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Mixed Maths Questions for SBI PO Pre, IBPS PO Pre, IBPS Clerk Mains and SBI Clerk Mains Exams.

Bank PO Maths Quiz 21

Direction: Study the following questions carefully and choose the right answer.

1. In an election of 3 candidates , Narendra Modi, Rahul Gandhi and Arvind Kejriwal. Narendra Modi gets 40% more votes than Rahul Gandhi . Narendra Modi also beats Arvind Kejriwal by 54000 votes. If it is known that Rahul Gandhi gets 10% more votes than Arvind Kejriwal, find the number of voters on the voting list (given 90% of the voters on the voting list voted and no votes were illegal)

- A. 404444 B. 364000 C. 400000 D. 420000 E. None of these

2. If the cost of using air conditioner is directly proportional to the time for which it is used, inversely proportional to the number of stars given to it and directly proportional to its power in terms of tons. It cost Rs 450 if a 4 star air conditioner of 2 tonnes is used for 20 hrs. Then how much will it cost if a 5 star air conditioner of 1.5 tonnes is used for 10 hours.

- A. Rs. 33.75 B. Rs. 135 C. Rs. 170 D. Rs. 165.75 E. None of these

3. When a couple was married, their average age was 22 years. When their first child was born, the average age of all the three became 16 years. When their second child was born, the average of all 4 became 15 years. Find the average age of couple at the time when their second child was born.

- A. 20 B. 28 C. 30 D. 32 E. None of these

4. A rectangle of perimeter 120 cm has the maximum possible area. Four squares of side x cm each are cut from each of its corners. The sheet remaining after the squares are cut is folded into a cuboid. Find the value of x (in cm) which maximizes the volume of the cuboid?

- A. 6 cm B. 5 cm C. 14 cm D. 1 cm E. None of these

5. This year, the cost of a Tomato increased by 20% over that of the last year. Last year a Tomato costed Rs.10 and a Potato costed Rs.5. This year it costs Rs.11 more to buy 5 Potato and 3 Tomato. Find the percentage increase in the price of the Potato.

- A. 4% B. 15% C. 27% D. 20% E. None of these

6. Sohan bought an old Honda Bike and spent Rs. 1500 on its repairs. Then Sohan sold it to Rakesh at a profit of 20%. Rakesh sold it to Raj at a loss of 10%. Raj finally sold it for Rs. 12100 at a profit of 10%. How much did Sohan pay for the old Honda Bike?

- A. Rs. 10185 B. Rs. 10800 C. Rs. 8685 D. Rs. 8600 E. None of these

7. A ship of Indian Navy running upstream takes 4 hour 30 minutes to reach from one place to another place, while it takes 2 hour to cover the same distance running down stream. What is the ratio between the speed of the ship and speed of the water current respectively?

- A. $\frac{13}{5}$ B. $\frac{5}{13}$ C. $\frac{13}{6}$ D. $\frac{6}{13}$ E. None of these

8. Arjun Kapoor and Anil Kapoor appear for a test. For each correct answer is awarded 1 mark and for each wrong answer $\frac{1}{2}$ mark is deducted. Arjun Kapoor answers some questions and gets 10% of his answers wrong. He secures a score of 85% which is 6 marks more than the pass marks. Anil Kapoor also answers some questions and gets 20% of his answers wrong. He gets a score of 70% which is 3 marks less than the pass mark. No marks are awarded or deducted for the unanswered questions. What is the pass mark?

- A. 64 B. 51 C. 45 D. 25 E. None of these

9. The average temperature of Delhi in the first four days of June 2017 was 52 degrees. The average for the second, third, fourth and fifth days was 55 degrees. If the temperatures of the first and fifth days were in the ratio 5 : 7, then what was the temperature of Delhi on 5th June 2017?

- A. 36 degrees B. 30 degrees C. 48 degrees D. 42 degrees E. None of these

10. A group of students prepared toy cars as part of their group activity. They spent Rs. 100 on velvet, Rs 5 on thread and needle and Rs. 27 on miscellaneous items. They made 30 toys, 50% of which were purchased by force by some senior students causing them a loss of 50%. At what % profit should they sell the remaining toys so as to gain 50% on their total cost?

- A. 100% B. 150% C. 75% D. 60% E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	B	B	B	D	C	A	C	D	B

Explanations:

1. Let Narendra Modi is denoted by M, Rahul Gandhi is denoted by R and Arvind Kejriwal is denoted by A.

Now let R gets vote = x(I)

$$M = 1.4x \quad \text{.....(II)}$$

$$M - A = 54000 \quad \text{.....(III)}$$

$$R = 1.1A \quad \text{.....(IV)}$$

From equation (II) and (IV) we get,

$$M = 1.4 \times 1.1A = 1.54A \quad \text{.....(V)}$$

From equation (III) and (V) we get.,

$$0.54A = 54000$$

$$A = 100000$$

$$M = 1.54 \times 100000 = 154000$$

$$R = 1.1 \times 100000 = 110000$$

Hence total votes pole in election = (154000 + 110000 + 100000) = 364000

From question 90% of total votes pole on voting list.

$$\text{Hence vote in voting list} = \frac{364000 \times 100}{90} = 404444$$

Therefore, option (A) is correct.

