

RRB JE
30th May 2019
Shift-1

Instructions

For the following questions answer them individually

Question 1

Which of these is NOT a whole number ?

A $6 \div 5$

B $(-6) \div (-2)$

C $8 \div 2$

D $18 - (2 \times 9)$

Answer: A

Question 2

Which of the following cities was the capital of Guptas?

A Kasi

B Pataliputra

C Kosala

D Ujjain

Answer: B

Question 3

Find the ODD oneout from the given options.

A BBG

B AIF

C AFI

D ABA

Answer: A

Question 4

Read the following information carefully and answer the question given below.

During an event, a game is being played. For the game, 9 people from T to Z (mix of boys and girls) have to stand in a vertical row. Boys are wearing black t-shirts and girls are wearing white t-shirts. The row starts at top and with a white t-shirt. Boys and girls stand alternately in the row. Each position in the row can be occupied by one person only.

- i) R stands seven places before S.
- ii) Second boy after T is U.
- iii) Fourth place in the row is occupied by V.
- iv) W stands ahead of R.
- v) X stands between T and R.
- vi) Z is a girl.

Who among the following stands between T and Z?

- A V
- B Y
- C U
- D S

Answer: B

Question 5

Who appoints the Chief Election Commissioner of India?

- A Leader of Lok Sabha
- B Chief Justice of India
- C President
- D Vice-President

Answer: C

Question 6

Which of the following processes is involved in chemical reactions?

- A Storing of oxygen gas under pressure in a gas
- B Liquefaction of air cylinder
- C Heating copper wire in the presence of air at high
- D Melting of ice to give water temperature

Answer: C

Question 7

Simplify: $(375 \times 375) + (125 \times 125) - (375 \times 125)$
 $(375 \times 375 \times 375) + (125 \times 125 \times 125)$

- A 1/1000

- B 1/3
- C 500
- D 1/500

Answer: D

Question 8

**Arrange the following decimals in descending order.
0.21, 0.021, 0.201, 0.102**

- A 0.21, 0.201, 0.102, 0.021
- B 0.21, 0.201, 0.021, 0.102
- C 0.021, 0.21, 0.201, 0.102
- D 0.21, 0.021, 0.201, 0.102

Answer: A

Question 9

Which organ of the human body is affected by glaucoma ?

- A Liver
- B Kidneys
- C Eyes
- D Ears

Answer: C

Question 10

Where in the body are blood cells produced?

- A Appendix
- B Spleen
- C Bone marrow
- D Heart

Answer: C

Question 11

Who is the first Indian weight lifter to win the World Title twice?

- A Karnam Malleswari

- B Sumita Laha
- C Sanamacha Chanu
- D Kunjarani Devi

Answer: A

Question 12

A boy has a total of Rs.60 which is a sum of one rupee, 50 paise and 25 paise coins in the ratio of 5: 6: 8. Find the number of 25 paise coins.

- A 42
- B 30
- C 32
- D 48

Answer: D

Explanation:

Let say, total number of 1 rupee , 50 paise and 25 paise coins are $5k, 6k$ and $8k$ respectively.

So, total amount is $=5k \times 1 + 6k \times 0.5 + 8k \times 0.25$

$=5k + 3k + 2k = 10k$.

So, $10k = 60$.

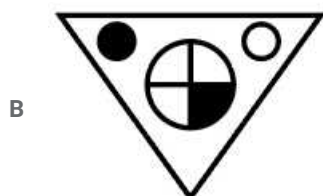
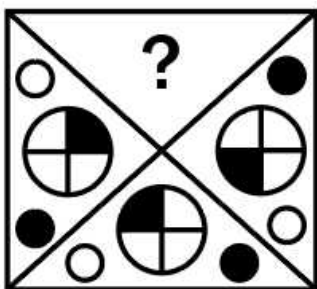
or, $k = 6$.

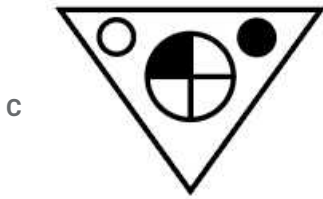
So, Total number of 25 paise coins are $= 6 \times 8 = 48$.

D is correct choice.

Question 13

Choose from the alternatives the figure that best completes the pattern given below.





Answer: B

Explanation:

Black dots & white dots, are opposite in the right hand & left hand side of the image .

Also, if we observe the given image properly, we can see that black spot inside the crossed circle are opposite to each other in the image.

So, missing part of the image shall contain the opposite dots and black spot inside the circle.

So, we can say that image in Option B is correct choice.

Question 14

If 'R' is coded as 5, 'L' is coded as 1, 'N' is coded as 6, 'T' is coded as 2, 'U' is coded as 8, 'F' is coded as 3, 'S' is coded as 4, 'I' is coded as 9 and 'G' is coded as 7, what is the decoded form of 425967 ?

- A TRINGS
- B SRTNIG
- C STRING
- D SITRNG

Answer: C

Explanation:

So, 425967= STRING.

C is correct choice.

Question 15

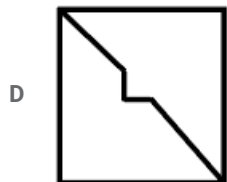
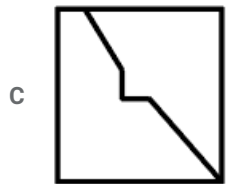
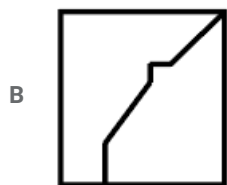
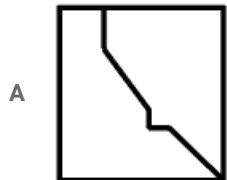
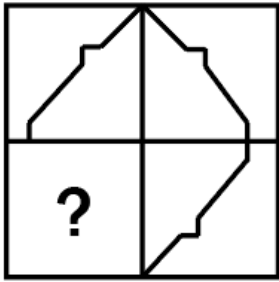
How will the emergent ray be after refraction of light through a glass slab?

- A The incident ray goes without deflection and emergent ray is same as incident ray
- B The emergent ray is parallel to the incident ray
- C The emergent ray and the incident rays are random
- D The emergent ray is at 90 degrees to the incident ray

Answer: B

Question 16

Choose from the alternatives the figure that best completes the pattern given below.



Answer: A

Explanation:

We need a left hand bended curve to complete the image.

Image in Option A completes the picture properly.

A is correct choice.

Question 17

A rectangle has a width 'a' and length 'b'. If the width is decreased by 20% and the length is increased by 10%, then what is the area of the new rectangle in percentage compared to 'ab'?

A 120%

B 110%

C 80%

D 88%

Answer: D

Explanation:

Old rectangle area= ab .

new width = $0.80a$

and, new length= $1.1b$.

So, new rectangle area= $0.8a \times 1.1b = 0.88ab$.

So, new area is 88% of old area of the rectangle.

D is correct choice.

Question 18

Earth Hour is organized by-

A Earth Hour Foundation

B UNESCO

C United Nations Environment Programme

D World Wildlife Fund

Answer: D

Question 19

Find the least number when divided by 8, 12, 18 leaving remainders 6, 10, 16 respectively.

A 144

B 70

C 74

D 146

Answer: B

Explanation:

By trial and error method ,we got :

$70/8 = \text{remainder } (6)$

$70/12 = \text{remainder } (10)$

$70/18 = \text{remainder } (16)$

So, B is correct choice.

Question 20

How many times do the tidal waves build up and recede (rise and fall) in a day?

A Thrice

B Twice

C Once

D Four times

Answer: B

Question 21

Who is considered as "The father of Biology" ?

A Aristotle

B Carolus Linnaeus

C Leeuwenhoek

D Lankester

Answer: A

Question 22

Deficiency of vitamin D causes-

A Beriberi

B Rickets

C Kwashiorkor

D Scurvy

Answer: B

Question 23

Read the following information carefully and answer the question given below.

P, Q, R, S and T are friends, and they use different cars— Maruti, Volkswagen, Jaguar, Porsche and Renault. Colours of these cars are —blue, white, black, red and green, but not necessarily in the same order.

i) P has an Renault, but it is not green.

ii) Q has a red colour Porsche.

iii) R has a blue car, but not Maruti.

iv) T has a black car, which is neither Volkswagen nor Jaguar.

v) Those who have green car use Volkswagen.

What is the colour of Renault?

A Green

B White

C Blue

D Black

Answer: B

Explanation:

Person Name	Car Name	Car color
P		
Q		
R		
S		
T		

Person Name	Car Name	Car color
P	Renault	(Xgreen)
Q	Porsche	Red
R		
S		
T		

- j) P has an Renault, but it is not green.
 ii) Q has a red colour Porsche.

Person Name	Car Name	Car color
P	Renault	White
Q	Porsche	Red
R	(X <u>Maruti</u>)	Blue
S		Green
T		Black

- iii) R has a blue car, but not Maruti.
 iv) T has a black car, which is neither Volkswagen nor Jaguar.
 Then , definitely S has Green color car and P has white color car.

Person Name	Car Name	Car color
P	Renault	White
Q	Porsche	Red
R	Jaguar	Blue
S	Volkswagen	Green
T	<u>Maruti</u>	Black

- v) Those who have green car use Volkswagen.
 Then, T uses Maruti as R does not use Maruti.

So, Renault is a white color car .

B is correct choice.

Question 24

Which number will best complete the relationship given below?

Handball : 7 :: Field Hockey: ?

- A 7
- B 11
- C 14
- D 13

Answer: B

Explanation:

Total number of letters including space :

HANDBALL=8

So, HANDBALL coded by $(8-1)=7$.

Similarly,

Field Hockey=12.

it will be coded by $(12-1)=11$.

B is correct choice.

Question 25

If $x^3 + y^3 = 9$ and $x + y = 3$, then find the value of 'xy'.

- A 1
- B 3
- C 2
- D 6

Answer: C

Explanation:

$$x^3 + y^3 = 9$$

$$\text{or, } (x + y)^3 - 3xy(x + y) = 9.$$

$$\text{or, } 3^3 - 3xy \times 3 = 9.$$

$$\text{or, } 9xy = 27 - 9 = 18.$$

$$\text{or, } xy = 2.$$

C is correct choice.

