

Cognizant sample test set.....

Topic	Expected number of questions	Difficulty Level
Divisibility	1 - 2	Easy-Medium
HCF and LCM	1 - 2	Easy
Numbers, decimal fractions	2 - 3	Medium
Profit and Loss	2 - 3	Medium - Difficult
Simple and Compound Interest	1 - 2	Medium
Time, Speed and Distance	2 - 3	Medium - Difficult
Inverse	1 - 2	Easy
Logarithms	2 - 3	Easy
Permutation and Combinations	1 - 2	Medium
Probability	1 - 2	Easy-Medium

1) In an election between two candidates, one got 55% of the total valid votes and got 20% invalid votes. At the end of the day when the total number of votes were counted, the total number was found to be 7500. So what was the total number

of valid votes that the winning candidate got, was:

- a) 2400
- b) 3100
- c) 3400
- d) 2700

Answer: d

Explanation

Since 20% of the votes were invalid, 80% of the votes were valid = 80% of 7500 = 6000 votes were valid. One candidate got 55% of the total valid votes, then the second candidate must have 45% of the votes =  $0.45 * 6000 = 2700$  votes.

2) A whole number  $n$  which when divided by 4 gives 3 as remainder. What will be the

remainder when  $2n$  is divided by 4?

- a) 0
- b) 1
- c) 4
- d) 2

Answer: d

Explanation

According to the question,  $n = 4q + 3$ . Therefore,  $2n = 8q + 6$  or  $2n = 4(2q + 1) + 2$ . Thus, we get when  $2n$  is divided by 4, the remainder is 2.

3) Raju, Ramu and Razi can do a piece of work in 20, 30 and 60 days respectively

depending on their capacity of doing work. If Raju is assisted by Ramu and Razi on

every third day, then in how Raju will complete the work?

- a) 12 days
- b) 15 days
- c) 16 days
- d) 18 days

Answer: b

Explanation

We need to first count the amount of work done in 2 days by Raju.

Raju can do a piece of work in 20 days. So, in 2 days he can do =  $\frac{1}{20} * 2 =$

$\frac{1}{10}$ . Amount of work done by Raju, Ramu and Razi in 1 day =  $\frac{1}{20} + \frac{1}{30} + \frac{1}{60}$

=  $\frac{1}{10}$ . Amount of work done in 3 days =  $\frac{1}{10} + \frac{1}{10} = \frac{1}{5}$ .

So the work will be completed in  $3 * 5 = 15$  days.

4) What is the smallest number which when decreased by 8 is divisible by 21, 27, 33,

and 55?

- a) 1490
- b) 10405
- c) 15490
- d) None of the above

Answer: d

Explanation

We need to find the LCM of the given numbers, LCM of 21, 27, 33, and 55 = 10395. So we need to add an extra 5 = 10403.

5) A tap can fill a bucket in 6 hours. After half the bucket is filled, three more similar taps are opened. What is the total time taken to fill the bucket completely?

- a) 3 hrs 15 min
- b) 3 hrs 45 min
- c) 4 hrs 25 min
- d) 4 hrs 15 min

Answer: b

Explanation

Time is taken by one tap to fill half the bucket = 3 hours. So the part filled 4 taps in one hour =  $4 * (1/6) = 2/3$  of the bucket. Therefore, the remaining part is =  $(1 - 1/2) = 1/2$

Proportionally à  $2/3 : 1/2 :: 1 : x$

=>  $x = 3/4$  hours = 45 minutes. So the total time = 3 hrs 45 minutes.

6) A reduction of 20% in the price of strawberries enables a person to purchase 12

more for Rs. 15. What was the price of 16 strawberries before reduction of price?

- a) 6
- b) 5
- c) 7
- d) 9

Answer: b

Explanation

Price x Consumption = Expenditure

$$(15 / 8x) - (15 / x) = 12$$

$$x = (15 \times 2) / (12 \times 8)$$

$$\text{For 16 Strawberries} = [(15 \times 2) / (12 \times 8)] \times 16 = 5$$

7) The ratio of the no. of white balls in a bag to that of black balls is 1:2.

