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Reasoning

Instructions

In each of the following questions, select the related word/letters /number from the given alternatives.

Question 1

Eye: Cataract :: Skin : ?

- A Pyorrhoea
- B Sinusitis
- C Eczema
- D Trachoma

Answer: C

Explanation:

Cataract is a clouding of the lens in the eye which leads to a decrease in vision, similarly, **eczema** is a medical condition in which patches of skin become rough and inflamed with blisters which cause itching and bleeding.

=> Ans - (C)

Question 2

Vitamin A : Carrot :: Vitamin C : ?

- A Meat
- B Fish
- C Egg
- D Orange

Answer: D

Explanation:

Carrot is a good source of vitamin A whereas Orange is a good source of vitamin C.

Hence, option D is the correct answer.

Question 3

ACF : GIL :: MOR : ?

- A SUX
- B TUX
- C UWZ
- D SVY

Answer: A

Explanation:

The pattern followed here is,

$A + 6 = G, C + 6 = I, F + 6 = L$

Code for MOR will be,

$$M + 6 = S, O + 6 = U, R + 6 = X$$

Hence, option A is the correct answer.

Question 4

32 : 66 : : 134 : ?

A 271

B 268

C 270

D 275

Answer: C

Explanation:

The pattern followed here is,

$$(32 \times 2) + 2 = 66.$$

Therefore, code for 134 will be,

$$(134 \times 2) + 2 = 270.$$

Hence, option C is the correct answer.

Instructions

In the following questions, find the odd word/number from the given alternatives.

Question 5

A Sweater

B Muffler

C Socks

D Shawl

Answer: C

Explanation:

A sock is a type of clothing worn on feet and all other clothing's mentioned in the options are worn on upper parts of the body.

Hence, option C is the correct answer.

Question 6

A QWBS

B MPTD

C UIAE

D RVGW

Answer: C

Explanation:

Except in option C, other options contain consonants in them. (Only Option C contains vowels in it)

Hence, option C is the correct answer.

Question 7

A 1942

B 1937

C 1935

D 1925

Answer: A

Explanation:

Except '1942' other numbers are odd numbers.

Hence, option A is the correct answer.

Instructions

For the following questions answer them individually

Question 8

Arrange the leaves according to their size (Small to large):

1. Mango leaf

2. Tamarind leaf

3. Papaya leaf

4. Banana leaf

A 1, 2, 3, 4

B 3, 2, 4, 1

C 2, 1, 3, 4

D 2, 3, 1, 4

Answer: C

Explanation:

The size of the leaf's in ascending order would be,

1) Tamarind 2) Mango 3) Papaya 4) Banana

Hence, option C is the correct answer.

Question 9

In the following questions, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

N, P, R, ?

A T

B U

C O

D V

Answer: A

Explanation:

The pattern followed here is,

$$N + 2 = P$$

$$P + 2 = R$$

$$R + 2 = T$$

Hence, option A is the correct answer.

Question 10

In the following questions, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

1 4 9 16
25 36 49 ?
81 100 ? 144

A 64 & 121

B 20 & 100

C 121 & 46

D 95 & 150

Answer: A

Explanation:

The given numbers are the squares of natural numbers starting from '1'

Hence, missing numbers are squares of 8 and 11 i.e 64 and 121.

Hence, option A is the correct answer.

Question 11

In the following questions, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

4, 3, 2.5, 2.25, ?

A 1

B 1.125

C 2

D 2.125

Answer: D

Explanation:

The pattern followed here is,

$$4 - 1 = 3,$$

$$3 - 0.5 = 2.5,$$

$$2.5 - 0.25 = 2.25,$$

$$2.25 - 0.125 = 2.125.$$

Hence, option D is the correct answer.

Question 12

If 8th of April falls on Monday, what would be the 30th day of that month ?

- A Sunday
- B Monday
- C Tuesday
- D Wednesday

Answer: C

Explanation:

If 8th of April falls on Monday then 15th, 22nd, 29th will also be Monday. Therefore, 30th of that month will be Tuesday.

Hence, option C is the correct answer.

Question 13

From the given alternatives. Select the word which cannot be formed using the letters of the given word. ESTABLISHMENT

- A TABLE
- B BLUNT
- C TENTS
- D STATE

Answer: B

Explanation:

Except the word 'BLUNT' other words given in the options can be formed using "ESTABLISHMENT"

There is no 'U' in the given word "ESTABLISHMENT".

Hence, option B is the correct answer.

Question 14

If SUNDAY is coded as 012345 and BIG is coded as 678, how would you encode SANDBAY ?

- A 0234456
- B 0423645
- C 0432645
- D 0342456

Answer: B

Explanation:

SUNDAY is coded as '012345' and BIG is coded as '678'

Each alphabet on the left is directly related to each number on the right.