2.

$$\text{Cost} \propto \frac{\text{Time} \times \text{Power}}{\text{No. of stars}}$$

$$\text{Cost} = k \times \frac{\text{Time} \times \text{Power}}{\text{No. of stars}}$$

It is given that if we use a 4 star air conditioner of 2 tons for 20 hours it will cost Rs. 450

$$450 = \frac{k \times 20 \times 2}{4} \Rightarrow k = 45$$

$$\text{Hence, cost of 5 star AC for 10 hours will be} = \frac{45 \times 10 \times 1.5}{5} = \text{Rs.135}$$

Therefore, option (B) is correct.

3. At the time of marriage total age of couple = 44

When 1st child is born total age of three = $16 \times 3 = 48$

Difference = $48 - 44 = 4$ years (Child is of 0 years hence this is the sum of age increase of couple)

When second child is born sum of age = $4 \times 15 = 60$ years

⇒ Increase of 12 years after first child, means age of husband, wife and first child increased by 4 years each

So increase in husband and wife total age = 8 years

total increase = $4 + 8 = 12$

Average = $\frac{56}{2} = 28$ years

Hence, option (B) is correct.

4. Among all rectangles whose perimeter is a constant, the one with the greatest area is a square.

So, each side of the rectangle = $\frac{120}{4} = 30$ cm.

Length of each side of the square remaining after the squares are cut = $(30 - 2x)$ cm.

Volume of cuboid formed = $x(30 - 2x)(30 - 2x) = 2(2x)(15 - x)(15 - x)$

When the sum of two or more quantities is constant, their product is maximum when they are all equal. $2x, (15 - x)$ and $(15 - x)$ have a constant sum. Their product is half the volume of the cuboid formed.

When their product is maximum, the volume of the cuboid formed is maximum.

Their product is maximum when $2x = 15 - x \Rightarrow x = 5$

Hence, volume of the cuboid is maximum, when $x = 5$.

Therefore, option (B) is correct.

5. Cost of the Tomato last year = Rs.10

So, Cost of the Tomato this year = $10 + 20\% \text{ of } 10 = \text{Rs.}(10 + 2) = \text{Rs.}12$

Cost of the Potato last year = Rs.5

Let the cost of Potato this year be x

Therefore, cost of 5 Potato and 3 Tomato this year = $5x + (3 \times 12) = 5x + 36 \dots (i)$

cost of 5 Potato and 3 Tomato last year = $((5 \times 5) + (3 \times 10)) = 55 \dots\dots (ii)$

This year the cost is Rs.11 more

From (i) and (ii), we get

$$5x + 36 = 55 + 11 \Rightarrow 5x = (66 - 36) \Rightarrow x = 6$$

Increase in the cost of Potato = $(6 - 5) = \text{Rs. } 1$

$$\text{Percentage increase} = \frac{1}{5} \times 100\% = 20\%$$

Hence, option (D) is correct.

6.

$$\text{Cost price of Honda Bike for Raj} = \frac{12100}{1.1} = 11000$$

Since selling price of Honda Bike by Rakesh = Rs. 11000

$$\text{From question Cost price of Honda Bike for Rakesh} = \frac{11000}{0.9} = \text{Rs. } 12222.22$$

Since selling price of Honda Bike by Sohan = Rs. 12222.22

According to question sohan got 20% profit

$$\text{Since Cost Price of Honda Bike for Sohan} = \frac{12222.22}{1.2} = \text{Rs. } 10185.2$$

This cost price is includes a Rs. 1500 for repairs.

$$\text{Hence purchase price for Sohan} = 10185.2 - 1500 = \text{Rs. } 8685$$

Therefore option (C) is correct.

7. Let the ship rate upstream be x kmph and that downstream be y kmph.

$$\text{Distance covered upstream in 4 hour 30 min (270 min)} = x \times \frac{270}{60} = 4.5x$$

$$\text{Distance covered downstream in 2 hours} = 2y$$

Then, distance covered upstream in 4 hour 30 min = Distance covered downstream in 2 hours.

$$4.5x = 2y$$

$$y = 2.25x$$

$$\text{Since, required ratio} = \frac{y+x}{2} : \frac{y-x}{2}$$

$$= \frac{3.25x}{2} : \frac{1.25x}{2}$$

$$\frac{3.25}{1.25} = \frac{13}{5}$$

Hence, option (A) is correct.

8. Let Arjun Kapoor attempt x questions, he gets 10% of the answers wrong.

$$\text{Arjun Kapoor's score} = 0.9x - (0.1x) \times \frac{1}{2} = 0.85x$$

$0.85x = 0.85z$, where z is the total number of marks as well as total number of marks possible.

$$\text{So, } x = z \Rightarrow x = 100\% \text{ of } z$$

Similarly let Anil Kapoor attempt y questions

$$\text{Anil Kapoor's score} = 0.8y - (0.2y) \times \frac{1}{2} = 0.7y$$

$$0.7y = 0.7z \Rightarrow y = 100\% \text{ of } z$$

Now, $0.85z = P + 6$, where P is pass mark (i)

Also, $0.7z = P - 3$ (ii)

From (i) and (ii), we get

$$0.15z = 9 \Rightarrow z = 60$$

Putting the value of z in (ii), we get

$$0.7 \times 60 = P - 3 \Rightarrow p = 42 + 3 = 45$$

Hence, option (C) is correct.



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