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Reasoning and Aptitude

Date of Test : 23/03/2026

ANSWER KEY >

1. (d)	7. (b)	13. (c)	19. (d)	25. (b)
2. (b)	8. (d)	14. (a)	20. (b)	26. (a)
3. (b)	9. (c)	15. (b)	21. (a)	27. (d)
4. (a)	10. (b)	16. (c)	22. (d)	28. (a)
5. (d)	11. (c)	17. (d)	23. (d)	29. (b)
6. (d)	12. (a)	18. (c)	24. (a)	30. (c)

DETAILED EXPLANATIONS

1. (d)

$$\text{Change in consumption} = \frac{\text{Percentage change in rate} \times 100}{100 + \text{Percentage change in rate}} = \frac{20 \times 100}{100 + 20} = \frac{2000}{120} = 16\frac{2}{3}\%$$

2. (b)

Let the cost prices are $x, 2x, 4x$ Let the quantities are $2y, 5y, 2y$

$$\text{Total cost price} = 2xy + 10xy + 8xy = 20xy$$

$$\begin{aligned} \text{Total profit} &= \frac{10}{100} \times 2xy + \frac{20}{100} \times 10xy + \frac{25}{100} \times 8xy \\ &= 0.2xy + 2xy + 2xy = 4.2xy \end{aligned}$$

$$\text{Profit percentage} = \frac{4.2xy}{20xy} \times 100 = 21\%$$

3. (b)

Let the distance between start point and end point be D km \therefore According to statement of question,

$$\begin{aligned} \frac{x}{10} - \frac{x}{15} &= 2 \\ x &= 60 \text{ km} \end{aligned}$$

By travelling at 10 km/h he reaches at 1 pm so, it takes 6 hour to cover 60 km and hence he started at 7 am; therefore, in order to cover the distance by 12 noon. i.e. in 5 hours he should travel at 12 kmph.

4. (a)

According to given data,

$$20 \times t + 12(10 - t) = 150$$

$$8t + 120 = 150$$

$$t = \frac{30}{8} = \frac{15}{4}$$

The ratio of distance,

$$20 \times \frac{15}{4} : 12 \times \left(10 - \frac{15}{4}\right)$$

$$75 : 75$$

$$1 : 1$$

5. (d)

By checking through options

For $x = 4$

$$\sqrt{4 \times 4 - 9} + \sqrt{4^2 + 3^2} = \sqrt{7} + 5$$

\Rightarrow $x = 4$ is correct option

6. (d)

Let the two consecutive even integers be $2n$ and $(2n + 2)$.

$$\begin{aligned}(2n + 2)^2 - 2n^2 &= (2n + 2 + 2n)(2n + 2 - 2n) \\ &= 2(4n + 2) \\ &= 4(2n + 1)\end{aligned}$$

$4(2n + 1)$ is divisible by 4.

The answer is (d).

7. (b)

$$\text{Number of balls} = 6 + 8 = 14$$

$$\text{Number of white balls} = 8$$

$$P(\text{drawing a white ball}) = \frac{8}{14} = \frac{4}{7} = 0.57$$

8. (d)

Each of the numbers except 80 is a prime number.

Hence, 80 is the odd one out.

9. (c)

Suppose first tap alone takes x hours to empty the tank. Then, second and third taps will take $(x - 5)$ and $(x - 9)$ hours respectively to empty the tank.

$$\therefore \frac{1}{x} + \frac{1}{(x-5)} = \frac{1}{(x-9)}$$

$$\Rightarrow \frac{x-5+x}{x(x-5)} = \frac{1}{(x-9)}$$

$$\Rightarrow (2x-5)(x-9) = x(x-5)$$

$$\Rightarrow x^2 - 18x + 45 = 0$$

$$\Rightarrow (x-15)(x-3) = 0$$

$$\Rightarrow x = 15, 3$$

For $x = 3$, $(x - 5)$ and $(x - 9)$ will be negative.