S = 0 ; U = 1 ; N = 2 ; D =

In the same way,

SANDBAY is coded as '0423645'

Hence, option B is the correct answer.

Question 15

Select the correct combination of mathematical signs to replace * signs and to balance the following equation-

$$9 * 3 * 3 * 3 * 6$$

A $\div \times - =$

B $+ - \times =$

C $- + + =$

D $\times + - =$

Answer: A

Explanation:

The correct combination would be,

$$9 \div 3 \times 3 - 3 = 6$$

Hence, option A is the correct answer.

Question 16

Select the correct response. If RAJ = 29, EDUCATION = ?

A 85

B 86

C 88

D 92

Answer: D

Explanation:

The pattern followed here is,

$$R(18) + A(1) + J(10) = 29$$

The code for EDUCATION will be,

$$E(5) + D(4) + U(21) + C(3) + A(1) + T(20) + I(9) + O(15) + N(14) = 92$$

Hence, option D is the correct answer.

Question 17

At dusk, Rohit started walking facing the west, After a while, he met his friend and both turned to their left. They halted for a while and started moving by turning again to their right. Finally Rohit waved 'good bye' to his friend and took a left turn at a corner. At which direction is Rohit moving now ?

A South

B West

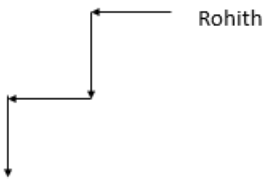
C North

D East

Answer: A

Explanation:

As per the given question,

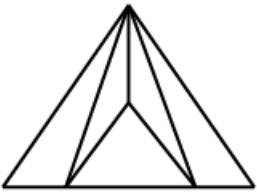


Finally, Rohit is facing South.

Hence, option A is the correct answer.

Question 18

Find the number of triangles in the given figure



A 6

B 7

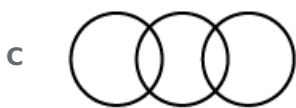
C 8

D 9

Answer: B

Question 19

Which figure best represents the relation among Man, Vegetables and Cow ?



Answer: A

Explanation:

All three given entities are completely different from each other.

Hence, option A is the correct answer.

Question 20

There are two statements labelled as Assertion (A) and Reason (R).

A. A little gap is left between iron rails.

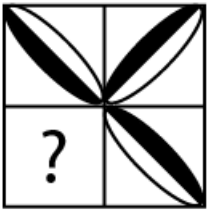
R. Iron expands in summer.

- A** Both (A) and (R) are true.
- B** Both (A) and (R) are false.
- C** (A) is true and (R) is false.
- D** (A) is false and (R) is true.

Answer: A

Question 21

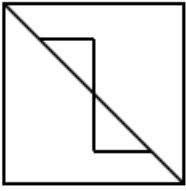
Which answer figure will complete the pattern in the question figure:



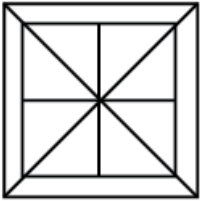
Answer: B

Question 22

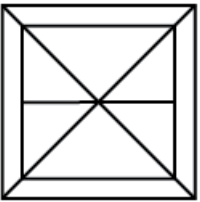
From the given answer figures, select the one in which the question figure is hidden / embedded.



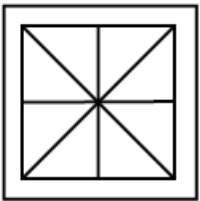
A



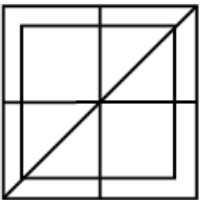
B



C



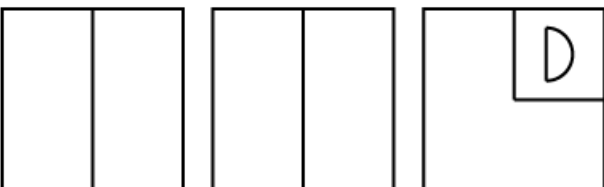
D

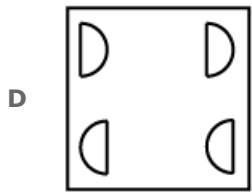
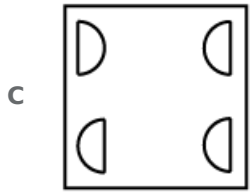
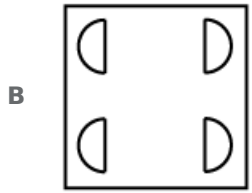
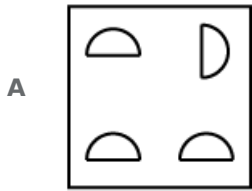


Answer: A

Question 23

A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

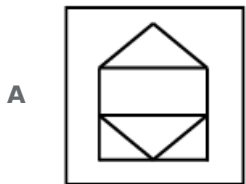
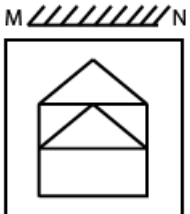


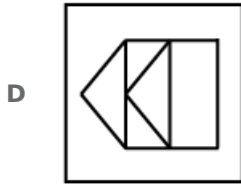
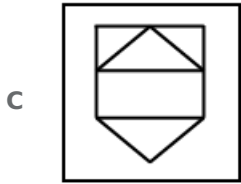


Answer: B

Question 24

If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure ?