Question 26

The foul smell of rancid butter is due to

- A Caproic acid
- B Butyric acid
- C Stearic acid

D Palmitic acid

Answer: B

Question 27

Find the wrong number in the following series.

2, 20, 54, 110, 182

A 54

B 110

C 20

D 182

Answer: A

Explanation:

2, 20, 110 & 182 are divisible by 2 but 54 is divisible by 2 as well as 3.

A is correct choice.

Question 28

Find the smallest number that leaves the remainder 13, 41 and 29 on being divided by 20, 48 and 36 respectively.

A 727

B 720

C 713

D 187

Answer: C

Explanation:

When divided by 20 remainder is 13. So, if we add 7 and then divide by 13 remainder, remainder will be 0 (as $13+7$ becomes 20).

Similarly after adding 7, remainder when divided by 48 becomes 0. Similarly, for 36 it becomes 0.

20 is 4×5

48 is 16×3

36 is 4×9 .

The factors are not taken randomly. They are powers of primes.

Common multiple has to be multiple of 16 (highest power of 2); otherwise it will not be multiple of 48.

Similarly, it should be multiple of 9 and 5.

Hence, it should be multiple of 720. Smallest such positive number is 720.

This is divisible of 20, 48 and 36

But this number is after adding 7; so required number is 713.

C is correct choice.

Question 29

If selling price is Rs.500 more than the cost price and the profit earned is 40%, then what is the cost price?

- A Rs.1750
- B Rs.1800
- C Rs.1250
- D Rs.1500

Answer: C

Explanation:

$$S-C=0.40C=500.$$

$$\text{So, } C=(500/0.40)=1250.$$

C is correct choice.

Question 30

Which is the phase of the moon which is a full bright view of the moon, where the moon is almost perfect round in shape?

- A Crescent moon
- B Full moon
- C Gibbous moon
- D New moon

Answer: B

Question 31

Which of the following is the sound of single frequency ?

- A Note
- B Timber or quality of sound
- C Tone
- D Noise

Answer: C

Question 32

What is the name of the longest bone found in the thigh of a human body?

- A Vistula
- B Femur
- C Fibula
- D Humerous

Answer: B

Question 33

What was the duration of the second five year plan?

- A 1956-61
- B 1952-57
- C 1950-55
- D 1951-56

Answer: A

Question 34

Complete the series.

39, 32, 25, 18, 11, (...)

- A 4
- B 9
- C 1
- D 7

Answer: A

Explanation:

$39-7=32$, $32-7=25$, $25-7=18$, $18-7=11$,

$11-7=4$.

A is correct choice.

Question 35

Which of the following is a carnivorous plant?

- A Sundew
- B Venus fly-trap
- C Pitcher plant
- D All of the options

Answer: D

Question 36

Simplify: $\sqrt{\frac{(2.3)^2 + (23.3)^2 + (233.3)^2}{(0.23)^2 + (2.33)^2 + (23.33)^2}}$

- A 1/100
- B 0.1
- C 100
- D 10

Answer: D

Explanation:

$$\begin{aligned} & \sqrt{\frac{(2.3)^2 + (23.3)^2 + (233.3)^2}{(0.23)^2 + (2.33)^2 + (23.33)^2}} \\ &= \sqrt{\frac{100((2.3)^2 + (23.3)^2 + (233.3)^2)}{100((0.23)^2 + (2.33)^2 + (23.33)^2)}} \\ &= \sqrt{\frac{100((2.3)^2 + (23.3)^2 + (233.3)^2)}{(2.3)^2 + (23.3)^2 + (233.3)^2}} \\ &= \sqrt{100}. \\ &= 10. \end{aligned}$$

D is correct choice.

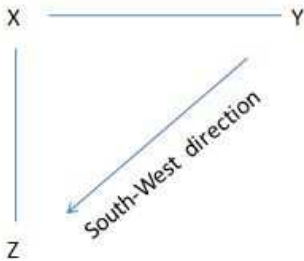
Question 37

Y is placed to the east of X, and Z is placed to the south of X. What is the direction of Z with respect to Y?

- A South east
- B North west
- C South west
- D North east

Answer: C

Explanation:



C is correct choice.

Question 38

A spherical mirror and a thin spherical lens both have a focal length of -10 cm. The mirror and the lens are likely to be-

- A Both convex
- B The mirror is concave and the lens is convex
- C Both concave
- D The mirror is convex and the lens is concave

Answer: C

Explanation:

The mirror and the lens are likely to be- concave.

C is correct choice.

Question 39

Two men—Pand start from two points—X and Y on opposite banks of still river towards Y and X respectively. They meet at 340 m from one bank 'X' and proceed on their respective onward journey. After that they meet at 170 m from the other bank 'Y' on their return journey. What is the width of the river?

- A 1 km
- B 400 km
- C 850 km
- D 1.5 km

Answer: C

Explanation:

Let the two opposite ends of the river be X and Y and the distance between them be D meters.(i.e., width = D meters)

Let P and Q be the two men starting from the opposite banks(i.e., from X and Y respectively).

Let the speed of P and Q be A and B m/hr .

I meet :

During I meet, P travels 340m from X while Q travels (D - 340)m from Y.

Therefore, Time taken for P to travel 340m = Time taken for Q to travel (D - 340)

$$\text{Or } 340 / A = (D - 340) / B$$

$$\text{Or } 340 / (D - 340) = A / B \dots(1)$$

II meet :

After crossing spot I, both of them proceed in their respective directions, reach banks and return back to cross each other at Spot II which is 170m from Y.

From Spot I to Spot II, P would had travelled a distance of (D - 340) + 170 m

From Spot I to Spot II, Q would had travelled a distance of 340 + (D - 170) m

Time taken by P to travel from Spot I to Spot II will be the same as that of Q from Spot I to Spot II

$$\text{Therefore, } A / (D - 340) + 170 = B / 340 + (D - 170)$$

$$\text{Or } (D - 340) + 170 / 340 + (D - 170) = A / B \dots(2)$$

From equations I and II, we get,

$$340 / (D - 340) = ((D - 340) + 170) / (340 + (D - 170))$$

$$340 / (D - 340) = (D - 170) / (D + 170)$$

By Cross- Multiplying,

$$340(D + 170) = (D - 170)(D - 340)$$

$$340D + 57800 = D^2 - 170D - 340D + 57800$$

$$D^2 - 850D = 0$$

By Factorizing,

$$D(D - 850) = 0$$

$$D = 850$$

Hence the width of the river = 850 m.

C is correct choice.

Question 40

Which of the following countries is to host the G20 summit in 2020?

- A India
- B Japan
- C Saudi Arabia
- D USA

Answer: C

Question 41

Mule is a hybrid derived by crossing-

- A Donkey and zebra
- B Female donkey and a male horse
- C Male donkey and a female horse
- D Horse and zebra

Answer: C

Question 42

Choose the alternative that best replaces the question mark(?) in the given figure.

4	6	8
3	5	5
7	11	?

- A 15
- B 37
- C 39
- D 12

Answer: C

Explanation:

$$(4+3)(4-3)=7.$$

$$(6+5)(6-5)=11.$$

$$(8+5)(8-5)=39.$$

C is correct choice.

Question 43

In the second quadrant, $\sin \theta$ varies from:

- A 1 to -1

B 1 to 0

C 0 to -1

D -1 to 1

Answer: B

Explanation:

In the second quadrant, $\sin \theta$ varies from 1 to 0.

B is correct choice.

Question 44

Bases are in taste.

A Sour

B Salty

C Bitter

D Sweet

Answer: C

Question 45

Two trains 100 m and 120 m in length are moving in opposite direction, with speeds 18 m/s and 15 m/s respectively. In what time will they cross each other?

A 10 seconds

B 8 seconds

C 7.2 seconds

D 6.7 seconds

Answer: D

Explanation:

Their relative velocity= $(18+15)=33$ m/s.

So, time taken by them to cross each other is $=(100+120)/33=6.67$ sec.

D is correct choice.

Question 46

Find the ODD oneout from the given options.

A SUV

B MOP

C GIJ

D KML

Answer: D

Explanation:

KML is odd .

As in SUV :S and U have 1 gap but U and V has no gap.

Similar for MOP and GIJ.

D is correct choice.

Question 47

A certain principal amounts to Rs.15000 in 2.5 years and to Rs.16500 in 4 years at the same rate of interest. Find the rate of interest.

A 6%

B 7%

C 9%

D 8%

Answer: D

Explanation:

Amount becomes:

15000 in 2.5 years

16500 in 4 years

Simple interest for (4-2.5) years:

$16500 - 15000$

Therefore:

SI for 1.5 years = Rs. 1500

SI for 2.5 years:

$1500/1.5 * 2.5$

2500

Principal amount:

$15000 - 2500$

Rs. 12500

Rate of Interest:

$2500 * 100 / 12500 * 2.5$

$250000 / 31250$

R = 8%

D is correct choice.

Question 48

The list price of an article at a show room is Rs.2000, and it is being sold at successive discounts of 20% and 10%. Find its net selling price.

A Rs.1520

B Rs.1400

C Rs.1700

D Rs.1440

Answer: D

Explanation:

Net selling price = $2000 \times 0.8 \times 0.9 = 1440$ Rs.

D is correct choice.

Question 49

Glacial acetic acid is-

- A Frozen acetic acid
- B 100% acetic acid free of water
- C Solidified acetic acid
- D Gaseous acetic acid

Answer: B

Question 50

Complete the series.

8, 24, 12, 36, 18, 54, (...)

- A 27
- B 68
- C 72
- D 108

Answer: A

Explanation:

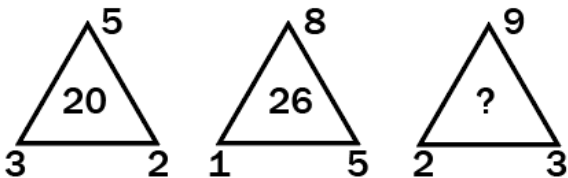
$8 \times 3 = 24$, $24 / 2 = 12$, $12 \times 3 = 36$, $36 / 2 = 18$,

$18 \times 3 = 54$ & $54 / 2 = 27$.