\therefore Answer is 15 hours.

10. (b)

The word WORKSPACE contains 9 different letters.

When the vowels (OAE) are always together. They can be supposed to form one letter.

Then, we have to arrange the letters WRKSPC (OAE).

Now, 7 letters can be arranged in $7! = 5040$ ways.

The vowels (OAE) can be arranged among themselves in $3! = 6$ ways.

$$\therefore \text{Required number of ways} = (5040 \times 6) = 30240$$

11. (c)

$$C = \frac{A+D}{2}, D > B > C$$

$$B = \frac{A+E}{2}$$

$$A + D = 2C$$

$$A + E = 2B$$

Since $B > C \Rightarrow E > D$

$$C < B < D < E$$

Since C is average of A and D , so $A < C$

\Rightarrow The correct sequence is $A < C < B < D < E$

The middle number is B .

12. (a)

Let the weights are x_1, x_2, x_3 and x_4

Possible pairs,

$$x_1 - x_2, x_1 - x_3, x_1 - x_4,$$

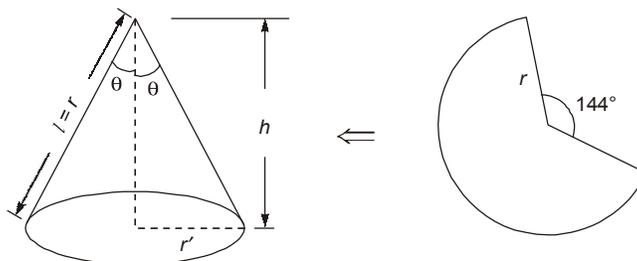
$$x_2 - x_3, x_2 - x_4,$$

$$x_3 - x_4,$$

$$\therefore \text{Average weight} = \frac{63 + 61 + 62 + 63 + 64 + 66}{6} = 62.5 \text{ gm}$$

$$\text{But each envelope is added twice so, average weight} = \frac{62.5}{2} = 31.25 \text{ gm}$$

13. (c)



Height of cone formed be h

Slant height of cone so formed = radius of given circle

$$\Rightarrow l = r$$

Now circumference of base of cone = Circumference of given sector of circle

$$\Rightarrow 2\pi r' = 2\pi r \times \frac{360^\circ - 144^\circ}{360^\circ}$$

$$\Rightarrow r' = \frac{3}{5}r$$

$$\text{Now vertex angle} = 2\theta = 2\sin^{-1}\left[\frac{r'}{l}\right] = 2\sin^{-1}\left[\frac{3}{5}\right]$$

14. (a)

$$\begin{aligned} \text{Ratio of profit} &= 26000 \times 12 : 16000 \times 9 : 25000 \times C \\ &= 312 : 144 : 25C \end{aligned}$$

$$C's \text{ share} = \frac{25C}{312 + 144 + 25C} = \frac{3825}{15453}$$

From here, $C = 6$

\Rightarrow C joined 3 months later than B joined.

15. (b)

A 4 O'clock, the hands of the watch are 20 minute spaces apart.

To be in opposite directions, they must be 30 min spaces apart.

\therefore Minute hand will have to gain 50 minute spaces

55 minute spaces are gained in 60 min

50 minute space are gained in $\left(\frac{60}{55} \times 50\right)$ min or $54\frac{6}{11}$ min

\therefore Required time = $54\frac{6}{11}$ min past 4

The answer is (b).