Answer: B

Question 25

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g. 'A' can be represented by 00, 23, etc. and 'P' can be represented by 55, 69, etc. Similarly you have to identify the set for the word given in the question.

BEAST

Matrix - I					
	0	1	2	3	4
0	A	B	C	D	E
1	B	C	D	E	A
2	C	D	E	A	B
3	D	E	A	B	C
4	E	A	B	C	D

Matrix - II					
	5	6	7	8	9
5	P	Q	R	S	T
6	Q	R	S	T	P
7	R	S	T	P	Q
8	S	T	P	Q	R
9	T	P	Q	R	S

A 33, 42, 58, 55, 87

B 31, 68, 32, 55, 95

C 24, 22, 23, 58, 59

D 42, 31, 10, 13, 77

Answer: C

Explanation:

As per the given question,

B can be represented by - 01, 10, 24, 33, 42.

Similarly,

E - 04, 13, 22, 31, 40

A - 00, 14, 23, 32, 41.

S - 58, 67, 76, 85, 99.

T - 59, 68, 77, 86, 95.

24, 22, 23, 58, 59 is one of the combinations for BEAST.

Hence, option C is the correct answer.

General Awareness

Instructions

For the following questions answer them individually

Question 26

Production function refers to the functional relationship between input and_____.

- A product
- B produce
- C output
- D service

Answer: C

Question 27

'Self Reliance' was the main objective of

- A Fourth Plan
- B Seventh Plan
- C Third Plan
- D Sixth Plan

Answer: D

Question 28

District Judge is under the control of

- A State Government
- B High Court
- C Supreme Court
- D Governor

Answer: B

Question 29

What is the meant by social justice ?

- A All should have same economic rights
- B All should have same political rights
- C All kinds of discrimination based on caste, creed, colour and sex should be eliminated
- D All should be granted right to freedom of religion

Answer: C

Question 30

_____ are essential for liberty.

- A Restrictions
- B Rights
- C Privileges
- D Laws

Answer: B

Question 31

Name the country which launched the first Satellite "Sputnik" into the space.

- A United States of America
- B Soviet Union
- C Japan
- D England

Answer: B

Question 32

Who is commonly known as the Iron Man ?

- A Sardar Vallabh Bhai Patel
- B Vittal Bhai Patel
- C Bal Gangadhar Tilak
- D Bipin Chandra Pal

Answer: A

Question 33

Mahavira's first disciple was

- A Bhadrabahu
- B Sthulabhadra
- C Charvaka
- D Jamali

Answer: D

Question 34

Which of the following is the most numerous tribe in India ?

- A** Todas
- B** Bhils
- C** Garos
- D** Gonds

Answer: D

Question 35

Soils of Western Rajasthan have a high content of

- A** Aluminium
- B** Calcium
- C** Nitrogen
- D** Phosphorous

Answer: B

Question 36

Activity of an enzyme can be modulated by change of ?

- A** pH
- B** Light
- C** Humidity
- D** Rainfall

Answer: A

Question 37

Proteins are digested by

- A** Proteases
- B** Amylases
- C** Lipases
- D** Nucleases

Answer: A

Question 38

Jaundice is a disease which effects

- A Heart
- B Liven
- C Spleen
- D Gall bladder

Answer: B

Question 39

Which metal is the heaviest in periodic table among the following ?

- A Os
- B Pt
- C Pb
- D W

Answer: A

Question 40

The chemical formula of the laughing gas is

- A NO
- B N_2O_3
- C NO_2
- D N_2O

Answer: B

Question 41

Outside of cooking utensils are generally left black from below because

- A it is difficult to clean daily
- B black surface is a good conductor of heat
- C black surface is a poor conductor of heat
- D black surface is a good absorber of heat

Answer: D

Question 42

The colour of sky appears blue due to

- A reflection
- B refraction
- C scattering of shorter wave lengths
- D dispersion

Answer: C

Question 43

GUI stands for

- A Graphical User Interface
- B Graphical User Information
- C Graphical User Interaction
- D Graphical User Instruction

Answer: A

Question 44

Indian Council of Forestry Research and Education is located in

- A Dehradun
- B Ranchi
- C New Delhi
- D Raipur

Answer: A

Question 45

Cholesterol is absent in

- A Groundnut oil
- B Butter oil
- C Butter milk
- D Ice cream

Answer: A

Question 46

India's first Crypto-Currency exchange "coincome" has launched by which payment gateway ?

