OVERALL ANALYSIS | Solution Report

All | Correct Answers | Wrong Answers | Not Attempted Questions

Q.1) Max Marks: 1

What is the missing number in the series: 83, 82, 81, ..., 69, 60, 33?

A 73

B 80

C 75

D 77 — Correct Option

Solution: (D)

Solution:

$83 - 1^2 = 82$
$82 - 1^3 = 81$
$81 - 2^2 = 77$
$77 - 2^3 = 69$
$69 - 3^2 = 60$
$69 - 3^3 = 33$

Q.2) Max Marks: 1

Look carefully for the pattern, and then choose which pair of numbers comes next: 16 26 56 36 46 68 56

A 80 66

B 66 80 — Correct Option

Solution: (B)

Solution: Here, every third number follows a different pattern from the main series. In the main series, beginning with 16,10 is added to each number to arrive at the next. In the alternating series, beginning with 56,12 is added to each number to arrive at the next.

C 66 76

D 80 76

Q.3) Max Marks: 1

Look at this series: 664, 332, 340, 170, ____, 89. What number should fill in the blank?

A 85

B 97

C 109

D 178 — Correct Option

Solution: (D)

Solution: This is an alternating division and addition series: First, divide by 2, and then add 8.

Q.4) Max Marks: 1

A and B together can do a piece of work in 12 days, which B and C together can do in 16 days. After A has been working at it for 5 days and B for 7 days, C finishes in 13 days. In how many days C alone will do the work?

A 16

B 24 — Correct Option

Solution: (B)

Solution: A's 5 day's work + B's 7 day's + C's 13 day's work = 1
or, (A+B)'s 5 day's work + (B+C)'s 2 day's work + C's 11 day's work = 1
$\frac{5}{12} + \frac{2}{16}$ + C's 11 day's work = 1
C's 11 day's work = $\frac{11}{24}$ or

C's one day work = $\frac{11}{24} * \frac{1}{11} = \frac{1}{24}$
Therefore, C alone can finish it in 24 days.

C 36

D 48

Q.5) Max Marks: 1

Two taps A and B can separately fill a cistern in 15 and 30 min respectively. They started to fill a cistern together but tap A is turned off after a few minutes and tap B fills the rest part of cistern in 9 min. After how many minutes, was tap A turned off?

A 6 min

B 8 min

C 7 min — Correct Option

Solution: (C)

Solution: In $9\ min$ tab B fills $\frac{9}{30} = \frac{3}{10}$ tank. Hence, remaining tank $\frac{7}{10}$ will be filled by both of them working together. And after this time tap A was closed. Now, work done by both the taps in $1\ min = (\frac{1}{15} + \frac{1}{30}) = \frac{1}{10}$. i.e., $\frac{1}{10}$ tank is filled in $1\ min$.
Hence, $\frac{7}{10}$ tank will be filled in $7\ min$.

D 9 min

Q.6) Max Marks: 1

A circular tent is cylindrical to a height of 3 meters and conical above it. If its diameter is 105 m and the slant height of the conical portion is 53 m, calculate the length of the canvas 5 m wide to make the required tent

A 3894 m

B 973.5 m

C 1947 m — Correct Option

Solution: (C)

Solution: Radius $= 52.5\ m$
Area of the entire canvas, used for the tent = Surface area of cylinder + Surface area of cone $= 2\pi rh + \pi rl$
$\Rightarrow 2 * \frac{22}{7} * 52.5 * 3 + \frac{22}{7} * 52.5 * 53$
This surface area has to be equal to $5 * w$.
Thus, we have $5w = 2 * \frac{22}{7} * 52.5 * 3 + \frac{22}{7} * 52.5 * 53$
$\Rightarrow w = 1947\ m$

D 1800 m

Q.7) Max Marks: 1

The average age of a group of persons going for a movie is 20 years. 10 new persons with an average age of 10 years join the group on the spot due to which the average of the group becomes 18 years. Find the number of persons initially going for the movie

A 20

B 40 — Correct Option

Solution: (B)

Solution: Let the total number of persons initially be x.
Then total age of x persons $= 20x$.
When 10 new persons joined the age of $x+10$ persons $= 20x + 100$
According to question, we have
$\Rightarrow \frac{20x+100}{x+10} = 18$
$\Rightarrow 20x + 100 = 18x + 180$
$\Rightarrow x = 40$

C 50

D 30

Q.8) Max Marks: 1

Water flows at the rate of 10 metres per minute from a cylindrical pipe 5 mm in diameter. How much time will it take to fill up a conical vessel whose diameter at the base is 40 cm and depth 24 cm?

A 55 min

B 52 min, 1 s

C 51 min, 12 s — Correct Option

Solution: (C)

Solution: Volume of conical vessel $V = \frac{1}{3}\pi r^2 h$

$= \frac{1}{3}\pi(20)^2 * 24 = 3200\pi$

Volume flown in $1\ min = \pi * \frac{2.5}{10} * \frac{2.5}{10} * 1000$

$= 62.5\ \pi$

Therefore, time taken $= \frac{3200\pi}{62.5\ \pi} = 51\ min\ 12\ s$

D 48 min, 15 s

Q.9) Max Marks: 1

Which one of the following cannot be the ratio of angles in a right-angled triangle?

