



RRB JE 28th May 2019 Shift-3

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Instructions

For the following questions answer them individually

Question 1

A and B enter into a partnership with Rs.50000 and Rs. 60000 respectively. C joins them after 'x' months, contributing Rs.70000 and B leaves 'x' months before the end of the year. If they share the profit in the ratio of 20 : 18 : 21, then find the value of 'x'.

A 5

B 3

C 6

D 4

Answer: B

Explanation:

A invested his capital for 12 months

given that,

B and C invested his capital for (12 - x) months

as we know that

$$\text{investment} \times \text{time} = \text{profit}$$

Ratio of profits os A, B, C

$$=(50000 \times 12) : [60000 \times (12-x)] : [70000 \times (12-x)] = 20 : 18 : 21$$

$$60:6(12-x):7(12-x) = 20:18:21$$

to equate multiply by 3

$$20:18:21=60:54:63$$

so

$$60 : 6 \times (12-x) : 7 \times (12-x) = 60 : 54 : 63$$

$$60 : (72-6x) : (84-7x) = 6060 : 5454 : 6363$$

$$\text{So, } 72-6x=54$$

$$=6x=18$$

$$x=3$$

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Question 2

What does Vitamin K deficiency lead to?

A All of the options

B Problem in blood coagulation

C Problem in calcium metabolism

D Problem in digestion

Answer: B

Question 3

A cube and a sphere have equal height. Find the ratio of their volumes.

- A $6 : \pi$
- B $2 : \pi$
- C $3 : \pi$
- D $4 : \pi$

Answer: A

Explanation:

side = $2r$

vol of cube = $side^3$

vol of sphere = $\frac{4}{3}\pi \times r^3$

ratio = $\frac{(2r)^3}{\frac{4}{3}\pi \times r^3}$

= $6 : \pi$

Question 4

Who is the present Governor of RBI?

- A Dr. D. Subbarao
- B Dr. Raghuram G. Rajan
- C Shaktikanta Das
- D Dr. Urjit R. Patel

Answer: C

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Question 5

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

Statements:

- 1) All buildings are chalks.
- 2) All boards are chalks.

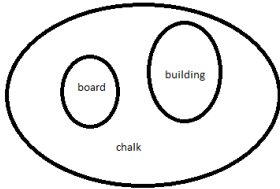
Conclusions:

- I. Some buildings are boards.
- II. Some chalks are boards.

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

Answer: C

Explanation:



I .Some buildings are boards.

this conclusion is false : we dont have any connection about board and building

II . Some chalks are boards.

All board are chalks so some chalks are also board

so ,

Only conclusion II follows

Question 6

A balloon is hovering at a height of 200 m above. A man in a boat on a lake observes it at an elevation of 45° . 100 seconds later, he sees it at an angle of elevation of 30° . What is the speed of the boat ?

- A 1.5 m/s
- B 2.2 m/s
- C 2 m/s
- D 1.8 m/s

Answer: A

Question 7

Bharath is facing west. His watch is showing time as 2:00 PM. To which direction will hour hand point?

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

Answer: A

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Question 8

If a and b are the roots of the equation $3x^2 - 5x + 2 = 0$, then find the value of $\binom{a}{b} + \binom{b}{a}$.

- A $\frac{13}{6}$
- B $\frac{13}{9}$

C $\frac{13}{2}$

D $\frac{9}{13}$

Answer: A

Explanation:

$$3x^2 - 5x + 2 = 0$$

this a quadratic equation

$$ax^2 - bx + c = 0$$

here,

$$a=3$$

$$b=-5$$

$$c=2$$

take lcm of 3,2 =6

$$3x^2 - 5x + 2 = 0 \text{ by doing middle term factorization}$$

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

$$3x(x - 1) - 2(x - 1) = 0$$

$$x-1,3x-2$$

$$\text{so, } x=1, x=\frac{2}{3}$$

$$a=1, b=\frac{2}{3}$$

$$\left(\frac{a}{b}\right) + \left(\frac{b}{a}\right)$$

$$\left(\frac{1}{\frac{2}{3}}\right) + \left(\frac{\frac{2}{3}}{1}\right)$$

$$\left(\frac{3}{2}\right) + \left(\frac{2}{3}\right)$$

$$\frac{13}{6}$$

Question 9

Two types of rice costing Rs.38 per kg and Rs.42 per kg are mixed in equal quantities and sold at Rs.45 per kg. Find the gain per cent.