- A Direcpay
- B Citrus pay

C Payzippy

D Billdesk

Answer: D

Question 47

“Dandia” is a popular dance of

A Gujarat

B Assam

C Jharkhand

D Maharashtra

Answer: A

Question 48

‘Natya Shastra was written by

A Bharat Muni

B Narad Muni

C Jandu Muni

D Vyas Muni

Answer: A

Question 49

Vardhaman Mahavir is also known as

A Jena

B Great teacher

C Great preacher

D Jain

Answer: A

Question 50

“Ranji Trophy” is associated with

A Hockey

B Football

C Cricket

D Kabaddi

Answer: C

Quant

Instructions

For the following questions answer them individually

Question 51

The value of $0.65 \times 0.65 + 0.35 \times 0.35 + 0.70 \times 0.65$ is

- A 1.75
- B 1.00
- C 1.65
- D 1.55

Answer: B

Explanation:

Expression : $(0.65 \times 0.65) + (0.35 \times 0.35) + (0.70 \times 0.65)$

$$= (0.65)^2 + (0.35)^2 + 2(0.35)(0.65)$$

Comparing with : $(x)^2 + (y)^2 + 2(x)(y) = (x + y)^2$

$$= (0.65 + 0.35)^2 = (1)^2 = 1$$

=> Ans - (B)

Question 52

How many numbers between 400 and 800 are divisible by 4, 5 and 6 ?

- A 7
- B 8
- C 9
- D 10

Answer: A

Explanation:

L.C.M. of (4,5,6) = 60

Numbers between 400 and 800 that are divisible by 60 are : 420, 480,, 780

The above series is an arithmetic progression with first term = $a = 420$, common difference = $d = 60$ and last term = $l = 780$

Let number of terms be n

Thus, last term of an A.P. = $l = a + (n - 1)d$

$$\Rightarrow 420 + (n - 1) \times (60) = 780$$

$$\Rightarrow (n - 1) \times (60) = 780 - 420 = 360$$

$$\Rightarrow (n - 1) = \frac{360}{60} = 6$$

$$\Rightarrow n = 6 + 1 = 7$$

∴ Numbers between 400 and 800 are divisible by 4, 5 and 6 = **7**

⇒ Ans - (A)

Question 53

If sum of two number be a and their product be, b, then the sum of their reciprocals is

A $\frac{1}{a} + \frac{1}{b}$

B $\frac{b}{a}$

C $\frac{a}{b}$

D $\frac{1}{ab}$

Answer: C

Explanation:

Let the two numbers be x and y

Given $x+y=a$

$$xy=b$$

$$\frac{1}{x} + \frac{1}{y}=?$$

$$\frac{1}{x} + \frac{1}{y} = \frac{x+y}{xy} = \frac{a}{b}$$

Question 54

In a camp of 160 students provisions are available for 10 days. If 40 more students join the camp, how long will the provisions last ?

A 5

B $6\frac{1}{2}$

C 8

D $12\frac{1}{2}$

Answer: C

Explanation:

$$No.ofmen_1 \times No.ofdays_1 = No.ofdays_2 \times No.ofdays_2$$

$$160 \times 10 = (160 + 40) \times x$$

$$160 \times 10 = 200 \times x$$

$$\Rightarrow x = 8 \text{ days}$$

Question 55

Three taps A, B, C can fill an overhead tank in 4, 6 and 12 hours respectively. How long would the three taps take to fill the tank if all of them are opened together ?

- A 2 hrs.
- B 4 hrs
- C 3 hrs
- D 5 hrs

Answer: A

Explanation:

Time taken by tap A to fill the tank in one hour = $\frac{1}{4}$

Time taken by tap B to fill the tank in one hour = $\frac{1}{6}$

Time taken by tap C to fill the tank in one hour = $\frac{1}{12}$

Time taken by all taps to fill the tank in one hour = $\frac{1}{4} + \frac{1}{6} + \frac{1}{12}$ or $\frac{6}{12} + \frac{1}{12}$ or $\frac{7}{12}$

Total time taken by all three taps together to fill the tank = 2 hours.

Hence, option A is the correct answer.

