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NABARD GRADE A

PHASE I Quantitative Aptitude Previous
Paper

Simplifying
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1. In Kiran's opinion, his weight is greater than 65 kg but less than 72 kg. His brother does not agree with Kiran and he thinks that Kiran's weight is greater than 60 kg but less than 70 kg. His mother's view is that his weight cannot be greater than 68 kg. If all are them are correct in their estimation, what is the average of different probable weights of Kiran?

- a) 70 kg
 - b) 69 kg
 - c) 61 kg
 - d) 67 kg
- Ans: d

Explanation:

Let Kiran's weight = x. Then

According to Kiran, $65 < x < 72$ ----(equation 1)

According to brother, $60 < x < 70$ ----(equation 2)

According to mother, $x \leq 68$ ----(equation 3)

Given that equation 1, equation 2 and equation 3 are correct. By combining these equations, we can write as

$$65 < x \leq 68$$

i.e., x = 66 or 67 or 68

Average of different probable weights of Kiran = $\frac{66+67+68}{3} = 67$

2. Two boats go downstream from point X to point Y. The faster boat covers the distance from X to Y 1.5 times as fast as the slower boat. It is known that for every hour, the slower boat lags behind the faster boat by 8 km. However, if they go upstream, then the faster boat covers the distance from Y to X in half the time as the slower boat. Find the speed of the faster boat in still water.

- a) 12 kmph

- b) 20 kmph
- c) 24 kmph
- d) 25 kmph

Ans: b

Explanation:

Let faster boat = B1, slower boat = B2, speed of stream = Z

$$D/(B1+Z) = 2/3 [D/(B2 + Z)]$$

$$2B1 - 3B2 = Z \dots\dots\dots (1)$$

$$T = D/S; T = 1 \text{ hrs}$$

$$B1 = B2 + 8 \dots\dots\dots (2)$$

$$D/(B1-Z) = 1/2 \{D/(B2-Z)\}$$

$$2B2 - B1 = Z \dots\dots\dots (3)$$

$$Z = 4$$

$$B2 = 12$$

$$B1 = 20$$

3. A man borrowed Rs.20,000 at the rate of 8% p.a. compounded annually. How much should he repay at the end of the first year, so that he has to repay Rs? 10,800 only at the end of the second year to clear the loan?

- a) Rs. 11,600
- b) Rs. 11,200
- c) Rs. 10,800
- d) Rs.10,400

Ans: a

Explanation:

At the end of the first year, the sum amounts to $20,000 + 8\% \text{ of } 20,000 (16,00)$

$$= \text{Rs.} 21,600$$

He wants to pay only Rs. 10,800 (principal + interest)

$$\text{Principal} + \text{interest} = 108\%$$

$$108\% = 10,800$$

$$100\% = 10,800 \times 100 / 108$$

$$= 10,000 \text{ (principal)}$$

$$21,600 - 10,000 = \text{Rs.} 11,600$$

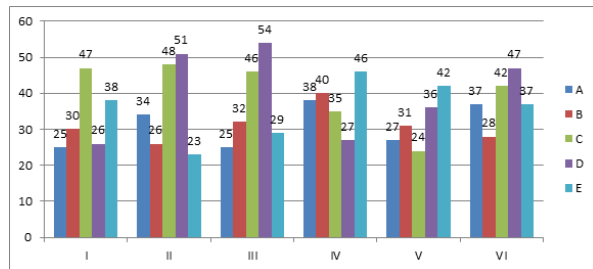
1.4-8) Directions: These questions are based on the following data.

A company has 6 branches numbered I, II, III, IV, V and VI located in six different places.