A 18%

B 12.5%

C 10%

D 15%

Answer: B

Explanation:

Cost of 1 kg rice1 = Rs. 38 per kg

Cost of 1 kg rice2 = Rs. 42 per kg

Total quantity of rice = 1 + 1 = 2

Cost of 2 kg rice = Rs. 80

Selling price of the new mixture = Rs. 45 per kg

selling price of 2 kg rice = 2*45 = Rs. 90

profit = 90 - 80 = Rs. 10

profit = Rs. 10

$$\text{profit\%} = \frac{\text{profit}}{\text{cp}} \times 100$$

$$\text{profit\%} = \frac{\text{profit}}{\text{cp}} \times 100$$

= 12.5 %

Question 10

Capacities of two workers P and Q are in the ratio 3 : 2. What amount of the daily wages of Rs.400 should be given to P?

- A Rs.250
- B Rs.260
- C Rs.240
- D Rs.160

Answer: C

Explanation:

P's efficiency = 3X days

Q's efficiency = 2X days

Total wage = 400

total efficiency = 3X + 2X = 5X

$$= \frac{\text{total wage}}{\text{total efficiency}}$$

$$= \frac{400}{5X}$$

x = 80

so P's wage = 3 × 80 = 240

Q's wage = 2 × 80 = 160

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Question 11

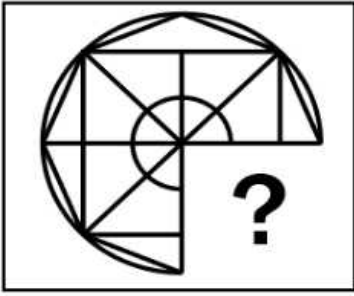
Space X, the private space company is founded by-

- A Frank Bunker
- B Robert M. Lightfoot Jr.
- C T. Keith Glennan
- D Elon Musk

Answer: D

Question 12

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



A



B



C



D



Answer: A

Explanation:



Question 13

In the following question, correct the equation by interchanging the two signs.

$$5 + 6 \div 3 - 2 \times 5 = 13$$

A $+$ and \times

B \div and $-$

C $+$ and \div

D \div and \times

Answer: A

Explanation:

$$5 + 6 \div 3 - 2 \times 5 = 13$$

Check all the option

$$5 + 6 \div 3 - 2 \times 5 = 13$$

$$5 \times 6 \div 3 - 2 + 5 = 13$$

$$5 \times 2 - 2 + 5 = 13$$

$$10 - 2 + 5 = 13$$

$$13 = 13$$

so, $5 + 6 \div 3 - 2 \times 5 = 13$ this the correct option

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Question 14

The terms 'butterfly' and 'freestyle' are associated with-

- A Archery
- B Swimming
- C Weight lifting
- D Wrestling

Answer: B

Question 15

What is the other name for the unit Coulomb/second?

- A Joule (J)
- B Volt (V)
- C Ampere (A)
- D Second (S)

Answer: C

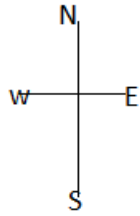
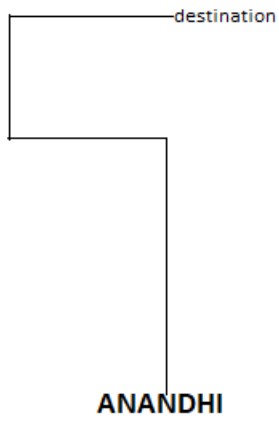
Question 16

Anandhi walked straight for some distance from her home and turned left. She turned two times right and facing east. Which direction is her home facing?

- A South
- B North
- C West
- D East

Answer: B

Explanation:



North direction

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Question 17

Which of the following is a dance drama?

- A Odissi
- B Kathakali
- C Kathak
- D Manipuri

Answer: B

Question 18

Complete the series.

8, 9, 12, 19, 34, (...)

- A 69
- B 65
- C 61
- D 58

Answer: B

Explanation:

8, 9, 12, 19, 34, (...)

first difference

$$9 - 8 = 1$$

$$12 - 9 = 3$$

$$19 - 12 = 7$$

$$34 - 19 = 15$$

second difference

$$3 - 1 = 2$$

$$7 - 3 = 4$$

$$15 - 7 = 8$$

$$15 + 16 = 31$$

now add 31 to 34

$$34 + 31 = 65$$

Question 19

Find the total surface area of a cone of slant height '2l' and radius 'r/2'.

A $2\pi r(l + r)$

B $2\pi rl$

C $\pi r(l + r)$

D $\pi r(l + (r/4))$

Answer: D

Explanation:

$$\text{cone} = \pi r \times l + \pi r^2$$

Given

$$\text{Radius} = \frac{r}{2}$$

$$\text{So Slant height} = 2l$$

$$\text{cone} = \pi r \times l + \pi r^2$$

$$\text{cone} = \pi \times \frac{r}{2} \times 2l + \pi \times \left(\frac{r}{2}\right)^2$$

$$\pi r \left(l + \frac{r}{4}\right)$$

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Question 20

The numerical values of the volume and curved surface area of a cone are equal. If 'h' and 'r' represent the height and base radius of the cone, then what is the value of $\left(\frac{1}{h^2}\right) + \left(\frac{1}{r^2}\right)$?