A is correct choice.

Question 51

Choose the alternative that best replaces the question mark(?) in the given figure.



- A 40
- B 32
- C 38
- D 35

Answer: A

Explanation:

First image:

$$5 \times 3 \times 2 - (5 + 3 + 2) = 20.$$

Second image:

$$8 \times 5 \times 1 - (8 + 5 + 1) = 26.$$

Last image:

$$9 \times 3 \times 2 - (9 + 3 + 2) = 40.$$

A is correct choice.

Question 52

A solid cube of side 12 cm is cut into eight smaller cubes of equal volume. The side of the small cube will be:

A 4 cm

B 3 cm

C 1.5 cm

D 6 cm

Answer: D

Explanation:

Volume of old cube = a^3

$$\Rightarrow (12)^3 = 1728 \text{ cm}^3$$

No. of cubes = 8

Volume of old cube = 8 * volume of 1 new cube

$$1728 = 8 * a^3$$

$$1728 / 8 = a^3$$

$$12 / 2 = a$$

$$6 \text{ cm} = a$$

D is correct choice.

Question 53

LCM of a set of fractions is:

A HCF of numerators / HCF of denominators

B LCM of numerators / HCF of denominators

C LCM of numerators / LCM of denominators

D HCF of numerators / LCM of denominators

Answer: B

Explanation:

LCM of a set of fractions is = LCM of numerators / HCF of denominators.

B is correct choice.

Question 54

Double helical model of DNA molecule was proposed by-

- A Morgan
- B Khorana
- C Watson and Crick
- D Nirenberg

Answer: C

Question 55

Six years ago the ratio of ages of P and Q was 6 : 5. Four years hence, it will be 11 : 10. What is the age of P now ?

- A 15 years
- B 25 years
- C 18 years
- D 20 years

Answer: C

Explanation:

Let say, P and Q's present age is p and q.

$$\text{So, } \frac{p-6}{q-6} = \frac{6}{5}.$$

$$\text{or, } 5p - 30 = 6q - 36.$$

$$\text{or, } 6q - 5p = 6 \dots\dots\dots (1)$$

And,

$$\frac{p+4}{q+4} = \frac{11}{10}.$$

$$\text{or, } 10p + 40 = 11q + 44.$$

$$\text{or, } 10p - 11q = 4 \dots\dots\dots (2)$$

Now multiply (1) by 2 and add it to (2) :

$$12q - 10p + 10p - 11q = 12 + 4.$$

$$\text{or, } q = 16.$$

$$\text{So, } p = \frac{6 \times 16 - 6}{5} = \frac{90}{5} = 18. (\text{from eq (1)})$$

C is correct choice.

Question 56

Which of the following is an ore of zinc?

- A Hematite
- B Cryolite
- C Dolomite
- D Calamine

Answer: D

Question 57

In a certain code, 'MASTER' is coded as 'VIYZOX'. How is 'STREAM' coded?

- A YZXIOV
- B YZXOIV
- C ZYXOIV
- D YZOXIV

Answer: B

Explanation:

'MASTER' is coded as 'VIYZOX'.

So, $M = V$, $A = I$, $S = Y$, $T = Z$, $E = O$, $R = X$.

So, STREAM=YZXOIV.

B is correct choice.

Question 58

What is the full form of FDI?

- A Foreign Domestic Index
- B Foreign Direct Investment
- C Federal Deposit Investment
- D Federal Domestic Index

Answer: B

Question 59

Two taps P and Q take 60 minutes and 40 minutes to fill a cistern separately. If tap Q is open for the first half time and alone is open for the remaining time, how long will it take to fill the cistern?

- A 45 minutes
- B 32 minutes
- C 36 minutes
- D 48 minutes

Answer: D

Explanation:

Let say, total time taken by them to fill the tank is x min.

Q :

Q fills in $\frac{x}{2}$ min = $\frac{x}{2} \times \frac{1}{40} = \frac{x}{80}$.

P:

P fills in $\frac{x}{2}$ min = $\frac{x}{2} \times \frac{1}{60} = \frac{x}{120}$.

So,

$$\frac{x}{80} + \frac{x}{120} = 1$$

$$\text{or, } \frac{(2+3)x}{240} = 1.$$

$$\text{or, } x = \frac{240}{5} = 48.$$

D is correct choice.

Question 60

With which of the following fields is Munshi Premchand associated?

- A Dance
- B Music
- C Literature
- D Painting

Answer: C

Question 61

P, Q and R can do a project in 8, 6 and 12 days respectively. The project is started with P and Q working on day 1, Q and R on day 2, R and P on day 3 and so on. In how many days will the project be completed?

- A 29/7 days
- B 22/7 days
- C 34/7 days
- D 27/7 days

Answer: D

Explanation:

P, Q and R can do the project in 8, 6 and 12 days respectively.

$$\text{So, P and Q can do in 1 day} = \frac{1}{8} + \frac{1}{6} = \frac{3+4}{24} = \frac{7}{24}.$$

$$\text{P and R can do in 1 day} = \frac{1}{8} + \frac{1}{12} = \frac{3+2}{24} = \frac{5}{24}.$$

$$\text{Q and R can do in 1 day} = \frac{1}{6} + \frac{1}{12} = \frac{2+1}{12} = \frac{3}{12} = \frac{6}{24}.$$

$$\text{After day 3, work left} = \left(1 - \frac{7}{24} - \frac{5}{24} - \frac{6}{24}\right) = \frac{24-7-5-6}{24} = \frac{6}{24} = \frac{1}{4}.$$

So, P and Q can do $\Rightarrow \frac{7}{24}$ part in 1 day.

$$\text{or, } \frac{1}{4} \text{ part will do in} = \frac{24}{7} \times \frac{1}{4} = \frac{6}{7} \text{ days.}$$

$$\text{So, Total time taken} = \left(3 + \frac{6}{7}\right) = \frac{27}{7} \text{ days.}$$

D is correct choice.

Question 62

Blue green algae contains -

- A Thylakoid membranes
- B Lysosomes

C Mitochondria

D Golgibodies

Answer: A

Question 63

Which of these properties does NOT hold good in a triangle?

A Difference of any two sides is less than the third side

B Sum of any two sides is greater than the third side

C Sum of any two sides is equal to the third side

D Sum of the angles is 180° always

Answer: C

Question 64

The consistency of a given data can be determined from the value of

A The range

B The mode

C Difference between mean and median

D The standard deviation

Answer: D

Question 65

Which of the following properties changes with valency?

A Equivalent weight

B Pressure

C Density

D Volume

Answer: A

Question 66

Prakash runs from his home towards east direction for 50 m and then turns left and runs for 20 m. Again he turns left and runs for 30 m; and again turns left and runs for 20 m to reach point 'A'. What is the distance from the point A to is home straight?

A 30 m

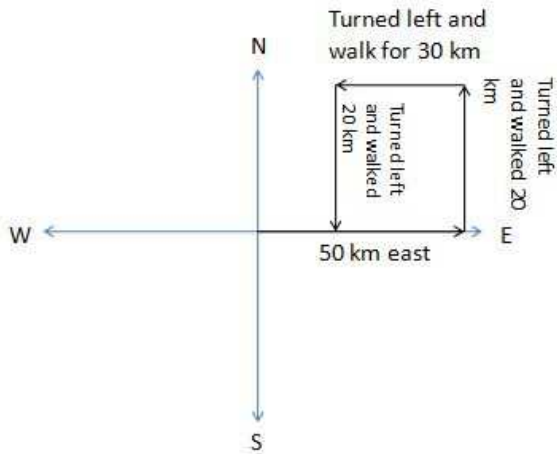
B 40 m

C 10 m

D 20 m

Answer: D

Explanation:



So, He is $(50-30)=20$ km apart from his home to point A.

D is correct choice.

Question 67

Who among the following was awarded with the Bharat Ratna in 2019 ?

- A Narendra Modi
- B Manmohan Singh
- C Pranab Mukherjee
- D L.K. Advani

Answer: C

Question 68

Simplify : $7\frac{1}{5} \div 1\frac{1}{35} \times \frac{3}{35}$

- A $5/7$
- B $7/5$
- C $3/5$
- D $3/7$

Answer: C

Explanation:

$$7\frac{1}{5} \div 1\frac{1}{35} \times \frac{3}{35}$$

$$=(36/5) \div (36/35) \times (3/35)$$

$$=(36/5) \times (35/36) \times (3/35)$$

$$=(3/5)$$

C is correct choice.

Question 69

Where was the Common wealth Games 2018 held?

- A Australia
- B India
- C England
- D Canada

Answer: A

Question 70

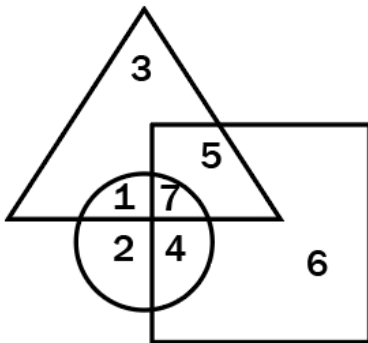
What is the expansion of BHIM?

- A Bharat Initiative for Money
- B Bharat Immediate for Money
- C Bharat Interface for Money
- D Bharat Intermediate for Money

Answer: D

Question 71

In the given figure. the circle represents people who visited Bhopal. triangle represents people who visited Kochi. and square represents people who visited Patna. Which region represents people who visited both Bhopal and Kochi ?



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

Answer: B

Explanation:

Common region of triangle and circle is 1 ,which represents the Bhopal and Kochi only.

So, B is correct choice.

Question 72

On what factors does the resistance of a conductor depend?

- A Thickness of conductor
- B All the options
- C Nature of material of conductor
- D Length of conductor

Answer: B

Question 73

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

1) Some rats are tigers.

2) Some cats are tigers.

Conclusions:

I. Some tigers are cats.

II. Some tigers are rats.

- A Only conclusion II follows
- B Neither conclusion I nor II follows
- C Only conclusion I follows
- D Both conclusions I and II follow

Answer: D

Explanation:

both the conclusions are follows:

Some tigers are cats.