If 9 grey balls are added the ratio of nos. of white, black and grey become 2:4:3.

How many black balls were in the bag?

- a) 6
- b) 9
- c) 12
- d) 8

Answer: c

Explanation

Consider x black balls were there. After adding 9 grey balls the ratio is 4/3. That means,  $x/9 = 4/3$ . On solving we will get  $x = 12$ .

- 8) A sum of Rs.312 was divided among 100 boys and girls in such a way that the boy gets Rs.3.60 and each girl Rs.2.40 the number of girls is:
- a) 40
  - b) 45
  - c) 35
  - d) 30

Answer: a

Explanation

Let the number of girls =x, then boys will be (100-x)

$3.60 \times (100-x) + 2.40x = 312$ . On solving above eq. u will get,  $x=40$ .

- 9) The average weight of 8 person's increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?
- a) 76 kg
  - b) 5 kg
  - c) 85 kg
  - d) None

Answer: c

Explanation

Total weight increased =  $(8 \times 2.5)$  kg = 20 kg.

Weight of new person =  $(65 + 20)$  kg = 85 kg.

- 10) A shopkeeper gives two successive discounts of 20 % and 10 % on surplus stock. Further, he also gives 5 % extra discount on cash payment. If a person buys a shirt from the surplus stock and pays in cash, what overall discount percent will he get on the shirt?
- a) 60%
  - b) 5%
  - c) 33%
  - d) 2%

Answer: a

Explanation

Let the marked price of the shirt be Rs. 1000

=> Price after first discount = Rs. 1000 - 20 % of Rs. 1000 = Rs. 1000 - 200 = Rs. 800

=> Price after second discount = Rs. 800 - 10 % of Rs. 800 = Rs. 800 - 80 = Rs. 720

=> Price after cash discount = Rs. 720 - 5 % of Rs. 720 = Rs. 720 - 36 = Rs. 684

Therefore, total discount = Rs. 1000 - 684 = Rs. 316

=> Overall discount percent =  $(316 / 1000) \times 100 = 31.60 \%$

Cognizant Aptitude Questions - Set 2

- 11) A & B are at a distance of 800 m. They start towards each other at 20 & 24 kmph.

As they start, a bird sitting on the cap of A, starts flying towards B, touches B & then returns towards A & so on, till they meet. What is the distance traveled by the bird, if its speed is 176 kmph?

- a) 3040 m
- b) 3200 m
- c) 3100 m
- d) 2600 m

Answer: b

Explanation

The bird flies for the same time as both A and B take to meet. Since the time taken by A and B together and the bird is same, so the distance covered will be in the ratio of their speeds.

The ratio of the speeds is 44: 176 or 1: 4.

Hence, if A and B cover 800 m, the bird will cover  $800 \times 4 = 3200$  m.

12) How long will a boy take to run round a square field of side 35 meters, If he runs at the rate of 9 km/hr?

- a) 40 sec
- b) 50 sec
- c) 56 sec
- d) 54 sec

Answer: c

Explanation

Speed = 9 km/hr =  $9 \times (5/18)$  m/sec =  $5/2$  m/sec

Distance =  $(35 \times 4)$  m = 140 m.

Time taken =  $140 \times (2/5)$  sec = 56 sec

13) A box contains 15 marbles out of which 4 are white, 5 are red and 6 are blue.

Three balls are to be drawn at random from the bag. What is the probability that

all of them are red is:

- a)  $1/22$
- b)  $2/89$
- c)  $2/77$
- d)  $2/91$

Answer: d

Explanation

The number of ways in which all the three balls would be red =  $5C3 / 15C3 = 10/455 = 2/91$ .

14) From a group of 7 men and 6 women, five persons are to be selected to form a

committee so that at least 3 men are there in the committee. In how many ways can

it be done?