A $\frac{1}{9}$

B $\frac{1}{3}$

C $\frac{2}{9}$

D 9

Answer: A

Explanation:

given that

vol of cone = curved surface area of cone

$$\pi r^2 \frac{h}{3} = \pi r \times l$$

$$r \times \frac{h}{3} = l \dots (1)$$

given that

$$\left(\frac{1}{h^2}\right) + \left(\frac{1}{r^2}\right)$$

$$= \frac{r^2 + h^2}{h^2 \times r^2} \dots (2)$$

as we know that

$$\frac{r^2 + h^2}{r^2 + h^2} = 1 \dots (3)$$

put (1) and (3) in (2)

$$\frac{r^2 + h^2}{h^2 \times r^2}$$

$$\frac{1}{(3 \times l)^2}$$

$$\frac{1}{9 \times l^2}$$

$$= \frac{1}{9}$$

Question 21

If $1.5x = 0.04y$, find the value of $\frac{(y - x)}{(y + x)}$.

A $\frac{730}{77}$

B $\frac{73}{77}$

C $\frac{73}{770}$

D $\frac{0.73}{77}$

Answer: B

Explanation:

$$1.5x = 0.04y$$

$$\frac{x}{y} = \frac{0.04}{1.5}$$

$$\frac{(y - x)}{(y + x)} = \frac{(1.5 - 0.04)}{(1.5 + 0.04)}$$

$$= \frac{(1.46)}{(1.54)}$$

$$= \frac{(73)}{(77)}$$

Question 22

Which of the following is CORRECT with respect to the Indian Constitution?

A It is a mixture of several Constitutions

B It is completely based on British Constitution

C It is made only on the basis of Government of India Act, 1935

D It is completely based on Constitution of Canada

Answer: A

Question 23

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

During a picnic, a game is being played. For the game, 9 people from R to Z (mix of boys and girls) have to stand in a vertical row. Boys are wearing yellow gloves and girls are wearing orange gloves. The row starts at top and with orange gloves. 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) Third orange gloves is T.
- iii) Second boy after T is U.
- iv) Fourth place in the row is occupied by V.
- v) W stands ahead of R.
- vi) X stands between T and R.
- vii) Z is a girl.

Who among the following stands in the center of the row?

- A Z
- B Y
- C V
- D T

Answer: D

Question 24

If $36^3 \times (4096)^{\frac{1}{2}} \times 144 \times 9 \div (9^3 \times 72^2) = 4^x$, find the value of 'x'.

- A 5
- B 7
- C 12
- D 8

Answer: A

Explanation:

$$36^3 \times (4096)^{\frac{1}{2}} \times 144 \times 9 \div (9^3 \times 72^2) = 4^x$$

we can write this

$$36 \times 36 \times 36 \times 64 \times 144 \times 9 \div (9 \times 9 \times 9 \times 72 \times 72) = 4^x$$

after cancellation the numerator and denominator we get

$$64 \times 16 = 4^x$$

$$4^3 \times 4^2 = 4^x$$

$$x = 5$$

Question 25

Which of the following is the characteristic feature of a virus?

- A Virus does not need any medium to grow
- B Virus breeds fast on dead animals only

- C Virus comprises of fat and carcinogen
- D Virus multiplies only on hosts

Answer: D

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Question 26

Find the ODD one out from the given options.

- A 15
- B 45
- C 75
- D 25

Answer: D

Explanation:

15,45,75 are divisible by 3 and 25 is not divisible by 3

$$\frac{15}{3} = 5$$

$$\frac{45}{3} = 15$$

$$\frac{75}{3} = 25$$

$$\frac{25}{3} = 8.3$$

Question 27

B.C.G. vaccine is normally used to prevent-

- A Tuberculosis
- B Rabies
- C Cancer
- D Leukaemia

Answer: A

Question 28

Who discovered the fact that sunlight consists of seven colours?

- A Faraday
- B Newton
- C Oersted
- D Snell

Answer: B

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Question 29

From where does the Sone River originate?

- A Amarkantak Hill
- B Parasnath Hill
- C Trikut Hill
- D Morabadi Hill

Answer: A

Question 30

One day evening, Sai and Swetha were walking towards each other. Swetha's shadow fell on the right side of Sai. Which side was Sai facing?

- A North
- B West
- C South
- D East

Answer: A

Question 31

Asha was born when her father was 38 years of age. When her brother four years younger was born, her mother was 36 years of age. What is the difference between their parent's ages?

- A 2 years
- B 4 years
- C 6 years
- D 8 years

Answer: C

Explanation:

Father's age when Asha's brother was born = 38 years.