Question 56

The perimeter of a triangle and an equilateral triangle are same. Also, one of the sides of the rectangle is equal to the side of the triangle. The ratio of the areas of the rectangle and the triangle is

- A $\sqrt{3} : 1$
- B $1 : \sqrt{3}$
- C $2 : \sqrt{3}$
- D $4 : \sqrt{3}$

Answer: C

Explanation:

Given that the perimeters of rectangle and triangle are equal

Let the length and breadth of rectangle be 'l' and 'b' respectively

Let the side of triangle be 'a'

$$\Rightarrow 2(l+b)=3a$$

Given that one side of rectangle of rectangle = side of triangle

Let l=a

$$\Rightarrow 2(a+b)=3a$$

$$\Rightarrow 2a+2b=3a$$

$$\Rightarrow a=2b$$

$$\text{Area of rectangle : Area of triangle} = ab : \frac{\sqrt{3}}{4} a^2$$

Substituting a=2b in above equation

$$\Rightarrow 2b^2 : \frac{\sqrt{3}}{4} \times 4b^2$$

$$\Rightarrow 2 : \sqrt{3}$$

Question 57

A solid spherical copper ball, whose diameter is 14 cm, is melted and converted into a wire having diameter equal to 14 cm. The length of the wire is

- A 27 cm
- B $\frac{16}{3}$
- C 15 cm
- D $\frac{28}{3}$

Answer: D

Explanation:

Radius of spherical copper ball(r) = 7cm

$$\text{Volume of sphere} = \frac{4}{3} \pi r^3$$

Radius of Cylindrical wire(R) = 7cm

Let length of wire be 'L'

$$\text{Volume of cylinder} = \pi R^2 L$$

Here Volume of sphere = Volume of sphere

$$\frac{4}{3} \pi r^3 = \pi R^2 L$$

$$\frac{4}{3} \times 7 \times 7 \times 7 = 7 \times 7 \times L$$

$$\therefore \text{Length of the wire 'L'} = \frac{28}{3} \text{ cm}$$

Question 58

Discount on a pair of shoes marked at Rs.475 and discounted at 15% is

- A Rs. 70
- B Rs.71.25
- C Rs.72
- D Rs.72.25

Answer: B

Explanation:

Marked price = Rs. 475

Discount % = 15%

$$\Rightarrow \text{Discounted amount} = \frac{15}{100} \times 475$$

$$= \frac{15 \times 19}{4} = \text{Rs. } 71.25$$

\Rightarrow Ans - (B)

Question 59

The cost price of an article is Rs.100. A discount series of 5%, 10% successively reduces the price of a article by

- A Rs 4.5
- B Rs 14.5

- C** Rs 24.5
D None of the above

Answer: B

Explanation:

Cost price = Rs. 100

$$\begin{aligned} \text{Selling price after first discount of 5\%} &= 100 - \left(\frac{5}{100} \times 100\right) \\ &= 100 - 5 = \text{Rs. } 95 \end{aligned}$$

$$\begin{aligned} \text{Similarly, selling price after second discount of 10\%} &= 95 - \left(\frac{10}{100} \times 95\right) \\ &= 95 - 9.5 = \text{Rs. } 85.5 \end{aligned}$$

$$\therefore \text{Amount is reduced by} = 100 - 85.5 = \text{Rs. } 14.5$$

=> Ans - (B)

Question 60

A grinder was marked at Rs.3,600/ After given a discount of 10% the dealer made a profit of 8%. Calculate the cost price.

- A** Rs. 3,000
B Rs.3,312
C Rs.3,240
D Rs.2,960

Answer: A

Explanation:

Marked price = Rs. 3600

Discount % = 10%

$$\begin{aligned} \Rightarrow \text{Selling price} &= 3600 - \left(\frac{10}{100} \times 3600\right) \\ &= 3600 - 360 = \text{Rs. } 3240 \end{aligned}$$

Profit % = 8%

$$\begin{aligned} \Rightarrow \text{Cost price} &= \frac{3240}{(100+8)} \times 100 \\ &= 30 \times 100 = \text{Rs. } 3,000 \end{aligned}$$

=> Ans - (A)

Question 61

If $x^2 + 9y^2 = 6xy$, then x: y is

- A** 1 : 3
B 3 : 2
C 3 : 1
D 2 : 3

Answer: C

Explanation:

$$x^2 + 9y^2 = 6xy$$

$$\Rightarrow x^2 - 6xy + 9y^2 = 0$$

$$\Rightarrow (x - 3y)^2 = 0$$

$$\Rightarrow x - 3y = 0$$

$$\Rightarrow x = 3y$$

$$\Rightarrow \frac{x}{y} = 3$$

$$\therefore x:y = 3:1$$

Question 62

In a school $\frac{1}{10}$ of the boys are same in number as $\frac{1}{4}$ of the girls and $\frac{5}{8}$ of the girls are same in number as $\frac{1}{4}$ of the boys. The ratio of the boys to girls in that school is

- A 2 : 1
- B 5 : 2
- C 4 : 3
- D 3 : 2

Answer: B

Explanation:

Let the number of Boys be 'B' and the number of girls be 'G'

$$\frac{1}{10}B = \frac{1}{4}G$$

$$\Rightarrow \frac{B}{G} = \frac{5}{2}$$

$$\therefore B:G = 5:2$$

Question 63

The average of 8 numbers is 27. If each of the numbers is multiplied by 8, find the average of new set of numbers.

