs 420

Then amount paid to Q is Rs 420

7. Two trains, of same length, are running in parallel tracks in the same direction with speed 50 km/hour and 100 km/hour respectively. The latter completely crosses the former in 20 seconds. The length of each train (in metres) is?

1. 139 m

2. 140 m

3. 136 m

4. 120 m

Sol.1. Length of each train = x meter

Relative speed = 100-50 = 50km/hr

= 50 × 5/18 = 125/9 m/sec

Therefore;

2x/125/9 = 20
=>2x = 20×125/9
=>x = 138.8≅ 139 meter

8. A number when reduced by 20% gives 50. The number is:

1.45.8	2.24.8
3.62.5	4.54.7

Sol.3. x(80/100) = 50
$\Rightarrow x = \frac{50*100}{80} = \frac{125}{2} = 62.5$

9.At what point does the line 3x + 4y = - 8 cuts the X - axis?'

1.(-2.6,0)	2.(3,0)
3.(-1.5,0)	4.(2,0)

Sol.1. Given lines 3x + 4y = - 8
At x axis y coordinate is zero, so put y = 0 in the given line
3x + 4 × 0 = - 8
X = - 8/3=-2.6
So coordinate is (- 2.6,0)

10. A car travels a certain distance at 60 km/h and comes back at 40 km/h. Find the average speed for total journey.

1.48 km/hr	2. 24 km/hr
3. 54 km/hr	4. 36 km/hr

Sol. Average speed=$\frac{2ab}{a+b} = \frac{2*60*40}{60+40} = \frac{4800}{100} = 48 \ km/hr$

11.A train moving at a rate of 54 km/hr. crosses a standing man in 20 seconds. It will cross a platform 45 metres long, in :

1.20 sec	2.22 sec
3.23 sec	4.28 sec

Sol.3. Speed of the train in m/s = 54 × 5/18
=>15 m/s
Time = 20 s
Length of the train = speed × time
= 15 × 20 = 300 m
Length of the platform = 45 m
Total distance = length of the train + length of the platform
= 300 m + 45 m = 345 m
Time taken to cross the platform = distance/speed
=>345/15
=>23 sec

12.Three persons whose speed is in the ratio 8:5:3 are walking. find the ratio of the time in which they reach their destination.

1. 13:22:38	2. 15:24:40
3. 11:25:40	4. 10:25:43

Sol.2. ratio of speed=8:5:3
ratio of time=1/8:1/5:1/3=15:24:40

13.A moving train passes a platform 60 m long in 20 seconds and a pole in 15 seconds. The speed of the train (in km/h) is:

1. 34 kmph	2. 23 kmph
3. 43 kmph	4. 53 kmph

Sol.3.
Since train passes 60 m long platform in 20 sec. and pole in 15 sec.
So it takes 5 seconds to travel 60 m.
Speed = 60/5 m/s = (60×18)/(5×5) kmph = 43.2≅ 43 kmph

14.Two trains, of same length, are running in parallel tracks in the same direction with speed 70 km/hour and 60 km/hour respectively. The latter completely crosses the former in 20 seconds. The length of each train (in metres) is?

25m	2.28 m
3.30 m	4.35 m

Sol.2. Length of each train = x meter
Relative speed = 70-60 = 10km/hr
= 10 × 5/18 = 25/9 m/sec
Therefore;
2x/25/9 = 20
=>2x = 20×25/9
=>x = 27.7 ≅ 28 meter
Hence Option A is correct

15.If $x - \frac{1}{x} = 6 \ then \ x^2 + \frac{1}{x^2} =$?

1.38	2.39
3.42	4.48

Sol.1. $x - \frac{1}{x} = 6 ------(i)$
On squaring both sides
$x^2 + \frac{1}{x^2} - 2 = 36$
$x^2 + \frac{1}{x^2} = 38$ Ans

16.If x= $\sqrt{\frac{\sqrt{5}+1}{\sqrt{5}-1}}, then \ value \ of \ 5x^2 - 5x - 1 \ is$?

1.2	2.3
3.4	5.5

Sol. 2. $\sqrt{\frac{\sqrt{5}+1}{\sqrt{5}-1} \times \frac{\sqrt{5}+1}{\sqrt{5}+1}} = \sqrt{\frac{(\sqrt{5}+1)^2}{(\sqrt{5})^2-1^2}} = \frac{\sqrt{5}+1}{2}$
$5x^2 - 5x - 1$

$$5\left[\frac{(\sqrt5+1)}{2}\right]^2 - 5\frac{(\sqrt5+1)}{2} - 1$$

$$5\left(\frac{5+1+2\sqrt5}{4}\right) - \frac{5\sqrt5+5}{2} - 1$$

$$5\left(\frac{3+\sqrt3}{2}\right) - \frac{5\sqrt5+5}{2} - 1 =$$

$$\frac{15+5\sqrt5-5\sqrt5-5-2}{2} = \frac{8}{2} = 4$$

$$= \frac{\frac{\sqrt3}{2}\times\frac12}{\frac{1}{\sqrt3}} = \frac{\frac{\sqrt3}{4}}{\frac{1}{\sqrt3}} = \frac{\sqrt3}{4}\times\frac{\sqrt3}{1} = \frac34$$

17.If x + y = 10 and x^2 + y^2 = 88, then xy is:

1.15   2.13
3.6   4.20

Sol.3.$(x + y)^2 = x^2 + y^2 + 2xy$

$\Rightarrow (10)^2 = 88 + 2xy$
$\Rightarrow xy = 6$

18. Which of the following is not a quadratic equation?

1.2x(x+3)=3x(4x+4)
2.4x(x+2)=2x(x+4)
3.6x(x+4)=5x(x+5)
4.7x(x+4)=7x(x+5)

Sol. 4.
7x(x + 4) = 7x(x+5) is not a quadratic equation as the coefficient of x^2 is zero.

19.If
$$\frac{3\left(\frac{3x}{5}-\frac{2}{4}\right)}{4} - \frac34 = -\frac15$$ **then the value of x is?**

1.$\frac{47}{18}$ 2.$\frac{37}{18}$
3.$\frac{17}{18}$ 4.2

Sol.2. $\frac{3\left(\frac{3x}{5}-\frac{2}{4}\right)}{4} - \frac34 = -\frac15$

$$\frac{\frac{9x}{5}-\frac{6}{4}}{4} - \frac34 = -\frac15$$

$$\frac{\frac{36x-30}{20}}{4} - \frac34 = -\frac15$$

$$\frac{36x-30}{80} - \frac34 = -\frac15$$

$$36x - 90 = -16$$

$$x = \frac{37}{18}$$

20.$\frac{sin60°cos30°}{tan30}$ is euqal to?

1.1/4   2.3/4
3.4/5   4.3/5

Sol.2. $\frac{sin60°cos30°}{tan30} =$