Mother's age when Asha's brother was born = (36 - 4) years = 32 years.

Required difference = (38 - 32) years = 6 years.

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Question 32

Which of these digits CANNOT be the last digit in perfect square numbers?

- A 3 and 7
- B 4 and 9
- C 1 and 6

D 1 and 4

Answer: A

Question 33

If $\frac{5}{8} = x\%$, what is the value of x ?

A 67.5

B 65.7

C 62.5

D 40

Answer: C

Question 34

P_1, P_2, P_3 are invested at 4%, 6%, 8% respectively such that the Simple Interests from all the three at the end of the year are equal. If the sum of three investments is Rs.2600, then find the values of P_1, P_2 and P_3 respectively.

A Rs.1000, Rs.900, Rs.700

B Rs.1200, Rs.800, Rs.600

C Rs.1200, Rs.600, Rs.800

D Rs.1100, Rs.800, Rs.700

Answer: B

Explanation:

Let x, y and z be his investments at 4%, 6% and 8% respectively

Simple Interest on x at 4% for 1 year

= Simple Interest on y at 6% for 1 year

= Simple Interest on z at 8% for 1 year

$$\frac{x \times 4 \times 1}{100} = \frac{y \times 6 \times 1}{100} = \frac{z \times 8 \times 1}{100}$$

$$\Rightarrow 4x = 6y = 8z$$

$$\Rightarrow 2x = 3y = 4z$$

Hence, we have, $y = \frac{2x}{3}$ and $z = \frac{2x}{4} = \frac{x}{2}$

we know that $x + y + z = 2600$

$$\Rightarrow x + \frac{2x}{3} + \frac{x}{2} = 2600$$

$$\Rightarrow 6x + 4x + 3x = 2600 \times 6$$

$$\Rightarrow 13x = 2600 \times 6$$

$$\Rightarrow x = \frac{2600 \times 6}{13} = 200 \times 6 = 1200$$

i.e., Money invested at 4% = Rs.1200

money invested at 6% = $\$1200 \times \frac{2}{3}$

=800

money invested at 8% = $\$1200 \times \frac{1}{2}$

=600

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Question 35

Find the ratio of LCM to HCF of the numbers 99 and 15.

A 165 : 1

B 165 : 3

C 3 : 55

D 1 : 165

Answer: A

Question 36

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

There are six friends A, B, C, V, U, and T. V, U and T are seated in a circle facing the centre. A, B and C are also seated in the same circle but two of them are not facing the centre (facing opposite direction of the centre). V is second to the left of C. U is second to the right of A. B is third to the left of T. C is second to the right of T. A is seated next to V.

What is the position of T with respect to B in clockwise direction?

A Fourth to the left

B Second to the right

C Third to the right

D Third to the left

Answer: C

Question 37

If $x^{\frac{1}{3}} + y^{\frac{1}{3}} - z^{\frac{1}{3}} = 0$, then find the value of $(x + y - z)^3 + 27xyz$.

A 0

B $-z^3$

C 1

D $x^3 + y^3 - z^3$

Answer: A

Explanation:

$$x^{\frac{1}{3}} + y^{\frac{1}{3}} - z^{\frac{1}{3}} = 0$$

$$x^{\frac{1}{3}} + y^{\frac{1}{3}} = z^{\frac{1}{3}}$$

Cubing both sides

$$(x^{\frac{1}{3}} + y^{\frac{1}{3}})^3 = (z^{\frac{1}{3}})^3$$

$$x^{\frac{1}{3}}^3 + (y^{\frac{1}{3}})^3 + 3(x^{\frac{1}{3}})^2y^{\frac{1}{3}} + 3(y^{\frac{1}{3}})^2x^{\frac{1}{3}} = z^{\frac{1}{3}}^3$$

$$x + y + 3(x^{\frac{2}{3}})y^{\frac{1}{3}} + 3(y^{\frac{2}{3}})x^{\frac{1}{3}} = z^3$$

$$x + y - z + 3(x^{\frac{2}{3}})y^{\frac{1}{3}} + 3(y^{\frac{2}{3}})x^{\frac{1}{3}} = 0$$

$$(x + y - z + 3(x^{\frac{2}{3}})y^{\frac{1}{3}} + 3(y^{\frac{2}{3}})x^{\frac{1}{3}})(x^{\frac{1}{3}} + y^{\frac{1}{3}} - z^{\frac{1}{3}}) = 0$$

$$(x + y - z + 3(x^{\frac{2}{3}})y^{\frac{1}{3}} + 3(y^{\frac{2}{3}})x^{\frac{1}{3}})(z^{\frac{1}{3}}) = 0$$

$$x + y - z = -3(x^{\frac{2}{3}})y^{\frac{1}{3}} - 3(y^{\frac{2}{3}})x^{\frac{1}{3}}$$

cubing both sides

$$(x + y - z)^3 + 27xyz = 0$$

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Question 38

The mass of an object is the measure of its-

A Volume

B Density

C Inertia

D Force

Answer: C

Question 39

The ability of metals to be drawn into thin metal is known as-

A Sonorous

B Ductility

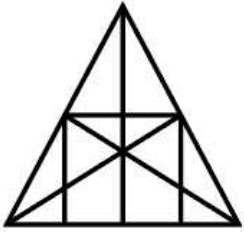
C Conductivity

D Malleability

Answer: D

Question 40

How many straight lines are there in the given figure?