Some tigers are rats.

As both the particulars starts with some , conclusions must start with Some clause .

So, D is correct choice.

Question 74

Which of the following is an example of a triatomic molecule?

- A Oxygen
- B Ozone
- C Nitrogen
- D Hydrogen

Answer: B

Question 75

Two pipes can fill a tank in 45 and 30 minutes respectively. After some time the slower pipe was closed. Then the tank was filled by the other pipe in 13 minutes 20 seconds. When was the slower pipe closed after start?

- A 12.6 minutes
- B 8.5 minutes
- C 15 minutes
- D 10 minutes

Answer: A

Explanation:

Let say, slower pipe was closed after x min.

So, in x min they together filled

$$x(1/45+1/30)=x(2+3)/90=(x/18).$$

So, faster pipe will fill rest of it $(1-x/18)$ or $(18-x)/18$ in $(13+1/3)$ min.

$$\text{In } (13+1/3) \text{ min, it fills} = 40/(45 \times 3) = 8/27.$$

$$\text{So, } (18-x)/18 = 8/27.$$

$$\text{or, } 18 \times 27 - 27x = 144.$$

$$\text{or, } x = 12.67$$

So, A is correct choice.

Question 76

Using brake pads in the brake system of bicycles and automobiles is for what purpose ?

- A To decrease friction
- B To make the vehicle not able to stop its movement
- C To increase friction
- D To keep the vehicle moving with uniform speed

Answer: C

Question 77

Which of these states is bordered by Bhutan, China and Myanmar?

- A Manipur
- B Assam
- C Tripura
- D Arunachal Pradesh

Answer: D

Question 78

Why does a cork float in water while an iron nail sinks?

- A Due to the cork's floating capacity
- B Due to the difference in their densities
- C Due to the difference in their forms
- D Due to the same force acting on both

Answer: B

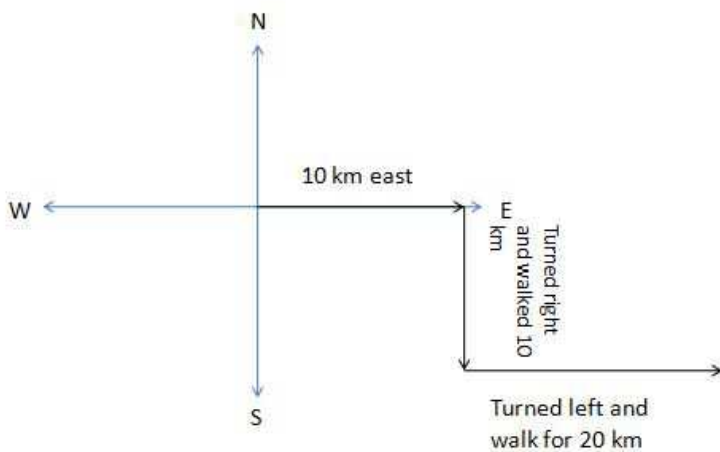
Question 79

Siva left school and cycled 10 km towards east. He then turned right and cycled 10 km and turned left and cycled 20 km and reached point 'A'. How many kilometers should he cycle from the school to point 'A'?

- A 20 km
- B 40 km
- C 30 km
- D 10 km

Answer: B

Explanation:



So, in total he has to walk for = $10 + 10 + 20 = 40 \text{ km}$.

B is correct choice.

Question 80

In 2019, which of the following schemes was launched by HRD Ministry to fund science projects?

- A NPTEL
- B NRP
- C RUSA
- D STARS

Answer: D

Question 81

In this question, a statement is given followed by three conclusions. Choose the conclusion(s) which best fit(s) logically.

Statement:

$$L \leq R < M < N < K$$

Conclusions:

- I. $L < N$
- II. $K > M$
- III. $R < N$

- A Only conclusion II is true
- B Only conclusion III is true
- C Only conclusion I is true
- D All conclusions are true

Answer: D

Explanation:

Conclusions:

- I. $L < N$
- II. $K > M$
- III. $R < N$

All the conclusions can be derived from the above statement.

D is correct choice.

Question 82

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

- 1) Some boys are girls.
- 2) Some students are boys.

Conclusions:

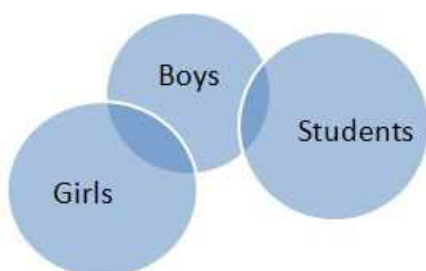
- I. All girls are students.
- II. Some students are girls.

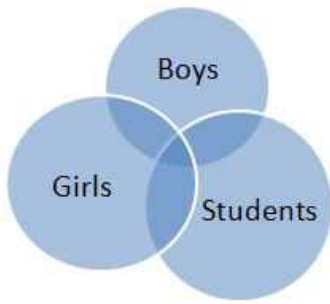
- A Both conclusions I and II follow
- B Neither conclusion I nor II follows
- C Only conclusion II follows
- D Only conclusion I follows

Answer: B

Explanation:

From the given statements following two diagram possible :





So, none of the conclusion is right.

B is correct choice.

Question 83

A solid is in the shape of a cone fitted on a hemisphere both with radii 2 cm and height of cone being equal to its radius. What is the volume of this solid?

- A $2\pi cm^3$
- B $4\pi cm^3$
- C $6\pi cm^3$
- D $8\pi cm^3$

Answer: D

Explanation:

$$\text{Total volume} = (1/3)\pi r^2 h + (2/3)\pi r^2 h$$

here, $r=2=h$.

$$\text{So, Volume} = (1/3+2/3)(\pi \times 2 \times 2 \times 2) = 8\pi.$$

D is correct choice.

Question 84

Who among the following is NOT a cricketer?

- A Sardara Singh
- B Dilip Doshi
- C R.P. Singh
- D Syed Abid Ali

Answer: A

Question 85

What comes in the place of *?

$$(7 \times 7)^3 \div (49 \times 7)^3 \times (2401)^2 = 7^*$$

- A 5
- B 7

C 8

D 3

Answer: A

Explanation:

$$(7 \times 7)^3 \div (49 \times 7)^3 \times (2401)^2$$

$$= 7^6 \div 7^9 \times 7^8.$$

$$= 7^6 \times \frac{1}{7^9} \times 7^8.$$

$$= 7^{14} \times \frac{1}{7^9}.$$

$$= 7^{14-9}.$$

$$= 7^5.$$

So, A is correct choice.

Question 86

Which of the following rivers is also known as the 'River of Sorrow'?

A Damodar

B Auranga

C North Koel

D Amanat

Answer: A

Question 87

In a certain code, if 'TREE' is coded as 7100, 'FROG' as 2159, how is 'FREE' coded in that code ?

A 1002

B 2100

C 3100

D 1003

Answer: B

Explanation:

From the given question we can say that :

F=2, R=1, & E=0.

So, FREE=2100.

B is correct choice.

Question 88

What is the ratio of sine of angle of incidence to the sine of the angle of refraction called?

A Opacity

- B Translucent index
- C Refractive index
- D Transparency

Answer: C

Question 89

'Astigmatism' is a disease which affects -

- A Ears
- B Heart
- C Legs
- D Eyes

Answer: D

Question 90

What is the SI unit of time period?

- A Metre (m)
- B Second (s)
- C Hertz (Hz)
- D Kilogram (Kg)

Answer: B

Question 91

If 'L' stands for '+', 'M' stands for '-', 'N' stands for '×', 'P' stands for '÷', then $14 N 10 L 42 P 2 M 10 = ?$

- A 216
- B 329
- C 243
- D 151

Answer: D

Explanation:

Equation is :

$$14 \times 10 + 42 \div 2 - 10$$

$$= 14 \times 10 + 21 - 10$$

$$= 140 + 21 - 10$$

$$= 161 - 10$$

$$= 151.$$

D is correct choice.

Question 92

The atomic number of sulphur is-

- A 18
- B 14
- C 16
- D 12

Answer: C

Question 93

Which of the following separation techniques can be used to separate iron pins from sand?

- A Filtration
- B Fractional distillation
- C Evaporation
- D Magnetic separation

Answer: D

Question 94

A sum lent at 7% per annum will produce as much Simple Interest in 2 years as Rs.1750, lent at 5% will produce in 4 years. Find the sum.

- A Rs.1600
- B Rs.2500
- C Rs.2400
- D Rs.1800

Answer: B

Explanation:

Let say, the sum is P.

So,

$$P \times 0.07 \times 2 = 1750 \times 0.05 \times 4$$

$$\text{or, } P = (1750 \times 10)/7$$

or, P=2500.

B is correct choice.

Question 95

Arun's income is 150% of Bala's income. Income of Chandru is 120% of the income of Arun. If the total income of Arun, Bala and Chandru is Rs.86000, then what is the income of Chandru?

- A Rs.30000
- B Rs.32000
- C Rs.34000
- D Rs.36000

Answer: D

Explanation:

Let say, Bala's income= b .

So, Arun's income= $1.5b$

And Chandra's income= $1.2 \times 1.5b = 1.8b$.

So, $(1.5b + b + 1.8b) = 86000$.

or, $4.3b = 86000$.

or, $b = 20,000$.

Chandru's income = $1.8 \times 20,000 = 36000$.

D is correct choice.

Question 96

The group number and period number respectively of an element with atomic number 8 are

- A 16, 2
- B 6, 2
- C 4, 2
- D 16, 3

Answer: A

Question 97

Find the ODD one out from the given options.

- A 6, 72
- B 2, 8
- C 8, 130
- D 4, 32

Answer: C

Explanation:

In each pair of numbers bigger number is divisible by the smaller one, but 130 is not divisible by 8 .

So, C is correct choice.

Question 98

Calculate the median for this data.