- a) 624
- b) 209

- c) 756
- d) 212

Answer: c

Explanation

From a group of 7 men and 6 women, five persons are to be selected with at least 3 men. Hence we have the following 3 options.

We can select 5 men à Number of ways to do this =  ${}^7C_5$

ii) We can select 4 men and 1 woman à Number of ways to do this =  ${}^7C_4 \times {}^6C_1$

iii) We can select 3 men and 2 women à Number of ways to do this =  ${}^7C_3 \times {}^6C_2$

Total number of ways =  ${}^7C_5 + ({}^7C_4 \times {}^6C_1) + ({}^7C_3 \times {}^6C_2)$

=  ${}^7C_2 + ({}^7C_3 \times {}^6C_1) + ({}^7C_3 \times {}^6C_2)$  -- Expand this using  $nCr = nC(n-r)$

=  $21 + 210 + 525 = 756$

15) How many 3-letter words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', if repetition of letters is not allowed?

- a) 720
- b) 420
- c) 5040
- d) 256

Answer: a

Explanation

The word 'LOGARITHMS' has 10 different letters. Hence, the number of 3-letter words(with or without meaning) formed by using these letters.

i.e.  ${}^{10}P_3 = 10 \times 9 \times 8 = 720$

16) A problem is given to three students whose chances of solving it are  $\frac{1}{2}$ ,  $\frac{1}{3}$

and  $\frac{1}{4}$  respectively. What is the probability that the problem will be solved?

- a)  $\frac{1}{4}$
- b)  $\frac{1}{2}$
- c)  $\frac{3}{4}$
- d)  $\frac{7}{12}$

Answer: c

Explanation

None solves the problem =  $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} = \frac{1}{4}$

Hence, the problem will be solved =  $1 - P(\text{none solves the problem}) = 1 - \frac{1}{4} = \frac{3}{4}$

17) Simplify:  $\log_4 3 \times \log_{24} 364$

- a)  $\frac{3}{5}$
- b)  $\frac{2}{5}$
- c)  $\frac{3}{4}$
- d)  $\frac{1}{3}$

Answer: a

Explanation

Change of base formula:  $\log_a x = \frac{\log_b x}{\log_b a} = \frac{\log x}{\log a}$ .

Apply the given formula and we get the answer as  $\frac{3}{5}$ .

18) What is the number of digits in  $(33)^3$ ? Given that  $\log 3 = 0.47712$ .

- a) 12

- b) 13
- c) 14
- d) 15

Answer: b

Explanation

$$\log(x) = 33 \log(3)$$

$$= 27 \times 0.47712 = 12.88224$$

Since the characteristic in the resultant value of  $\log x$  is 12, Therefore the number of digits in  $x$  is  $(12 + 1) = 13$ .

19) A hollow iron pipe is 21 cm long and its external diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 g/cm<sup>3</sup>, then the weight of the pipe is:

- a) 6 kg
- b) 696 kg
- c) 36 kg
- d) 9 kg

Answer: b

Explanation

Given the external diameter = 8 cm. Therefore, the radius = 4 cm.

The thickness = 1 cm. Therefore the internal radius =  $4 - 1 = 3$  cm

The volume of the iron =  $\pi \times (R^2 - r^2) \times \text{length} = \frac{22}{7} \times [(4^2) - (3^2)] \times 21 = 462 \text{ cm}^3$ .

Therefore, the weight of iron =  $462 \times 8 \text{ gm} = 3.696 \text{ kg}$

20) Three cubes of edges 6 cm, 8 cm and 10 cm are melted without loss of metal into

a single cube. The edge of the new cube will be:

- a) 16 cm
- b) 14 cm
- c) 12 cm
- d) 8 cm

Answer: c

Explanation

Since the cube is melted so the volume of the new cube must be the same.

Volume of new cube = Volume of cube 1 + cube 2 + cube 3 =  $6^3 + 8^3 + 10^3 = 216 + 512$

+ 1000

$a^3 = 1728, a = (1728)^{(1/3)} = 12$