A 13

B 10

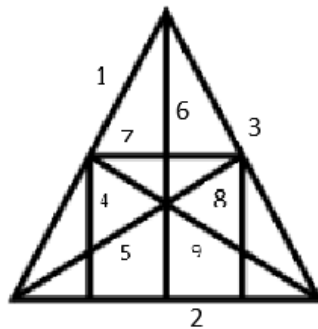
C 15

D 9

Answer: D

Explanation:

ans=9



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Question 41

Which country hosted the 2018 Track Asia Cup cycling tournament?

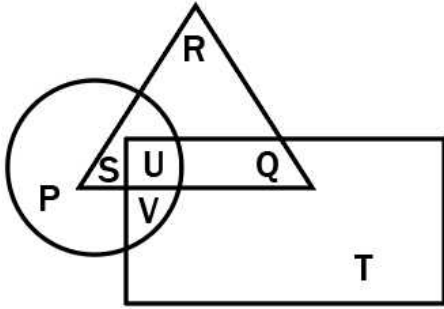
A Nepal

- B Japan
- C India
- D China

Answer: C

Question 42

In the given figure, the circle represents vehicle, triangle represents four wheeler, and rectangle represents car. Which region represents car and four wheeler but not vehicle?



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

Answer: B

Question 43

In the process of rainbow formation in the sky, every raindrop in the atmosphere acts like-

- A Glass prism
- B Mirror
- C Glass slab
- D Lens

Answer: A

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Question 44

Which of the following countries offers the cheapest mobile data in the world ?

- A England
- B India
- C USA(United States of America)
- D Australia

Answer: B

Question 45

In which of the following is synovial fluid found?

- A Fixed joint
- B Cartilaginous joint
- C Fibrous joint
- D Freely movable joint

Answer: D

Question 46

With which of the following is Vijay Hazare Trophy associated?

- A Tennis
- B Chess
- C Cricket
- D Football

Answer: C

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Question 47

Which of the following CORRECTLY describes AGNI?

- A A long-range missile
- B A long-range gun
- C A versatile tank
- D A fighter plane

Answer: A

Question 48

Hormones are normally absent in-

- A Monkeys
- B Bacteria
- C Rats
- D Cats

Answer: B

Question 49

What is the unit of calorific value of a fuel?

- A MJ/mg K
- B kW/mg
- C J/kg K
- D kJ/kg

Answer: D

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Question 50

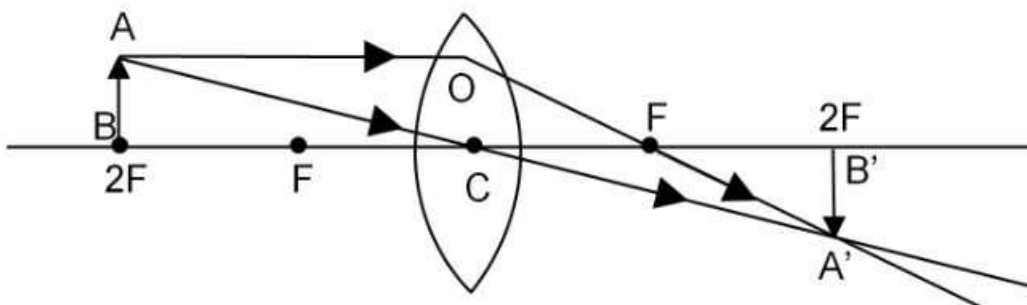
To obtain the same size image at $2F_2$ after refraction by a convex lens where should the object be placed?

- A Between focus F_1 and optic centre O
- B At $2F_1$
- C At infinity
- D Beyond $2F_1$

Answer: B

Explanation:

When the object is placed at the centre of curvature of a lens then a ray of light AO which is parallel to the principal axis after refraction pass through the focus F along the direction OF. While the other ray AC pass through the opticl centre C and goes straight without any deviation. These two refracted light rays intersect each other at point A', on the other side of the lens at the centre of curvature 2F. so, the image A'B' formed in this case is at the centre of curvature, of same size as the object, real and inverted.



Question 51

If $A + B = 90^\circ$, then find $\frac{\sqrt{\tan A \tan B + \tan A \cot B}}{\sin A \sec B}$.