16. (c)

$$\angle ABC = 90^\circ$$

$$\therefore AB^2 + BC^2 = AC^2$$

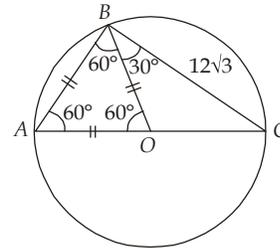
$$\Rightarrow r^2 + (12\sqrt{3})^2 = (2r)^2$$

$$\Rightarrow 432 = 3r^2$$

$$\Rightarrow r = 12$$

Now, area of equilateral triangle = $\frac{\sqrt{3}}{4}(\text{side})^2$

$$\text{Area} = \frac{\sqrt{3}}{4}(12)^2 = \frac{\sqrt{3}}{4}(144) = 36\sqrt{3} \text{ unit}^2$$



17. (d)

$$\begin{aligned} \text{Volume of the large cube} &= (6^3 + 8^3 + 10^3) \\ &= 216 + 512 + 1000 = 1728 \text{ cm}^3 \end{aligned}$$

Let the edge of the large cube be x

$$\text{So, } x^3 = 1728$$

$$\Rightarrow x = 12 \text{ cm}$$

$$\therefore \text{Required ratio} = \left(\frac{6 \times 12^2}{6 \times (6^2 + 8^2 + 10^2)} \right) = \frac{12^2}{36 + 64 + 100} = \frac{144}{200} = 18 : 25$$

The answer is (d).

18. (c)

$$\text{Weight of new member} = 80 + 10 \times 1 = 90 \text{ kg}$$

19. (d)

- 304, 314 394 (except 344) = 9 numbers
- 340, 341 349 (except 344) = 9 numbers
- 400, 401 409 (except 404) = 9 numbers
- 410, 411 419 (except 414) = 9 numbers
- 420, 421 429 (except 424) = 9 numbers
- 430, 431 439 (except 434) = 9 members
- 440, 441 449 (all excepted) = 0 numbers
- 450, 451 459 (except 454) = 9 numbers
- 460, 461 469 (except 464) = 9 numbers
- 470, 471 479 (except 474) = 9 numbers
- 480, 481 489 (except 484) = 9 numbers
- 490, 491 499 (except 494) = 9 numbers

$$\begin{aligned}
 504, 514 \dots 594 \text{ (except 544)} &= 9 \text{ numbers} \\
 540, 541 \dots 549 \text{ (except 544)} &= 9 \text{ numbers} \\
 \text{Total} &= 117 \text{ numbers}
 \end{aligned}$$

20. (b)

Let radii of the circles be $2r$ and r .

$$\text{Then ratio of surface area} = \frac{4\pi(2r)^2}{4\pi r^2} = 4 : 1$$

21. (a)

$$\frac{d}{50} - \frac{d}{60} = \frac{1}{2}$$

$$\frac{d}{300} = \frac{1}{2}$$

$$\Rightarrow d = 150$$

$$t = \frac{150}{50} = 3 \text{ hours}$$

Hence, the car will overtake the bike at 8:00 AM.

22. (d)

$$\text{Wine in 1 litre mixture of } P = \frac{8}{13} l$$

$$\text{Wine in 1 litre mixture of } Q = \frac{5}{7} l$$

$$\text{Wine in 1 litre mixture of } P \text{ and } Q = \frac{9}{13} l$$

Let x litres of P and $(1 - x)$ litres of Q are mixed.

$$\frac{8}{13}x + \frac{5}{7}(1 - x) = \frac{9}{13}$$

$$\Rightarrow \frac{56x + 65 - 65x}{91} = \frac{63}{91}$$

$$\Rightarrow 2 = 9x$$

$$\Rightarrow x = \frac{2}{9}$$

$$(1 - x) = 1 - \frac{2}{9} = \frac{7}{9}$$

$$\text{Required ratio} = \frac{x}{1 - x} = 2 : 7$$

23. (d)

$$QR : PR = 2 : 5 \text{ i.e. } PQ : PR = 3 : 5$$

or we can simply say $PQ = 3$ and $PR = 5$

$$\text{Then, } QS = PQ = 3$$

The diameter of the larger semicircle $PR = 5$ The sum of the diameters of two smaller semicircles $PQ + QS = 3 + 3 = 6$

Ratio of diameters = 5 : 6

This will be the same as the ratio of circumferences i.e. 5 : 6.