Daily income in Rs.	10-14	15-19	20-24	25-29	30-34	35-39
No.of workers	5	10	15	20	10	5

A 25.12

B 26.4

C 20

D 12.33

Answer: A

Explanation:

Group	Frequency
35-39	5
30-34	10
25-29	20
20-24	15
15-19	10
10-14	5

Group	Frequency	<cf(cummilative freq)
35-39	5	65
30-34	10	60
25-29	20	50
20-24	15	30
15-19	10	15
10-14	5	5

We know ,

$$\text{MEDIAN} = lb_{mc} + \left\{ \frac{\frac{\Sigma f}{2} - cf}{f_{mc}} \right\} i$$

here, $i=5$, $\Sigma f = 5 + 10 + 15 + 20 + 10 + 5 = 65$.

$$\text{So, } \frac{\Sigma f}{2} = \frac{65}{2} = 32.5.$$

So, Middle class should lie under the group (25-29).

So, <cf is = 30 and $f_{mc} = 20$.

And, $lb_{mc} = 25 - 0.50 = 24.50$.

$$\text{So, MEDIAN} = 24.50 + \left\{ \frac{32.50 - 30}{20} \right\} .5$$

$$\text{or, MEDIAN} = 24.50 + 0.625 = 25.125.$$

So, A is correct choice.

Question 99

A mother and daughter differ in age by 20 years. Five years hence daughter's age will be half her mother's present age. How old is the daughter?

- A 8 years
- B 15 years
- C 10 years
- D 12 years

Answer: C

Question 100

If 'NOR' is coded as 2-3-6, then how should 'REST' be coded?

- A 5-19-5-8
- B 6-18-5-8
- C 6-19-7-8
- D 6-19-6-7

Answer: C

Explanation:

Here the value of R is 6 so according to given condition, value of S should be 7. Therefore, answer should be 6-19-7-8.

C is correct choice.

RRB JE
30th May 2019
Shift-2

Instructions

For the following questions answer them individually

Question 1

D is a point on BC of $\triangle ABC$ where $BD = \left(\frac{1}{2}\right)DC$. Find the ratio of areas of $\triangle ABD$ and $\triangle ABC$.

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

Answer: B

Question 2

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

- 1) No magazine is cap.
- 2) All caps are cameras.

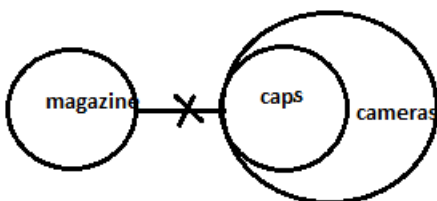
Conclusions:

- I. No camera is magazine.
- II. Some cameras are magazines

- A Only conclusion II follows
- B Only conclusion I follows
- C Either conclusion I or II follows
- D Both conclusions I and II follow

Answer: C

Explanation:



Question 3

Who suggested the four main groups of human blood in 1890?

- A Chadwick
- B Ronald Ross
- C Karl Landsteiner
- D Louis Pasteur

Answer: C

Question 4

Yamuna and Gomati are the tributaries of river-

- A Godavari
- B Ganga
- C Krishna
- D Mahanadi

Answer: B

Question 5

The main structural material of hair is-

- A Biotin
- B Thiamine
- C Keratin
- D Vitamin

Answer: C

Question 6

In which of the following countries was the 21st FIFA World Cup-2018 held?

- A Argentina
- B Spain
- C Russia
- D Brazil

Answer: C

Question 7

Which metal can be displaced by copper from its salt solution?

- A Gold
- B Mercury
- C Zinc
- D Silver

Answer: C

Explanation:

Since gold and mercury are less reactive than **copper**, but zinc is more reactive. Therefore, zinc **will** replace **copper from its salt solution**.

Question 8

Find the missing number in the series.

49, 64, (...), 100, 121

A 72

B 81

C 92

D 88

Answer: B

Explanation:

series is square of consecutive numbers starting from 7

$$49 = 7^2$$

$$64 = 8^2$$

$$81 = 9^2$$

$$100 = 10^2$$

$$121 = 11^2$$

Question 9

By using a windmill, which energy is tapped to rotate wind turbines to drive generators?

A The kinetic energy of the moving wind

B The heat energy of wind

C The chemical energy of wind

D The sound energy of wind

Answer: A

Question 10

P does half as much work as Q. R does half as much work as P and Q together. If R alone can finish it in 40 days, then all of them together will finish the work in how many days?

A 15

B $\frac{40}{3}$

C 30

D 20

Answer: B

Question 11

Where is India's first hi-tech forensic lab, which was recently inaugurated, located?

- A Chennai
- B Delhi
- C Kolkata
- D Mumbai

Answer: B

Question 12

How is the voltmeter connected in all circuits to measure the voltage between two points?

- A Across
- B In parallel
- C In series
- D In line

Answer: B

Question 13

A precious crystal piece worth Rs.15600 is accidentally dropped and was broken into three pieces, their weights respectively proportional to 2, 3 and 5 units. Value of the crystal varies directly as the cube of its weight. Calculate the percentage loss in the value.

- A 75%
- B 84%
- C 25%
- D 16%

Answer: B

Question 14

If an item is sold for Rs.8000 at 25% profit, then find the profit.

- A Rs.1000
- B Rs.1600
- C Rs.1200
- D Rs.1800

Answer: B

Explanation:

SP =Rs. 8000

Profit% = 25%

$$SP = \frac{(100+25)}{100} * CP$$

$$CP = \frac{100}{125} * SP$$

$$CP = \frac{100}{125} * 8000$$

$$CP = \text{Rs. } 6400$$

$$\text{profit} = SP - CP = 8000 - 6400 = \text{Rs. } 1600$$

Question 15

Adipose tissue stores -

- A Carbohydrate
- B Protein
- C Adrenalin
- D Fat

Answer: D

Question 16

In this question, a statement is given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statement:

Any student who does not behave properly while in school brings bad name to himself and also for the school.

Conclusions:

- I. Such student should be removed from the school.**
- II. Strict discipline does not improve the behavior of the students.**

- A Only conclusion I follows
- B Neither conclusion I nor II follows
- C Only conclusion II follows
- D Both conclusions I and II follow

Answer: B

Explanation:

Neither conclusion I nor II follows

1. Such student should be removed from the school. - this doesn't follow as this is not the correct way to discipline a student.

2. Strict discipline does not improve the behavior of the students - this also doesn't follow because proper discipline can improve behavior of the students

Question 17

Which of the following is **WRONGLY matched?**

- A Sodium chloride - common salt
- B Sodium hydroxide - caustic soda
- C Calcium carbonate - slaked lime
- D Sodium carbonate - washing soda

Answer: C

Question 18

Simplify: $\frac{\frac{1}{4} \div \frac{1}{2}}{\frac{1}{15} + 1 - 10}$

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

Answer: B

Question 19

A tank gets filled by a pipe in 2 hours. But due to a leak, it takes 30 more minutes to fill the tank. How long will it take a full tank to get emptied by the leak, when the pipe is closed?

- A 2 hours 45 minutes
- B 10 hours
- C 5 hours
- D 2 hours 30 minutes

Answer: B

Question 20

Evaluate: $2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$

- A 1
- B 2
- C 0
- D $\frac{1}{2}$

Answer: B

Question 21

Which of the following states inaugurated a web portal 'Banglar Shiksha' for school students in 2019?

- A Arunachal Pradesh
- B West Bengal
- C Rajasthan
- D Tamil Nadu

Answer: B

Question 22

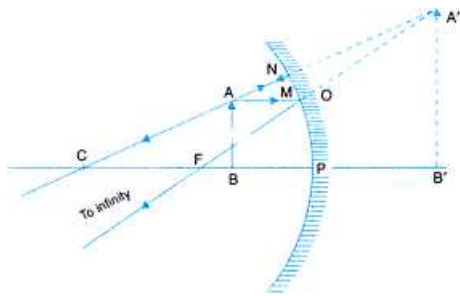
To get a virtual, erect and enlarged image behind a concave mirror, where should the object be placed ?

- A At focus F
- B Between pole P and focus F
- C Between centre of curvature C and focus F
- D At the centre of curvature C

Answer: B

Explanation:

the object should be placed in front of the concave mirror between the pole and the principal focus (i.e.object distance should be < 20) to obtain an erect image. this image is virtual ,erect and enlarged.



Question 23

Find the ODD one out from the given options.

- A 23 - 14
- B 29 - 82
- C 36 - 27
- D 18 - 45

Answer: B

Explanation:

$$23 - 14 = 9$$

$$36 - 27 = 9$$

$$18 - 45 = -27$$

$$29 - 82 = -53$$

except (29-82) ,all others pairs difference is a multiple of 9

Question 24

Which number will best complete the relationship given below?

$$27 : 16 :: 125 : ?$$

- A 36
- B 30
- C 34

D 32

Answer: A

Explanation:

it follows the pattern

$$3^3 : 4^2 :: 5^3 : 6^2$$

$$27 : 16 :: 125 : 36$$

Question 25

A man goes towards east 5 km, then he takes 120 degrees right turn and goes 5 km. He again takes 120 degrees right turn and goes 5 km. With respect to the starting point, where is he now?

A East

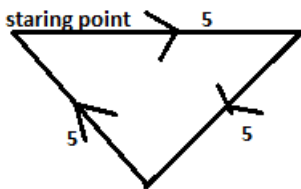
B West

C At the starting point

D North east

Answer: C

Explanation:



Question 26

Varun walked 4.5 km towards south direction and turned right. After reaching 3 km, he turned left and walked 5 km. What is the distance he covered towards south?

A 8.5 km

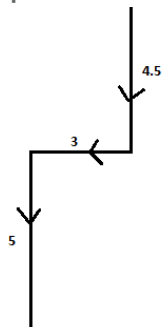
B 5 km

C 9.5 km

D 4.5 km

Answer: C

Explanation:



distance he covered towards south = $4.5 + 5 = 9.5$

Question 27

In a certain code language 'no more food' is written as 'ta ka da', 'more than that' is written as 'sa pa ka'. How is 'that' written in that code language?

- A ka
- B ta or da
- C da
- D sa or pa

Answer: D

Explanation:

more = ka

that = sa or pa

than = sa or pa

Question 28

A is now 9 years older than B. In 10 years, A will be twice as old as B was 10 years ago. Find the present age of A.