- A $\sec A$
- B $\tan^2 A$
- C $\sec^2 A$
- D $\tan A$

Answer: A

Explanation:

$$A+B=90$$

$$B=90-A$$

$$\frac{\sqrt{\tan A \tan B + \tan A \cot B}}{\sin A \sec B}$$

$$\frac{\sqrt{\tan A \cot(90-A) + \tan A \cot(90-A)}}{\sin A \sec(90-A)}$$

$$\frac{\sqrt{\tan A \cot(A) + \tan A \cot(A)}}{\sin A \operatorname{cosec}(A)}$$

(Since We know that $\tan(90-A) = \cot A$, $\sec(90-A) = \operatorname{cosec}(A)$, $\cot(90-A) = \tan A$)

$$\frac{\sqrt{\tan A \frac{1}{\tan(A)} + \tan^2 A}}{\sin A \operatorname{cosec}(A)}$$

$$\frac{\sqrt{1 + \tan^2 A}}{\sin A \operatorname{cosec}(A)}$$

$$\frac{\sqrt{1 + \tan^2 A}}{\sin A \frac{1}{\sin A}}$$

$$\sqrt{1 + \tan^2 A}$$

$$\sqrt{\sec^2 A} \quad \{ \sqrt{1 + \tan^2 A} = \sec A \}$$

$$\sec A$$

Question 52

Three times the square of a number decreased by 4 times the number is equal to 50 more than the number. Find the number.

A 10

B 6

C 4

D 5

Answer: D

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Question 53

What is the SI unit of wave velocity?

A Second-s

B Metre per second- $m \ s^{-1}$

C Hertz-Hz

D Metre-m

Answer: B

Question 54

Which postulate of Dalton's atomic theory is the result of the law of conservation of mass?

A Atoms are indivisible particles, which cannot be created or destroyed in a chemical reaction

B All matter is made of very tiny particles called atoms, which participate in chemical reactions

C Atoms of a given element are identical in mass and chemical properties

D Atoms of different elements have different masses and chemical properties

Answer: A

Question 55

Potato is a-

- A Root
- B Stem
- C Bud
- D Fruit

Answer: B

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Question 56

What will be the amount of Simple Interest on Rs.5000 at the rate of 5% per annum after 6 years?

- A Rs.800
- B Rs.1400
- C Rs.1500
- D Rs.1200

Answer: C

Question 57

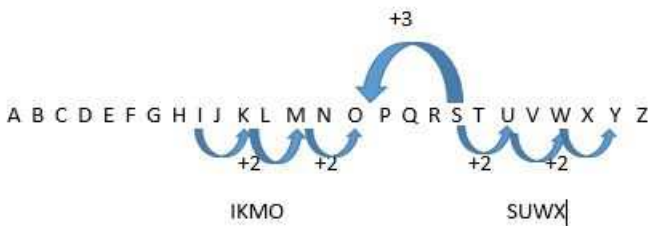
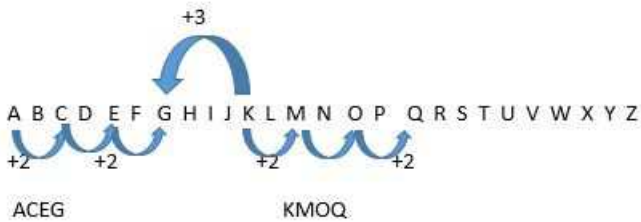
Which of the following will best complete the relationship given below?

ACEG : KMOQ :: IKMO : ?

- A SVWY
- B SUWY
- C STUV
- D SUWZ

Answer: B

Explanation:



Question 58

A boat travels a distance of 12 km. The first 4 km along the stream is covered in 15 minutes. The next 8 km is upstream. The downstream speed is twice the upstream speed. What is the average speed for the journey?

- A 10.4 km/h
- B 9.6 km/h
- C 10 km/h
- D 11.6 km/h

Answer: B

Explanation:

Let speed of boat = v and that of stream = u

Speed upstream = $v - u$

Speed downstream = $v + u$

As per question, $v + u = 2(v - u)$

$\Rightarrow v = 3u$

Now, $\text{time} = \frac{\text{distance}}{\text{speed}}$

$$\frac{15}{60} = \frac{4}{v + u}$$

$$\frac{1}{4} = \frac{4}{3u + u}$$

$$\frac{1}{4} = \frac{1}{u}$$

$u = 4$ km/h

Then $v = 12$ km/h

Time taken in upstream journey = $\frac{8}{(12 - 4)} = 1$ h

Average speed = $\frac{\text{total distance}}{\text{total time}}$

$$\text{Average speed} = \frac{12}{1 + 0.25}$$

= 9.6 km/h

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Question 59

Agra is located on the banks of river-

- A Jhelum
- B Sutlej
- C Yamuna
- D Saraswati

Answer: C

Question 60

Four years ago, the ratio of the ages of A and B was 2 : 1. Four years hence, this ratio will become 3 : 2. What is the ratio of their present ages?