24. (a)

$$\text{Ways to select 2 females} = {}^5C_2$$

$$\text{Ways to select 1 male} = {}^7C_1$$

$$\therefore \text{ Required probability} = \frac{{}^5C_2 \times {}^7C_1}{{}^{12}C_3} = \frac{7}{22}$$

25. (b)

$$x + y = 5\sqrt{2}$$

$$9x^2 = y^2$$

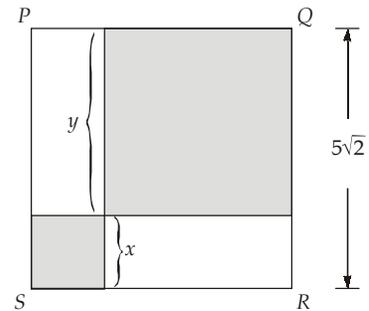
\Rightarrow

$$3x = y$$

$$x + 3x = 5\sqrt{2}$$

$$4x = 5\sqrt{2}$$

$$x = \frac{5\sqrt{2}}{4} = \frac{5}{2\sqrt{2}} \text{ unit}$$



26. (a)

Let C = number of questions answered correctly

I = number of questions answered incorrectly or unanswered

$$\text{Total score} = 18C - 14I$$

$$18C - 14I = 0$$

$$18C = 14I$$

\Rightarrow

$$C = \frac{7I}{9}$$

Now, C has to be an integer, this is possible only if I is divisible by 9.

If $I = 9, C = 7$ i.e. $I + C = 16$

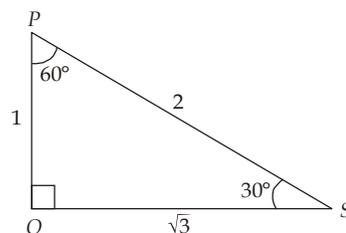
If $I = 18, C = 14$ i.e. $I + C = 32$

It is given that the test has fewer than 30 questions

Thus, answer is 16.

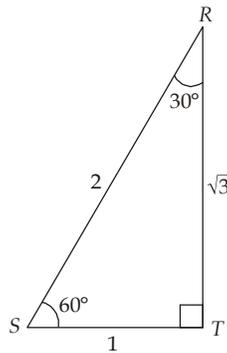
27. (d)

In $\triangle POS$,



Drop a perpendicular from R on x -axis at point T .

ΔPOS and ΔRST are similar



$$OS + ST = \sqrt{3} + 1$$

$$RT = \sqrt{3}$$

$$\therefore \text{Coordinates of point } R = (1 + \sqrt{3}, \sqrt{3})$$

28. (a)

At the end of year,

$$\text{Rahul's money} = 100 \times 1.12 = ₹112$$

$$\text{Sonia's money} = 100 \left(1 + \frac{12}{4 \times 100} \right)^4 = 100 (1.03)^4 = ₹112.55$$

$$\text{Difference} = ₹0.55$$

The formula we used for Sonia is :

$$V = P \left(1 + \frac{r}{100n} \right)^{nt}$$

where,

V = Total value, P = Principal, r = Annual interest rate,

n = Number of times per year invested, t = Number of years

29. (b)

In 20 litres of mixture initially there are 18 litres spirit and 2 litres water, let's assume x litres of water is added to raise the percentage.

$$\text{Then} \quad \frac{18}{2+x} = \frac{75}{25}$$

$$\Rightarrow \quad \frac{18}{2+x} = 3$$

$$\Rightarrow \quad 18 = 6 + 3x$$

$$\Rightarrow \quad 3x = 12$$

$$\Rightarrow \quad x = 4 \text{ litres}$$

30. (c)

Let both the part are x and $(1500 - x)$

$$\text{Then} \quad \frac{x \times 10 \times 5}{100} = \frac{(1500 - x) \times 12.5 \times 4}{100}$$

$$x = 1500 - x$$

$$2x = 1500$$

$$x = 750$$

Hence, the sum lent out at 12.5% per annum is = $1500 - 750 = \text{Rs. } 750$