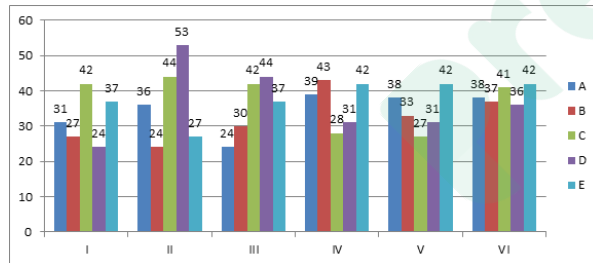
Each branch utilizes the telephone service of

six different providers A, B, C, D, E and F. The number of telephone calls made on 25th September 2008, between 10:00 am and 11:00 am between any two different branches were recorded and are as given in the graphs below. It was also observed that from each branch there were at least two outgoing calls through each service provider to every other branch and there were at least two incoming calls through each service provided from every other branch.

Number of outgoing calls



Number of incoming calls



Calls made through a service provider at any branch can be received through the same service provided at any other branch.

4. What is the maximum number of incoming calls from any single branch received by any other branch through any single service provider?
- 41
 - 43
 - 45
 - 52

Ans: c

Explanation:

The branch receiving the maximum number of calls through any service provider is branch II which receives 53 calls, through service provider D. Of this at most 45 calls can be from a single branch and the other 8 from other branches.

5. What is the maximum number of calls made from Branch III to Branch V?
- 127
 - 141
 - 131
 - 104

Ans: d

Explanation:

From branch III out of 25 calls made to it by utilizing the services of provider A, there must be two calls each made to the other four branches- I, II, IV and VI. The maximum number of calls made from branch III to branch V = $25 - (4 \times 2) = 17$
 Out of the 38 calls received by branch V utilizing the services of provider A, there must be two calls each received from the other four branches I, II, IV and VI. The maximum number of calls received by branch V from branch III = $38 - (4 \times 2) = 30$.
 Between 17 and 30 the smaller value is 17.

Therefore, the maximum number of calls received by branch V from branch III through service provider A is 17. In this way we can calculate the maximum number of calls made by branch III to Branch V through the other service providers.

Through B, $(32 - 8, 33 - 8) = 24$

Through C, $(46 - 8, 27 - 8) = 19$

Through D, $(54 - 8, 31 - 8) = 23$

Through E, $(29 - 8, 42 - 8) = 21$

Minimum of these values will be taken.

The required value = $17 + 24 + 19 + 23 + 21 = 104$

6. What is the maximum number of calls made through service provider B, from any one branch to any other branch?

- a) 34
- b) 29
- c) 36
- d) 18

Ans: b

Explanation:

From any single branch through service provider B, a maximum of 40 calls were made from branch IV and a maximum of 37 calls were received at branch VI. Of the 37 calls received at branch VI, at least two calls each were from branches I, II, III and V so at most 29 calls can be from branch IV.

7. If branch VI has received the least number of calls from branches I and II, then what is the maximum number of calls received by it from the other given branches?

- a) 158
- b) 162
- c) 174
- d) 176

Ans: c

Explanation:

Branch VI received at least two calls through each service provider from branches I and II.
 $2 \times 5 \times 2 = 20$
Therefore, calls received from other branches are $194 - 20 = 174$.

8. What is the minimum number of calls made from branch 1 through service provider C to branches II, III or VI?

- a) 8
- b) 10
- c) 12
- d) 14

Ans: a

Explanation:

Number of calls made from branch I through service provider C = 47

Maximum number of calls that can be received by branches IV and V from branch I through services provider C is $(28 - 8) + (27 - 8) = 39$

Therefore, at least $47 - 39 = 8$ calls were received by branches II, III or VI.

9. A vendor bought oil from the market at 20% profit from the market then he used faulty weights which resulted in a profit of 10% on the sale of oil. Then a customer came to him and bargained with him to reduce the price by 50% If the price at which vendor sold the oil to the customer was rupees 660. What was his profit percentage before selling the product to the customer?

- a) 64%
- b) 32%
- c) 30%
- d) 45%

Ans: b

Explanation - $x \times (6/5) \times (11/10) \times (1/2) = 660$
 $x = 1000$ (The price at which it was originally sold in the market) Now, $(1000) \times (6/5) \times (11/10) = 1320$ (The price at which the vendor quoted the product to be sold in the market)

So, his profit margin = $1320 - 1000 = 320$
Profit percentage = 32 %

I.10) A frog, which is at the bottom of a 50 m deep well, is trying to come out of it.