- A 5 : 2

B 5 : 3

C 2 : 5

D 5 : 4

Answer: B

Explanation:

Let their ages 4 years ago be a,b respectively.

4 years ago,

$$\frac{a}{b} = \frac{2}{1}$$

$$a = 2b \text{(1)}$$

4 years hence, means a+8,b+8

$$\frac{a+8}{b+8} = \frac{3}{2}$$

by cross multiplying.

$$2a + 16 = 3b + 24 \text{(2)}$$

solving above two equations for a and b, we get

$$a = 16$$

$$b = 8$$

so their present ages are

$$a+4 = 20$$

$$b+4 = 12$$

$$\frac{a}{b} = \frac{20}{12}$$

$$\frac{a}{b} = \frac{5}{3}$$

Question 61

If 'A' means '\$+\$', 'B' means '\$-\$', 'C' means '\$\times\$' and 'D' means '\$\div\$', then $81 \text{ D } 9 \text{ C } 5 \text{ D } 15 \text{ A } 8 \text{ B } 11 = ?$

A 0

B 12

C 0.15

D 22

Answer: A

Explanation:

$$81 \text{ D } 9 \text{ C } 5 \text{ D } 15 \text{ A } 8 \text{ B } 11 = ?$$

put given relation

$$81 \div 9 \times 5 \div 15 + 8 - 11$$

Using BODMAS rule we get,

$$= 3 + 8 - 11$$

$$= 0$$

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Question 62

If $\frac{\cos \theta}{1 - \sin \theta} + \frac{\cos \theta}{1 + \sin \theta} = 4$, find the value of θ , where θ is acute.

- A 60°
- B 45°
- C 75°
- D 30°

Answer: A

Explanation:

$$\frac{\cos \theta}{1 - \sin \theta} + \frac{\cos \theta}{1 + \sin \theta} = 4$$

$$\frac{\cos \theta \times (1 + \sin \theta) + \cos \theta \times (1 - \sin \theta)}{(1 - \sin \theta)(1 + \sin \theta)} = 4$$

$$\frac{\cos \theta \times (1 + \sin \theta) + \cos \theta \times (1 - \sin \theta)}{\cos^2 \theta} = 4$$

$$\frac{(1 + \sin \theta) + (1 - \sin \theta)}{\cos \theta} = 4$$

$$\frac{2}{\cos \theta} = 4$$

$$\frac{2}{4} = \cos \theta$$

$$\frac{1}{2} = \cos \theta$$

$$\theta = 60^\circ$$

Question 63

Find the maximum number of children among whom 429 pencils and 715 pens can be equally distributed.

- A 143
- B 160
- C 120
- D 100

Answer: A

Explanation:

We need to find the highest common factor of both the numbers.

now

hcf of these two numbers is 143

so the number of students is 143

Question 64

Complete the series.

A, Z, C, X, E, V, G, (...)

- A T
- B W
- C M
- D N

Answer: A

Explanation:

The first, second letters are first and last letter in alphabetical order.

The third, fourth letters are third and last third letter in alphabetical order.

fifth, sixth letters are fifth and fifth letter from last in alphabetical order.

similarly seventh,eight letters are seventh and seventh letter from last in alphabetical order.

i.e T

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Question 65

If in a certain language 'SALE' is coded as 'PAIE', how is 'CASUAL' coded in that code?

- A ZAUPXL
- B ZPAUXL
- C ZAPULX
- D ZAPUXL

Answer: D

Explanation:

SALE='PAIE',

Letter at Even position is same & odd position replaced by (letter-3)

'CASUAL' =ZAPUXL

Letter at Even position is same & odd position replaced by (letter-3)

Question 66

If in a certain language, 'oka peru' means 'fine cloth', 'meta lisa' means 'clear water' and 'dona lisa peru' means 'fine clear weather', what word in that language mean 'weather'?

- A meta
- B dona
- C oka
- D peru

Answer: B

Explanation:

'oka peru' means 'fine cloth', 'meta lisa' means 'clear water' and 'dona lisa peru' means 'fine clear weather'

from this when we look for the common codes, we get

fine=peru

clear=lisa

weather=dona

Question 67

A work is completed by P and Q working together 8 hours perday. Working 8 hours a day P alone will take 12 days to complete work, while working alone Q will take 10 days working 12 hours a day,to complete it. In how manydays did they complete the work together?