- A 39
- B 36
- C 48
- D 23

Answer: C

Explanation:

given, $A = B + 9$

$$A + 10 = 2(B - 10)$$

$$A + B + 10 = 2B - 20$$

$$B = 39$$

$$A = 39 + 9 = 48$$

Question 29

In a data, sum of the deviations about the mean is always:

- A Cannot be determined
- B Zero
- C Negative
- D Positive

Answer: B

Question 30

Which of the following are known as 'nucleons?'

- A Protons and electrons
- B Neutrons and electrons
- C Only protons
- D Protons and neutrons

Answer: D

Question 31

With which of the following sports is Viswanathan Anand associated?

- A Chess
- B Billiards
- C Polo
- D Golf

Answer: A

Question 32

What are the three main lubricants used in moving parts of a machine?

- A Oil, rubber, adhesives
- B Oil, grease, graphite
- C Graphite, sandpaper, resin
- D Grease, resins and sandpaper

Answer: B

Question 33

The outermost layer of skin is called-

- A Keratin
- B Cutin
- C Epidermis
- D Dermis

Answer: C

Question 34

Keeping the potential difference constant, the resistance of a circuit is doubled. What happens to the current?

- A It becomes one-fourth
- B It becomes four times
- C It gets doubled
- D It gets halved

Answer: D

Question 35

The possibility of fraternal twin occurs -

- A At conception
- B At zygotic stage
- C Subsequent to fertilisation
- D At fertilisation stage

Answer: D

Question 36

LCM of two numbers 'p' and 'q' is 935 and (p>q). What is the maximum sum of the digits of 'q' out of the possible pairs 'p', 'q'?

- A 13
- B 5
- C 20
- D 8

Answer: A

Question 37

If in a certain code, 'HEAVY' is written as 'ICBTZ', then how will 'QUICK' be written in that code?

- A RSJAL
- B OSJAL
- C RSKAL
- D RSAJL

Answer: A

Explanation:

follow series of alternate +1 and -2

$$Q + 1 = R$$

$$U - 2 = S$$

$$I + 1 = J$$

$$C - 2 = A$$

$$K + 1 = L$$

Question 38

A boatman goes 2 km upstream in 1 hour and 1 km downstream in 10 minutes. What is the speed of boat in still water?

A 4.5 km/h

B 2.5 km/h

C 4 km/h

D 3 km/h

Answer: C

Explanation:

$$x - y = 2 \text{ ---(1)}$$

$$x + y = \frac{10}{60} \text{ ---(2)}$$

from eqn (1), $x - y = 2$ or $x = y + 2$

from eqn (2), $x + y = \frac{10}{60}$

$$y + 2 + y = \frac{10}{60}$$

$$y = 2 \text{ km/hr}$$

speed of boat in still water

$$x = y + 2 = 4 \text{ km/hr}$$

Question 39

The element, which has zero electron affinity in the 3rd period is-

A Al

B P

C S

D Ar

Answer: D

Question 40

Which of the following states is the largest state in India in terms of area?

A Rajasthan

B Gujarat

C Maharashtra

D Karnataka

Answer: A

Question 41

With the market price coming down by 25%, Sita is able to procure 1 kg of sugar more for Rs.30. What is the original price of sugar?

- A Rs.7.30
- B Rs.7.50
- C Rs.10
- D Rs.16.50

Answer: C

Explanation:

Original price = (% reduction*total amount)/(obtained in kg(100-% reduction))

$$= (25 * 30)/(1(100-25))$$

$$= (25 * 30)/(1 * 75)$$

$$= (30)/(1 * 3)$$

$$= 30/3$$

$$= \text{Rs.}10$$

Question 42

What is the sum of all two-digit numbers ≤ 50 ?

- A 1350
- B 1250
- C 1230
- D 1330

Answer: C

Question 43

For a particular sum at a certain rate, find the ratio of Simple Interest got for 4 years and 8 years.

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

Answer: C

Explanation:

ratio of SI for 4 year : ratio of SI for 8 yr

$$= \frac{p \times r \times 4}{100} \div \frac{p \times r \times 8}{100}$$

$$= \frac{4}{8}$$

$$\frac{1}{2}$$
$$=1:2$$

Question 44

The diameter of a circular wheel is 1.4 m. How many revolutions will it make in travelling 22 km?

- A 5000
- B 2000
- C 2500
- D 500

Answer: A

Explanation:

diameter of the circular wheel = 1.4

radius = $1.4/2 = 0.7$

distance travelling in 1 revolution (C) = circumference of the wheel

$=2\pi r$

$=2 \times \frac{22}{7} \times 0.7$

$=4.4\text{m}$

number of revolutions made by the wheel travelling 22km

$=22\text{km}/C$

$= 22000\text{m}/4.4\text{m}$

$=5000$ revolutions

Question 45

What is the full form of NABARD?

- A National Bank for Agriculture and Regional Department
- B National Bank for Agriculture and Rural Development
- C National Bank for Agriculture and Rural Department
- D National Bank for Agriculture and Regional Development

Answer: B

Question 46

Read the following information carefully and answer the question given below.

Eight friends— A, B, C, D, E, F, G and H are sitting around a circular table facing the centre. Each one of them likes different brands of car—Swift, Indica, Polo, Volvo, Audi, BMW, Maruti and Kwid, but not necessarily in the same order.

A sits third to the right of the person who likes Kwid. A does not like Polo. E is not an immediate neighbour of H. C sits on the immediate right of the person who likes Polo. Neither A nor H likes Audi or a Indica. The person who likes Audi is not an immediate neighbour of the person who likes Kwid. The person who likes Swift sits second to the left of E. The person who likes Swift is an immediate neighbour of the both persons who like BMW and Maruti. Person who likes Maruti sits third to the right of B. B does not like Audi. F is not an immediate neighbour of A. G is not an immediate neighbour of the person who likes Swift. Only two people sit between the person who likes Maruti and H. The persons who like Audi and the Indica are immediate neighbours of each other.

Which of the following is TRUE with respect to the given seating arrangement?

- A The persons who like BMW and Indica are immediate neighbours to each other
- B E sits to the immediate left of the person who likes Kwid
- C F and D are immediate neighbours to each other
- D G sits second to the right of D

Answer: C

Question 47

Which of the following IIT's students have developed a mobile-app to detect fake currency notes in 2019?

- A IIT Madras
- B IIT Kharagpur
- C IIT Bangalore
- D IIT Palakkad

Answer: B

Question 48

When did Chernobyl nuclear disaster take place?

- A 1984
- B 1986
- C 1982
- D 1990

Answer: B

Question 49

Find the missing number in the series.

21, (...), 22, 36, 23, 37

- A 32

B 21

C 22

D 35

Answer: D

Explanation:

there are 2 different series

21,22,23 and x,36,37

both series are increasing by 1

so x is 35

Question 50

_____ is an active form of vitamin A.

A Niacin

B Pyridoxine

C Retinol

D Riboflavin

Answer: C

Question 51

Which number will best complete the relationship given below?

2 : 3 :: 23 : ?

A 31

B 25

C 29

D 27

Answer: C

Explanation:

2 : 3 :: 23 : ?

2 is a prime number and the next prime number is 3

23 is a prime number , so the next prime number would be 29

Question 52

Ethane, with the molecular formula C_2H_6 has-

A 7 covalent bonds

B 8 covalent bonds

C 6 covalent bonds

D 9 covalent bonds

Answer: A

Question 53

The hormone thyroxine is commonly known as-

A TSH

B PTH

C T4

D T3

Answer: C

Question 54

A room is 15 ft long and 12 ft broad. A mat has to be placed on the floor of this room leaving 1.5 ft space from the walls. What will be the cost of the mat at the rate of Rs.3.50 per square feet?

A Rs.472.50

B Rs.496

C Rs.378

D Rs.630

Answer: C

Question 55

Prayagraj Kumbh Mela 2019, entered Guinness Book Of World Records for the-

A Largest sanitation drive

B All of the options

C Largest painting exercise of public sites

D Largest crowd management

Answer: B

Question 56

After the death of which prime minister did Gulzarilal Nanda take over as the acting prime minister for the second time?

A Indira Gandhi

B Jawaharlal Nehru

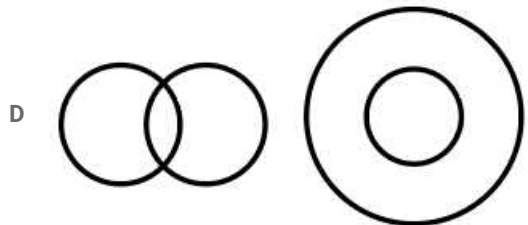
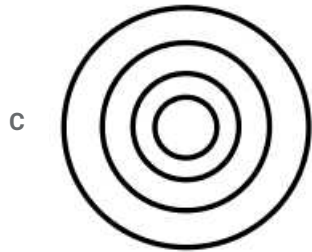
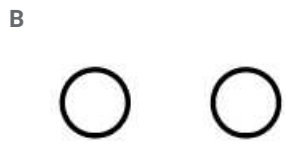
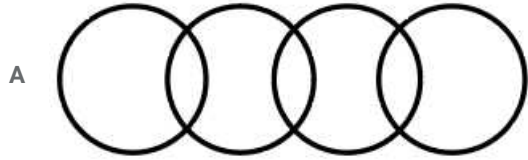
C Lal Bahadur Shastri

D Charan Singh

Answer: C

Question 57

Choose the figure that best represents the relationship among the classes given below.
Photography, Time, History, Theatre



Answer: B

Explanation:



as all the classes are of different genre.

Question 58

A number, when 35 is subtracted from it, reduces to its 80 percent. What is four-fifths of that number?

A 140

B 120

C 70

D 90

Answer: A

Explanation:

$$x - 35 = \frac{80}{100} \times x$$

$$x - 35 = \frac{4}{5} \times x$$

$$x - \frac{4}{5}x = 35$$

$$\frac{x}{5} = 35$$

$$x = 175$$

four-fifth of that number is

$$\frac{4}{5} \times 175 = 140$$

Question 59

If 'nitco sco tingo' stands for 'softer than flower', 'tingo rho mst' stands for 'sweeter flower fragrance' and 'mst sco tmp' stands for 'sweeter than smile' what would 'softer' stand for?