- A 1128
- B 938
- C 316
- D 216

Answer: D

Explanation:

Let the 8 numbers be x_1, x_2, \dots, x_8

Sum of these 8 numbers = $x_1 + x_2 + \dots + x_8 = 27 \times 8 = 216$ -----(i)

If each number is multiplied by 8, \Rightarrow Numbers = $8x_1, 8x_2, \dots, 8x_8$

Sum = $8(x_1 + x_2 + \dots + x_8)$

= 8×216

\therefore New average = $\frac{8 \times 216}{8} = 216$

\Rightarrow Ans - (D)

Question 64

In a prep school, the average weight of 30 girls in a class among 50 students is 16 kg and that of the remaining students is 15.5 kg. What is the average weight of all the students in the class ?

A 15.2 kg

B 15.8 kg

C 15.4 kg

D 15.6 kg

Answer: B

Explanation:

Average weight of 30 girls = 16 kg

\Rightarrow Total weight of 30 girls = $16 \times 30 = 480$ kg

Similarly, total weight of remaining $(50 - 30 = 20)$ boys = $15.5 \times 20 = 310$ kg

\therefore Average weight of all the students in the class = $\frac{(480+310)}{50}$

= $\frac{79}{5} = 15.8$ kg

\Rightarrow Ans - (B)

Question 65

The average age of a husband and his wife was 23 years at the beginning of their marriage. After five years they have a one-year old child. The average age of the family of three, when the child was born, was

A 27 years

B 24 years

C 18 years

D 20 years

Answer: C

Explanation:

Sum of ages of husband and wife at the time of their marriage = $23 \times 2 = 46$ years

Child was 1 year old after 5 years, \Rightarrow child was born 4 years after the marriage.

Sum of the husband and wife after 4 years = 4 years of husband + 4 years of wife

\Rightarrow Total age = $46 + 8 = 54$ years

=> Required average = $\frac{54}{3} = 18$ years [Child's age was 0, when he was born]

=> Ans - (C)

Question 66

If the profit on sale price be 20%, the percentage of profit on cost price is

- A 20%
- B 30%
- C 22%
- D 25%

Answer: D

Explanation:

Let selling price = Rs. 100

=> Profit on selling price = $\frac{20}{100} \times 100 = Rs. 20$

Thus, cost price = $100 - 20 = Rs. 80$

∴ Profit on cost price = $\frac{20}{80} \times 100$

= $\frac{100}{4} = 25\%$

=> Ans - (D)

Question 67

A shopkeeper purchased a TV for Rs.2,000 and a radio for Rs.750. He sells the TV at a profit of 20% and the radio at a loss of 5%. The total loss or gain is

- A Gain Rs.353.50
- B Gain Rs.362.50
- C Loss Rs.332
- D Loss Rs.300

Answer: B

Explanation:

Cost price of TV = Rs. 2000

Profit % = 20%

=> Selling price of TV = $2000 + \left(\frac{20}{100} \times 2000\right)$

= $2000 + 400 = Rs. 2400$

Similarly, selling price of radio = $750 - \left(\frac{5}{100} \times 750\right)$

= $750 - 37.5 = Rs. 712.5$

Thus, total cost price = $(2000 + 750) = Rs. 2750$

and total selling price = $(2400 + 712.5) = Rs. 3112.5$

∴ **Gain** = $3112.5 - 2750 = Rs. 362.50$

=> Ans - (B)

Question 68

A container containing 400 litres of oil lost 8% by leakage. Oil left in the container is

- A 320 litres
- B 368 litres
- C 332 litres
- D 32 litres

Answer: B

Explanation:

Quantity of oil originally in the container = 400 litres

$$\text{Quantity of oil left} = 400 - \left(\frac{8}{100} \times 400\right)$$

$$= 400 - 32 = 368 \text{ litres}$$

=> Ans - (B)

Question 69

If $x^2 - 3x + 1 = 0$, then the value of $x^5 + \frac{1}{x^5}$ is equal to

- A 87
- B 123
- C 135
- D 201

Answer: B

Explanation:

$$x^2 - 3x + 1 = 0$$

Taking 'x' common

$$x(x - 3 + \frac{1}{x}) = 0$$

$$\Rightarrow x + \frac{1}{x} = 3 \rightarrow (1)$$

Squaring on both sides

$$x^2 + \frac{1}{x^2} + 2 \times x \times \frac{1}{x} = 9$$

$$\Rightarrow x^2 + \frac{1}{x^2} = 7 \rightarrow (2)$$

Cubing equation(1) on both sides

$$x^3 + \frac{1}{x^3} + 3 \times x \times \frac{1}{x} \left(x + \frac{1}{x}\right) = 27$$

$$x^3 + \frac{1}{x^3} + 3 \times 1 \times 3 = 27 \left(\because x + \frac{1}{x} = 3\right)$$