Statement 1: It covers 1.25 m but slips 0.75 m every time

Statement 2: The frog is efficient to complete the task in 1 hour

10. What is the speed of frog per jump?

- a) Both statements are insufficient
- b) Both are individually sufficient to give the answer
- c) Both are required together

- d) Only 1 is required
 e) Only 2 is required
 Ans: c

Explanation – Firstly, we need to calculate speed of frog per jump
 Speed of frog per jump = (Distance covered in 1 jump / Time taken in 1 jump)

Time taken in 1 jump = (Total time taken to cover the distance by jumps / Number of jumps)

Now, Number of jumps is given in statement 1 as $50 \text{ m} \times 0.75 \text{ m} = 66.67$

Once we get the number of jumps as 67 (approx.)

Time taken in 1 jump = 60 minutes (this comes from second statement) / 67 = 0.895 minutes

Speed of frog per jump = $0.75/0.895$
 So, both statements are required.

11. Arun, Bharat and Chari started a business in a partnership with investment of Rs 12000, Rs 26000 and Rs 32000 respectively. After 4 months Arun leaves. After 6 months Bharat leaves and Arun joins with an amount equal to his earlier investment. After 10 months, Chari leaves and Bharat joins with his prior investment. At the end of the year, they earn a profit of Rs 53622. Find the share of Chari in the annual profit?

- a) 16547
 b) 17212
 c) 14875
 d) 27848

Ans: b

Explanation
 $(12000 \times 4 + 12000 \times 6) : (26000 \times 6 + 26000 \times 2) : (32000 \times 10) = 120000 : 208000 : 320000$
 $= 120 : 208 : 320$

$$B's \text{ share} = (26/81) \times 53622 = 17212$$

12. If $0.75:X::5:8$, the value of X is :

- a) 1.12
 b) 1.16
 c) 1.20
 d) 1.30

Ans: c

Explanation: $(x \times 5) = (0.75 \times 8)$
 $X = 6/5 = 1.20$

13. A car runs one full round of a circular track in 6 minutes and B in 15 minutes. If both A & B, start simultaneously from the same starting point then how many times they meet in the time B has completed 10 rounds when running in the same direction and in the opposite direction?

- a) 15,10
 b) 25,30
 c) 25,35
 d) None of these

Ans: d

Explanation – When B has completed 10 rounds. A would have completed $(10 \times 15/6) = 25$ rounds. When running in same direction, this would mean A having run 15 rounds more than B and would thus have met 15 times. When running in opposite direction they would meet $15+10 = 25$ times.

14. Shobha's maths test had 75 problems i.e. 10 arithmetic, 30 algebra and 35 geometry problems. Although she answered 70% of arithmetic, 40% of algebra and 60% of geometry problems correctly, she did not pass the test because she got less than 60% problems right. How many more questions she would have needed to answer correctly to earn 60% passing grade?

- a) 10
 b) 20
 c) 15

d) 5

Ans: d

Explanation – Number of attempts correctly =
(70% of 10 + 40% of 30 + 60% of 35) = 40

Questions to be answered correctly for 60%
grade = 60% of 75

Required number of questions = 45 - 40 = 5

15. Here is a list of numbers identify the missing
number in the pattern below

32, 243, 3125, 16807 _____?

- a) 1024
- b) 7776
- c) 161051
- d) 59049

Ans: c

Explanation – The pattern of numbers in the
series are

32- 25
243- 35
3125- 55
16807 – 75
161051- 115

Now you can see that it is not just raised to
power 5, but all the numbers are prime
numbers also. So, the next number will be a
prime number raise to power 5.