A mst

B nitco

C tingo

D sco

Answer: B

Explanation:

flower = tingo

than = sco

softer = nitco

Question 60

Which formula gives the refractive index of second medium with respect to the first?

A $\sin i - \sin r$

B $\sin i / \sin r$

C $\sin i + \sin r$

D $\sin i \times \sin r$

Answer: B

Explanation:

Snell's law

$$n_1 \sin(i) = n_2 \sin(r)$$

$$\frac{n_1}{n_2} = \frac{\sin(i)}{\sin(r)}$$

$$\text{refractive index} = \frac{\sin(i)}{\sin(r)}$$

n_1 and n_2 are refractive indices of the corresponding medium

Question 61

If a certain sum becomes Rs.20720 in 4 years and Rs.24080 in 6 years, find the sum and rate of Simple Interest.

- A Rs.14000, 10%
- B Rs.16000, 12%
- C Rs.14000, 12%
- D Rs.16000, 8%

Answer: C

Explanation:

SI for 2 years = Rs.(24080-20720) = Rs. 3360

SI for 4 years = $\frac{3360}{2} \times 4$ = Rs. 6720

principal = Rs.(20720-6720) = Rs.14000

hence,rate = $\frac{100 \times 6720}{14000 \times 4}$ % = 12%

Question 62

Ultrasound is used to detect _____ in metal blocks.

- A Metal heat
- B Metal heaviness
- C Cracks and flaws
- D Metal opacity

Answer: C

Question 63

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements :

1) All grasses are trees.

2) No tree is shrub.

Conclusions:

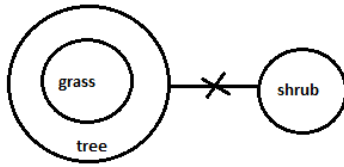
I. No grass is shrub.

II. Some shrubs are grasses.

- A Both conclusions I and II follow
- B Only conclusion I follows
- C Only conclusion II follows
- D Neither conclusion I nor II follows

Answer: B

Explanation:



- I. No grass is shrub - true
- II. Some shrubs are grasses - false

Question 64

Three taps P, Q and R are fitted in a water tank to draw out water. Tap P fills 4 buckets in 24 minutes, Q fills 8 buckets in 1 hour and R fills 2 buckets in 20 minutes. All the taps are opened and the tank is emptied in 2 hours. If a bucket holds 10 litres of water, what is the capacity of the tank?

- A 200 litres
- B 180 litres
- C 480 litres
- D 240 litres

Answer: C

Question 65

Which is the planet in the solar system which is nearest to the Sun?

- A Mars
- B Mercury
- C Earth
- D Venus

Answer: B

Question 66

Which of these square numbers cannot be expressed as the sum of two prime numbers?

- A 81
- B 121
- C 144
- D 49

Answer: C

Explanation:

odd + odd = even

odd + even = odd

2 is the only prime number, so if the sum of distinct prime numbers is odd, one of them must be 2 and sum of 2 and an odd number is odd

odd

a. $81 = 79 + 2$

79 is a prime number , 81 is the not the answer

b. $121 = 119 + 2$

119 is a prime number , 121 is not the answer

c. $144 = 142 + 2$, 142 is not a prime number so 144 is the answer

d. $49 = 47 + 2$

47 is a prime number , 49 cannot be the answer

Question 67

As the pH value increases from 7 to 14, it represents

- A Neutral solution
- B Basic solution
- C Both acidic and neutral solution
- D Acidic solution

Answer: B

Question 68

Onion and garlic are examples of-

- A Bulb
- B Stem tuber
- C Rhizome
- D Corm

Answer: A

Question 69

Which classical dance form is indigenous to Kerala?

- A Kuchipudi
- B Bharatanatyam
- C Kathakali
- D Kathak

Answer: C

Question 70

The general formula of alkynes is-

- A C_nH_{2n-2}
- B C_nH_{2n+4}
- C C_nH_{2n}
- D C_nH_{2n+2}

Answer: A

Question 71

Lactometers, which are used to determine the purity of sample of milk, works on which principle?

- A Principle of periscope
- B Principle of potentiometer
- C Principle of scalar chain
- D Archimedes principle

Answer: D

Question 72

If $|-4x + 4| - 6 = -6$, then find the value of 'x'.

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

Answer: A

Explanation:

$$|-4x + 4| - 6 = -6$$

$$-4x + 4 - 6 = -6$$

$$-4x + 4 = -6 + 6$$

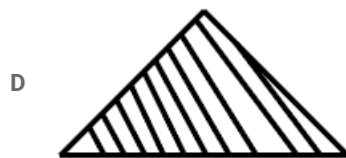
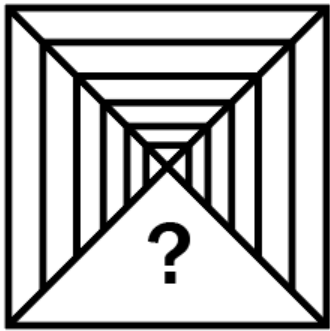
$$-4x + 4 = 0$$

$$4x = 4$$

$$x = 1$$

Question 73

Choose from the alternatives the figure that best completes the pattern given below.



Answer: B

Explanation:



this figure best completes the pattern given below as the horizontal lines are similar to other figures in the question

Question 74

A chord of length 8 cm subtends an angle 60° at the centre. What is the radius of the circle?

A 12 cm

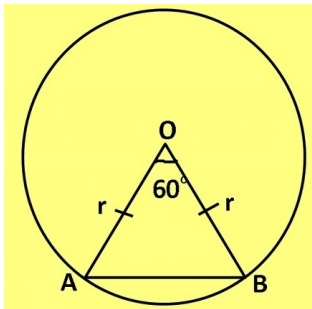
B 6 cm

C 8 cm

D 4 cm

Answer: C

Explanation:



Let O be the center of a circle in which a cord AB = 8 cm long such that angle AOB = 60°.

In triangle OAB, OA = OB = r, (radii of same circle)

Thus, angle OAB = angle OBA = x° (let).

$$x^\circ + x^\circ + 60^\circ = 180^\circ$$

$$\text{or. } 2x^\circ = 120^\circ \Rightarrow x = 120^\circ / 2 = 60^\circ$$

Hence the triangle OAB is an equilateral triangle, so that

OA = OB = AB = 8 cms. Answer.

Question 75

Krishnadevaraya was the ruler of _____ empire.

- A Chola
- B Chera
- C Vijayanagar
- D Pandya

Answer: C

Question 76

A 270 m long train running at a speed of 120 km/h crosses another train running in opposite direction at the speed of 80 km/h in 9 seconds. What is the length of the other train?

- A 240 m
- B 280 m
- C 260 m
- D 230 m

Answer: D

Explanation:

let first train be a and second train be b

length of a = 270 m

$$\text{speed of a} = 120 \text{ km/hr} = 120 \times \frac{5}{18} = \frac{100}{3} \text{ m/sec}$$

$$\text{speed of b} = 80 \text{ km/hr} = 80 \times \frac{5}{18} = \frac{200}{9} \text{ m/sec}$$

$$\text{average speed} = \frac{100}{3} + \frac{200}{9} = \frac{500}{9}$$

$$\frac{270+x}{9} = 9$$

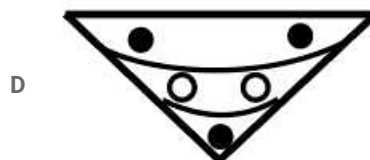
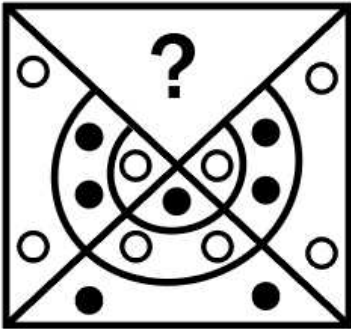
$$270 + x = 9 \times 9$$

$$x = 500 - 270$$

$$x = 230 \text{ m}$$

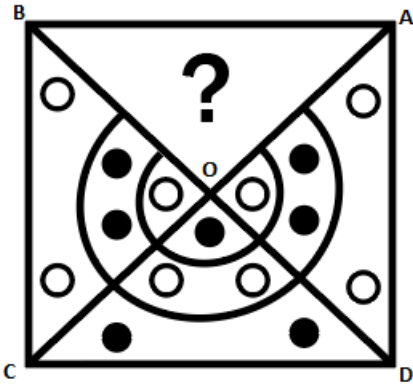
Question 77

Choose from the alternatives the figure that best completes the pattern given below.



Answer: B

Explanation:



OPTION B because it is opposite of COD as COB is opposite of AOD

Question 78

A pendulum of length 'l' swings through an angle of 45° and describes an arc of length 15.4 cm. Find the value of 'l'.

- A 22.2 cm
- B 19.6 cm
- C 20.6 cm
- D 18.4 cm

Answer: B

Explanation:

length of pendulum is l

angle of swing $\theta = 45^\circ$

length of arc = 15.4

length of pendulum = radius

length of arc of circle = $2\pi r \times \frac{\theta}{360}$

$$15.4 = \frac{\theta}{360} \times 2 \times \frac{22}{7} \times l$$

$$15.4 = \frac{1}{8} \times \frac{44}{7} \times l$$

$$15.4 = \frac{11}{14} \times l$$

$$l = 15.4 \times \frac{14}{11}$$

$$l = 19.6$$

Question 79

The conversion of liquid state into solid state is known as-

- A Vapourisation
- B Freezing
- C Sublimation
- D Evaporation

Answer: B

Question 80

Find the ODD one out from the given options.

- A RUGGER : GURREG
- B FIGURE : IFUGER
- C BREATH : ERBHTA
- D PARROT : RAPTOR

Answer: B

Explanation:

the first three letters are written in reverse and the last three words are written in reverse

so FIGURE should be written as

FIG = GIF

URE = ERU

FIGURE = GIFERU

Question 81

If ' \times ' means ' \div ', ' $-$ ' means ' \times ', ' \div ' means ' $+$ ' and ' $+$ ' means ' $-$ ', then $3 - 15 \div 16 \times 8 + 6 = ?$

- A 41
- B 47
- C 35
- D 30

Answer: A

Explanation:

$$3 - 15 \div 16 \times 8 + 6$$

$$= 3 \times 15 + 16 \div 8 - 6$$

$$= 41$$

Question 82

If $138.019 + 341.981 - 146.395 = 133.605 + a$, find the value of 'a'.