A 1:2:3

B 1:1:2

C 1:3:6 — Correct Option

Solution: (C)

Solution: The largest angle in a right-angled triangle is $90°$ which corresponds to the highest part of the ratio. So, let us evaluate each option. In (a), the remaining two angles would be $30°$ and $60°$, which is possible. In (b), the remaining two angles in this case would be $45°$ each, which is again possible. In (c), the remaining two angles are $15°$ and $45°$ which is not possible as the angles do not add up to $180°$

D None of these

Q.10) Max Marks: 1

20 people went to a hotel for a combined dinner party. 15 of them spent ₹ 90 each on their dinner and the rest spent ₹ 30 more than average expenditure of all the 20. What was the total money spent by them?

A ₹ $1,700/-$

B ₹ $2,000/-$ — Correct Option

Solution: (B)

Solution: Assume x is the average expenditure of 20 people. Then, $20x = 15 * 90 + 5(x + 30)$.

On solving the above equation, $x = 100$

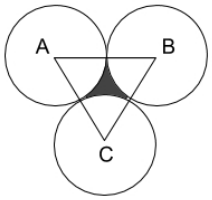
Therefore, total expenditure $= 20 * 100 =$ ₹ $2,000/-$.

C ₹ $2,200/-$

D None of these

Q.11) Max Marks: 2

Find the area of the shaded region if the radius of each of the circles is $1\ cm$.



A $2 - \frac{\pi}{3}$

B $\sqrt{3} - \pi$

C $\sqrt{3} - \frac{\pi}{2}$ Correct Option

Solution: (C)

Solution: ABC is an equilateral triangle with sides $= 2\ cm$
Area of shaded region $=$ Area of equilateral triangle $-$ Area of 3 quadrant
$\Rightarrow$ $i.e.,\ \frac{\sqrt{3}}{4}a^2 - 3(\pi r^2 \frac{\Theta}{360});\ \Theta = 60°$ (Since, $\triangle ABC$ is an equilateral triangle)
$\Rightarrow$ $\frac{\sqrt{3}}{4} - 2^2 - 3(3.14 * 1 * \frac{60}{360})$
$\Rightarrow$ $\sqrt{3} - \frac{3.14}{2} = \sqrt{3} - \frac{\pi}{2}$

D $\sqrt{3} - \frac{\pi}{4}$

Q.12) Max Marks: 2

Two typists of varying skills can do a job in $6\ minutes$ if they work together. If the first typist typed alone for $4\ minutes$ and then the second typist typed alone for $6\ minutes$, they would be left with $\frac{1}{3}$ of the whole work. How many minutes would it take the slower typist to complete the typing job working alone?

A **10 minutes**

B **15 minutes** Correct Option

Solution: (B)

Solution: Since the first typist types for $4\ minutes$ and the second typist types for exactly $6\ minutes$, the work left (which is given as $\frac{1}{3}$ of the total work) would be the work the first typist can do in $2\ minutes$. Thus, the time taken by the first typist to do the work would be $10\ minutes$ and his rate of work would be 10% per minute. Also, since both the typist can do the work together in $6\ minutes$, their combined rate of work would be $\frac{100}{6} = 16.66\%\ per\ minute$.
Thus, the second typist's rate of work would be $16.66 - 10 = 6.66\%\ per\ minute$.
He would take $\frac{100}{6.66} = 15\ minutes$ to complete the task alone.

C **12 minutes**

D **20 minutes**

Q.13) Max Marks: 2

A right elliptical cylinder full of petrol has its wide elliptical side 2.4 m and the shortest 1.6 m. Its height is 7 m. Find the time required to empty half the tank through a hose of diameter 4 cm if the rate of flow of petrol os 120 m/min.

A **60 min**

B **90 min**

C **75 min**

D **70 min** Correct Option

Solution: (D)

Solution: Volume of elliptical cylinder $= \pi(\frac{2.4}{2})(\frac{1.6}{2})7 = 21.12\ m^3$
Amount of water emptied per minute $= \pi(\frac{2}{100})^2 120\ m^3$
Time required to empty half the tank $= \frac{\frac{21.12}{2}}{\pi(\frac{1}{100})^2 120} = 70\ min$

Q.14) Max Marks: 2

A man can row $15\ km/h$ in still water. If it takes him twice as long to row up as to row down the river. Find the rate of stream.

A $3\ km/h$

B $5\ km/h$ Correct Option

Solution: (B)

Solution: Ratio of time taken upward and downward $= 2 : 1$
Hence, ratio of speed upward and speed downward would be $= 1 : 2$
Let man's speed upstream be $x\ km/h$. Then, his rate downstream would be $2x\ km/h$.
Speed in still water $= \frac{u+v}{2} = \frac{x+2x}{2} = \frac{3x}{2}$
Given $= \frac{3x}{2} = 15 \Rightarrow x = 10\ km/h$
Therefore, downstream speed $= 2 * x = 2 * 10 = 20\ km/h$
Therefore, the speed of the stream $= \frac{u+v}{2} = \frac{20-10}{2} = \frac{10}{2} = 5\ km/h$

C $4\ km/h$

D $3.5\ km/h$

Q.15) Max Marks: 2

A wall clock gains 2 minutes in 12 hours, while a table clock loses 2 minutes in 36 hours; both are set right at noon on Tuesday. The correct time when they both show the same time next would be

A **12:30 night**

B **12 noon** Correct Option

Solution: (B)

Solution: In $36\ hours$, there would be a gap of $8\ minutes$. The two watches would show the same time when the gap would be exactly $12\ hours$ or $720\ minutes$.
The no. of $36\ hour$ time frames required to create this gap $= 720/8 = 90$.
Total time $= 90 * 36 = 3240\ hours$. Since this is divisible by 24, the watches would show 12 noon.

C **1:30 night**

D **12 night**

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