$$x^3 + \frac{1}{x^3} = 27 - 9 = 18 \rightarrow (3)$$

Squaring equation(2) on both sides

$$x^4 + \frac{1}{x^4} + 2 \times x^2 \times \frac{1}{x^2} = 49$$

$$x^4 + \frac{1}{x^4} = 47 \rightarrow (4)$$

Multiplying equation(1) and equation(4)

$$(x^4 + \frac{1}{x^4})(x + \frac{1}{x}) = 47 \times 3$$

$$x^5 + \frac{1}{x^5} + x^3 + \frac{1}{x^3} = 47 \times 3 = 141$$

$$x^5 + \frac{1}{x^5} + 18 = 141 (\because x^3 + \frac{1}{x^3})$$

$$\therefore x^5 + \frac{1}{x^5} = 123$$

Question 70

The value of $\operatorname{cosec}^2 18^\circ - \frac{1}{\cot^2 72^\circ}$ is

A $\frac{1}{\sqrt{3}}$

B $\frac{\sqrt{2}}{3}$

C $\frac{1}{2}$

D 1

Answer: D

Explanation:

$$\operatorname{cosec}^2 18^\circ - \frac{1}{\cot^2 72^\circ}$$

$$= \operatorname{cosec}^2 18^\circ - \tan^2 72^\circ (\because \frac{1}{\cot^2 \theta} = \tan^2 \theta)$$

$$= \operatorname{cosec}^2 18^\circ - \tan^2 (90^\circ - 72^\circ)$$

$$= \operatorname{cosec}^2 18^\circ - \sec^2 18^\circ (\because \sec^2 \theta = \tan^2 (90^\circ - \theta))$$

$$\operatorname{cosec}^2 18^\circ - \sec^2 18^\circ = 1 (\because \operatorname{cosec}^2 \theta - \sec^2 \theta = 1)$$

Question 71

The elevation of the top of a tower from a point on the ground is 45° . On travelling 60 m from the point towards the tower, the elevation of the top becomes 60° . The height of the tower, in metres, is

A 30

B $30(3 - \sqrt{3})$

C $30(3 + \sqrt{3})$

D $30\sqrt{3}$

Answer: C

Explanation:

From $\triangle ACD$,

$$\tan 60^\circ = \frac{AD}{CD}$$

$$\Rightarrow AD = CD\sqrt{3}$$

From $\triangle ABD$,

$$\tan 45^\circ = \frac{AD}{BD}$$

$$\Rightarrow AD = BD$$

$$\Rightarrow AD = BC + CD$$

$$\Rightarrow AD = 60 + \frac{AD}{\sqrt{3}}$$

$$\Rightarrow AD - \frac{AD}{\sqrt{3}} = 60$$

$$\Rightarrow \frac{\sqrt{3}AD - AD}{\sqrt{3}} = 60$$

$$AD(\sqrt{3} - 1) = 60\sqrt{3}$$

$$AD = \frac{60\sqrt{3}}{\sqrt{3}-1}$$

Rationalising above equation

$$AD = \frac{60\sqrt{3}}{\sqrt{3}-1} \times \frac{\sqrt{3}+1}{\sqrt{3}+1}$$

$$AD = \frac{60\sqrt{3}(\sqrt{3}+1)}{\sqrt{3}}$$

$$\therefore AD = 30(\sqrt{3} + 3)$$

Question 72

$$\frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(a-b)(c-a)} + \frac{(a-c)^2}{(a-b)(b-c)}, a \neq b \neq c \text{ is}$$

- A 0
- B 1
- C 2
- D 3

Answer: D

Explanation:

Let a=3, b=2, c=1

$$\begin{aligned} & \frac{(a-b)^2}{(b-c)(c-a)} + \frac{(b-c)^2}{(a-b)(c-a)} + \frac{(a-c)^2}{(a-b)(b-c)} \\ &= \frac{(3-2)^2}{(2-1)(1-3)} + \frac{(2-1)^2}{(3-2)(1-3)} + \frac{(3-1)^2}{(3-2)(2-1)} \\ &= -\frac{1}{2} - \frac{1}{2} + 4 = 3 \end{aligned}$$

Question 73

The product of two numbers is 2160 and their HCF is 12. Numbers of such possible pairs is

- A 1
- B 2
- C 3
- D 4

Answer: B

Explanation:

H.C.F. of the two numbers is 12, let the numbers be $12x$ and $12y$, where x and y are co-prime

$$\text{Product} = (12x) \times (12y) = 2160$$

$$= xy = \frac{2160}{144}$$

$$\Rightarrow xy = 15$$

Now, factors of 15 = 1, 3, 5, 15

Thus, possible values of $(x, y) = (1, 15), (3, 5)$

\therefore 2 such pairs are possible.