I.16) There were four cousins who were
playing a game in which the moment you
have to recite a table in one breath and when
you stop next cousin have to guess the
number and start 2 number more or 2
numbers less than the value from which the
previous player started. There were some
rules in the game, as stated below:

You cannot tell which table you are reciting
you just have to say the multiples of the
particular number you are saying.

If You want to get 10 points you have to
correctly guess which table was recited and
recite a table of value 2 less than or 2 more
than the previous table.

16. Now based on information tell me whether
Cousin 2 gets 10 points or not?

Cousin 1: 26,39, 52,65,78,91, 104

Cousin 2: 32, 48, 64, 80, 96, 112

- a) Yes
- b) No
- c) Maybe
- d) I don't know

Ans: b

Explanation – the values are given by cousin 2
were multiples of 16 while cousin 1 gave
values from multiples 13. So as per rules of
the game a player 16 does not lie in the range
of (+/- 2) to 13. Hence, he will not get 10
points.

I.77) There was a family where all the
relatives lived in the same community and
there was a belief that they had to follow a
certain pattern in terms of the house numbers
which they buy. So, the family members
bought the houses in the following manner.

Mr. A, the eldest brother lived in house
number 2 with his wife and parents. Mr. A's
sister, B lived in house number 3 with her
husband and their children lived in house
number 9. Mr. A had a younger brother who
lives alone in house number 5. Brother of Mr.
A's mother lives in house number 7 and their
children live in house number 49. Now Mr. A's
daughter is coming from abroad after
completing her studies and he plans to give
her house number 4 as a gift.

17. Based on the information helps us identify
which of the following statement is CORRECT
with respect to the information given here?

- a) Mr. A is NOT violating their family culture by gifting their daughter house number 4
- b) Mr. A's mother's brother should live in house number 6
- c) Mr. A's brother should live in house number 4
- d) Mr. A's brother's children should be living in house number 25

Ans: a

Explanation – On carefully reading the question, we get the information that all the parents live in prime number houses and their children live in perfect squares of the number in which parents live.

So, Mr. A lives in a prime number house and his daughter will live in its perfect square.

Others are incorrect because:

[b] Mr. A's mother's brother will live in a prime number house so 6 is not correct

[c] Mr. A's brother will live in a prime number house and as per the belief, house number 4 should be for Mr. A's daughter not her brother

[d] Mr. A's brother's children can live in house 25 as per the belief but it is written that Mr A's brother lives alone. So, he doesn't have children.

18. A student was called by his teacher to solve a simple problem. He was asked by the teacher to find the incorrect number in the series given by the teacher. The series given by the teacher was as follows:

2,5, _,70,75,40. Identify the number in the series.

- a) 4
- b) 7
- c) 9
- d) 1

Ans: b

Explanation: The series given in this question has a certain pattern of numbers given here.

We can see that $2 \times 20 = 40$

$5 \times 15 = 75$

$7 \times 10 = 70$

Here, one number is decreasing by 5 (20,15,10) and another number is increasing in prime numbers (2,5,7)

19. There is a series given in below, identify which concept below defines the series in an appropriate manner?

Series: 1,3,6,11,19,31,48

- a) The series can be solved using ratio- the proportion
- b) The series can be solved using Arithmetic progression
- c) The series can be solved using Geometric progression
- d) There is no pattern

Ans: b

Explanation - There are two levels of successive addition which when added the given terms form an AP.

20. At t minutes past 2 pm, the time needed by the minutes hand of a clock to show 3 pm was found to be 3 minutes less than $\frac{t^2}{4}$ minutes. Find t.

- a) 18
- b) 14
- c) 20
- d) 25

Ans: b

Explanation – T minutes after 2, the time needed to show 3 is 60-T

$60 - T = \frac{T^2}{4} - 3$

$240 - 4T = T^2 - 12$

$T^2 + 4T - 252 = 0$

$T^2 + 18T - 14T - 252 = 0$

$$T(T+18) - 14(T+18) = 0$$

$$T = 14, T = -18$$

Ignoring $T = -18$ as time cannot be negative.

So, $t = 14$

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