- A 120.085
- B 200
- C 248
- D 295.5

Answer: B

Explanation:

$$138.019 + 341.981 - 146.395 = 133.605 + a$$

$$480 - 146.395 = 133.605 + a$$

$$333.605 = 133.605 + a$$

$$a = 333.605 - 133.605$$

a= 200

Question 83

Find the ODD one out from the given options.

A UWY

B NPR

C EGJ

D LNP

Answer: C

Explanation:

all the groups of alphabet except EGJ are have difference of 1 in between them

UWY - $U+1=W$, $W+1=Y$

NPR - $N+1=P$, $P+1=R$

LNP - $L+1=N$, $N+1=P$

EGJ - $E+1=G$, $G+2=J$

So, EGJ is the odd one out

Question 84

Ten years ago, a mother was thrice as old as her son. After 10 years, she will be twice as old as her son. What is the ratio of their present ages?

A 3 : 2

B 4 : 3

C 7 : 3

D 7 : 4

Answer: C

Explanation:

Let present age of son be x

10 years ago son's age was $(x-10)$ and mothers age was $3(x-10)$

present age of mother = $3(x-10)+10$

after 10 years , mother's age = $3(x-10)+10+10 = 3x-10$

son's age = $x+10$

given ,after 10 years mother will be twice as her son

$$3x-10 = 2(x+10)$$

$$3x - 10 = 2x + 20$$

$$3x - 2x = 20 + 10$$

$$x = 30 \text{ (son's present age)}$$

$$\text{mothers present age } 3(x-10)+10 = 3x-20$$

$$= 3 \times 30 - 20$$

$$= 90 - 20$$

$$= 70$$

ratio of present age of mother and son is 70 : 30 or 7:3

Question 85

The Indian Constitution has been divided into ___ parts at the time of commencement.

- A 22
- B 16
- C 25
- D 24

Answer: A

Question 86

Find the missing frequency 'x' in this data, given that the arithmetic mean is 28.

Profit %	0-10	10-20	20-30	30-40	40-50	50-60
No. of shops	12	18	27	x	17	6

- A 12
- B 15
- C 20
- D 24

Answer: C

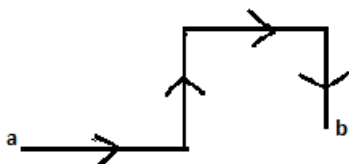
Question 87

Ramya walked eastwards and turned to her left. She turned right two times. Which direction is she walking now?

- A South
- B South west
- C East
- D South east

Answer: A

Explanation:



a - starting point

b - final point

Ramya walked eastward and then took a left turn and walked northwards. After that took first right turn and walked eastward and then took second right turn so now she is walking in south direction.

Question 88

Ascorbic acid is known as-

- A Vitamin B
- B Vitamin A
- C Vitamin C
- D Vitamin D

Answer: C

Question 89

With which sport is the term 'deuce' associated?

- A Polo
- B Tennis
- C Basketball
- D Cricket

Answer: B

Question 90

Find the LCM of 2.05, 1.05 and 2.

- A LCM of 205, 105 and 200
- B LCM of $\frac{21}{20}$, $\frac{41}{20}$ and $\frac{20}{20}$
- C LCM of 205, 105 and $\frac{200}{10}$
- D LCM of $\frac{205}{100}$, $\frac{105}{100}$ and $\frac{200}{100}$

Answer: D

Explanation:

make the number of digits equal

2.05, 1.05, 2.00

$$= \frac{205}{100}, \frac{105}{100}, \frac{200}{100}$$

so, LCM of 2.05, 1.05 and 2 = LCM of

$$= \frac{205}{100}, \frac{105}{100}, \frac{200}{100}$$

Question 91

Simplify: $30 \times 3 \times 0.3 \times 0.03 \times 0.003$

- A 0.00243
- B 0.0000243
- C 0.002403
- D 0.000081

Answer: A

Explanation:

$$\begin{aligned}
 & 30 \times 3 \times 0.3 \times 0.03 \times 0.003 \\
 &= 30 \times 3 \times \left(\frac{3}{10}\right) \times \left(\frac{3}{100}\right) \times \left(\frac{3}{1000}\right) \\
 &= \frac{3 \times 3 \times 3 \times 3 \times 3}{100000} \\
 &= \frac{243}{100000} \\
 &= 0.00243
 \end{aligned}$$

Question 92

The product of two numbers is 9375. The quotient, when the largest number is divided by the smallest number is 15. Find the sum of these numbers.

- A 400
- B 380
- C 395
- D 425

Answer: A

Explanation:

let the numbers be x and y and x be the larger number

given , $xy=9375$

$$\frac{x}{y}=15$$

$$\left(\frac{xy}{y}\right) = \frac{9375}{15}$$

$$y^2 = 625$$

$$y = 25$$

from , $\frac{x}{y}=15$

$$x = 15y$$

$$x = 15 \times 25$$

$$x = 375$$

sum of x and y = $375 + 25 = 400$

Question 93

_____ are segmented stem that grows horizontally underground.

- A Rhizome

- B Bulb
- C Tuber
- D Sucker

Answer: A

Question 94

Find the wrong number in the following series.

133, 119, 107, 91, 77

- A 133
- B 107
- C 91
- D 119

Answer: B

Explanation:

$$77 + 14 = 91$$

$$91 + 16 = 107$$

$$107 + 12 = 119$$

$$119 + 14 = 133$$

91 should be added with 14 so that other numbers will follow the pattern of addition with 14

$$77 + 14 = 91$$

$$91 + 14 = 105$$

$$105 + 14 = 119$$

$$119 + 14 = 133$$

here 107 is the wrong number.

Question 95

Read the following information carefully and answer the question given below.

Eight friends— A, B, C, D, E, F, G and H are sitting around a square table in such a way that four of them sit at four corners of the square while four sit in the middle of each of the four sides. The ones who sit at the four corners face the center while those who sit in the middle of the sides face outside.

A, who faces the center, sits third to the right of F. E, who faces the center, is not an immediate neighbour of F. Only one person sits between F and G. D sits second to the right of B. B faces the center. C is not an immediate neighbour of A.

Who among the following sits opposite to A?

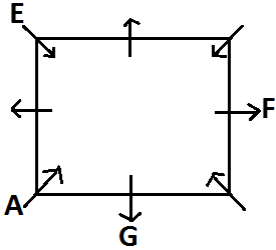
- A B
- B E
- C F
- D D

Answer: D

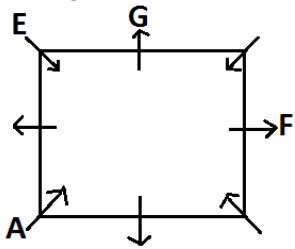
Explanation:

1. A who faces center sits third to the right of F.
2. E faces center but is not an immediate neighbor of A .
3. Only one person sits between F and G.

CASE 1 :

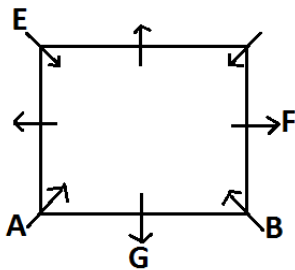


CASE 2 :

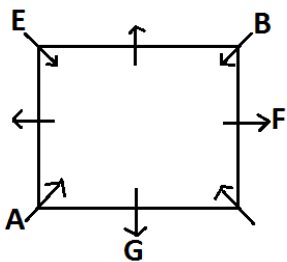


4. B faces center

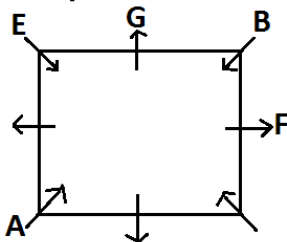
CASE 1 (A) :



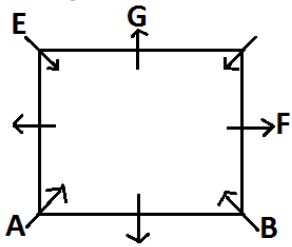
CASE 1 (B) :



CASE 2 (A) :

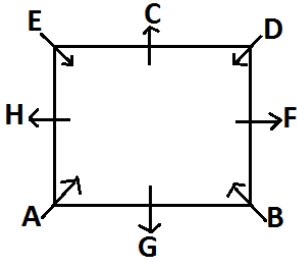


CASE 2 (B) :



5. D sits second to the right of B, So CASE 1(B) AND 2 (A) are not possible

6. C is not an immediate neighbor of A , so CASE 2(B) is not possible



D sits opposite to A

Question 96

One Coulomb of electric charge per second is-

- A 1 Ampere
- B 1 Joule
- C 1 Second
- D 1 Volt

Answer: A

Question 97

All noble gas molecules are-

- A Polyatomic
- B Monoatomic
- C Diatomic
- D Tri atomic

Answer: B

Question 98

In a certain code, 'TRIPPLE' is written as 'SQHOOKD'. How is 'DISPOSE' written in that code?

- A CHRORND
- B CHRONDR
- C CHRONRD

D CHRNORD

Answer: C

Explanation:

Every letter of the word is decreased by 1

T = S

R = Q

I = H

P = O

P = O

L = K

E = D

So DISPOSE will be CHRONRD

Question 99

The notation (g) is used in the chemical equation to represent the particular element or compound in-

A Liquid state

B Solid state

C Aqueous

D Gaseous state

Answer: D

Question 100

Which of the following group of alphabets will best complete the relationship given below?

BH : JP :: FK : ?

A OT

B NS

C MS

D NT

Answer: B

Explanation:

Each letter of 1st group moves 8 steps forward to obtain corresponding letters of 2nd group

Similarly , each letter in 3rd group moves 8 steps forward to obtain corresponding letters of 4th group

B + 8 = J

H + 8 = P

F + 8 = N

K + 8 = S

So letters of 4th group is NS