\Rightarrow Ans - (B)

Instructions

The following table gives the result of a survey based on newspaper reading habits. Study the table and answer the questions.

Income Group in (Salary/Income per month)	Does not read newspapers	Reads newspapers published in regional languages only	Reads only English Paper	Reads both in regional and English languages
Below Rs.5,000	162	271	123	52
Rs.5,000 - Rs.10,000	13	285	206	82
Above Rs.10,000	21	209	325	187

Question 74

The number of people who read only English newspapers.

- A 975
- B 654
- C 1086
- D 221

Answer: B

Explanation:

Number of people who read only English newspapers

$$= 123 + 206 + 325 = 654$$

\Rightarrow Ans - (B)

Question 75

The total number of people surveyed are

- A 2040
- B 1086
- C 12961
- D 1936

Answer: D

Explanation:

Number of people who do not read newspapers = $162 + 13 + 21 = 196$

Number of people who read only in regional languages = $271 + 285 + 209 = 765$

Number of people who read only English newspapers = $123 + 206 + 325 = 654$

Number of people who read in both languages = $52 + 82 + 187 = 321$

=> Total number of people surveyed = $196 + 765 + 654 + 321 = \mathbf{1936}$

=> Ans - (D)

English

Instructions

In the following questions, some part of the sentences have errors and some are correct. Find out which part of a sentence has an error. The number of that part is the answer. If a sentence is free from error, then your answer is (4) i.e., No error.

Question 76

- A Could you please give me
- B A postal address
- C of the Indian Embassy in New York
- D No error

Answer: B

Question 77

- A Short stories and poems
- B of varying quality
- C appears in dailies and periodicals
- D No error

Answer: C

Question 78

- A One of the
- B most dangerous disease
- C is AIDS
- D No error

Answer: B

Instructions

In the following questions, sentence are given with blanks to be filled with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four.

Question 79

Throughout his career, his performance has fairly been ____

- A consistence
- B consistent
- C consisting
- D constituted

Answer: B

Question 80

I convey my thanks ____ the members of the club.

- A for
- B of
- C to
- D about

Answer: C

Question 81

The government ____ on this issue.

- A is divided
- B are divided
- C is being divided
- D divided

Answer: A

Question 82

The student is yet ____ his home task.

- A completion
- B compete
- C complete
- D continue

Answer: C

Instructions

In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

Question 83

Hard

- A difficult
- B simple
- C common
- D easy

Answer: A

Question 84

Humorous

- A witty
- B innovative
- C fashionable
- D timid

Answer: A

Question 85

Gather

- A scatter
- B disperse
- C congregate
- D separate

Answer: C

Instructions

In the following questions, choose the word opposite in meaning to the given word.

Question 86

Slave

- A surf
- B landlord

C master

D tenant

Answer: C

Question 87

Deep

A shallow

B hollow

C steep

D low

Answer: A

Question 88

Egoist

A spiritless

B sulfless

C senseless

D soulless

Answer: B

Instructions

In the following questions, four alternatives are given for the Idiom / Phrase printed in bold. Choose the alternative which best expresses the meaning of the Idiom / Phrase.

Question 89

I have told you time and again not to make this mistake.

A always

B often

C sometimes

D rarely

Answer: B

Question 90

He handled the situation with an iron first.

A strictly

B leniently

- C softly
- D wayward

Answer: A

Question 91

She is leaving the country for good.

- A for the time being
- B for good times
- C temporarily
- D permanently

Answer: D

Instructions

In the following questions, a part of the sentence is printed in bold. Below are given alternatives to the bold part at (1), (2) and (3) which may improve the sentence. Choose the correct alternative. In case no improvement is needed your answer is (4)

Question 92

It has been raining since morning.

- A from
- B for
- C during
- D No improvement

Answer: D

Question 93

I am neither a poet nor philosopher.

- A not philosopher
- B nor the philosopher
- C nor a philosopher
- D No Improvement

Answer: C

Question 94

He was hung for murder

- A hang
- B hanged

- C hanging
- D No improvement

Answer: B

Instructions

In the following questions, out of the following questions, out of the four alternatives, choose the one which can be substituted for the given words/sentences.

Question 95

An act of violence to take control of a plane

- A hold as hostage
- B abduct
- C hijack
- D kidnap

Answer: C

Question 96

One who is all powerful

- A omnipotent
- B omniscient
- C absolute
- D almighty

Answer: A

Question 97

That which can not be believed

- A inaudible
- B incredible
- C invincible
- D indivisible

Answer: B

Instructions

In the following questions, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

Question 98

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- A Elecution
- B Elocation
- C Elocution
- D Elocutiun

Answer: C

Question 99

- A Juxttaposition
- B Justaposition
- C Jaxtaposition
- D Jaustaposition

Answer: A

Question 100

- A Hazardous
- B Hazardos
- C Hazzardous
- D Hazardus

Answer: A

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