- A $\frac{1}{4}$ days
- B $\frac{2}{3}$ days
- C 7 days

D $6\frac{1}{2}$ days

Answer: B

Explanation:

P can complete the work in (12×8) hrs = 96 hrs

Q can complete the work in (10×12) hrs = 120 hrs

Therefore, P's 1 hour work = $1/96$ and Q's 1 hour work = $1/120$

(P+Q)'s 1 hour's work = $(1/96) + (1/120) = 9/480$. So both P and Q will finish the work in $480/9$ hrs

Therefore, Number of days of 8 hours each = $(480/9) \times (1/8) = 60/9$

$6\frac{2}{3}$ days

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Question 68

What do we do to reduce friction while playing carrom?

A Keep the board elevated in one side so that there is a slant

B Wipe the board with a smooth cloth

C Apply two or three oil drops on the board

D Sprinkle fine powder on the board

Answer: D

Question 69

A man takes twice as long to go upstream as to row downstream. What is the ratio of speed of boat in still water and the speed of stream?

A 4 : 1

B 2 : 1

C 3 : 2

D 3 : 1

Answer: D

Explanation:

Let speed of man upstream = x kmph & his speed downstream = $2x$ kmph

Hence the ratio will be, $\frac{2x+x}{2} : \frac{2x-x}{2}$

$$\frac{3x}{2} : \frac{x}{2}$$

$$\Rightarrow 3:1$$

Question 70

Find the ODD one out from the given options.

A GDA

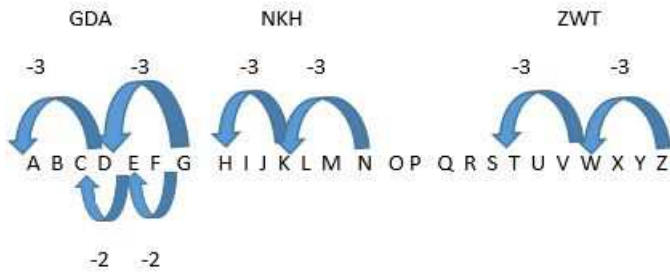
B GEC

C NKH

D ZWT

Answer: B

Explanation:



SO GEC odd one

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Question 71

"Beat plastic pollution" is/was the theme of the 'World Environment Day' in the year-

- A 2019
- B 2016
- C 2018
- D 2015

Answer: C

Question 72

The incubation period of Typhoid bacillus causing typhoid fever is-

- A 8 to 14 days
- B 3 to 5 days
- C 90 to 92 days
- D 0 to 2 days

Answer: A

Question 73

If 'MISTAKE' is coded as 9765412 and 'DARKEN' is coded as 348120, how is 'KINDEST' coded?

- A 1703265
- B 1703625
- C 1702356
- D 1702365

Answer: A

Explanation:

M	I	S	T	A	K	E
9	7	6	5	4	1	2

D	A	R	K	E	N
3	4	8	1	2	0

KINDEST

K=1, I=7, N=0, D=3, E=2, S=6, T=5

170265

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Question 74

Find the sum of first 12 even natural numbers.

- A 156
- B 112
- C 108
- D 126

Answer: A

Explanation:

step 1 Address the formula, input parameters & values.

Input parameters & values:

The number series 2, 4, 6, 8, 10, 12, , 24.

The first term $a = 2$

The common difference $d = 2$

Total number of terms $n = 12$

step 2 apply the input parameter values in the AP formula

$$Sum = \frac{n \times (a + T_n)}{2}$$

Where T_n = last term

$$Sum = \frac{12 \times (2 + 24)}{2}$$

$$Sum = \frac{12 \times (26)}{2}$$

$$Sum = \frac{312}{2}$$

$$Sum = 156$$

$$2 + 4 + 6 + 8 + 10 + 12 + + 24 = 156$$

Therefore, **156** is the sum of first 12 even numbers.

Question 75

Complete the series.

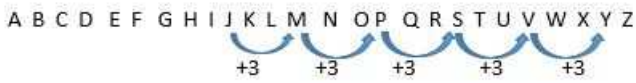
J, M, P, S, (...), (...)

- A K, W
- B Y, W
- C Q, U

D V, Y

Answer: D

Explanation:



hence v,y

Question 76

If $72 \text{ km/h} = x \text{ m/s}$, then find the value of 'x'.

A 25

B 20

C 15

D 18

Answer: B

Explanation:

we know that

$$1 \text{ km/hr} = \frac{5}{18} \text{ m/sec}$$

given

$$72 \text{ km/h} = x \text{ m/s}$$

$$x \text{ m/s} = 72 \times \frac{5}{18} \text{ m/s}$$

$$x = 20$$

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Question 77

Evaporation of material takes place-

A Above its melting point

B Above its boiling point

C Below its melting point

D Below its boiling point

Answer: D

Question 78

Which of these is the characteristic of sound which enables us to distinguish one sound from another having the same pitch and loudness?

A Time period

B Timber or quality of sound

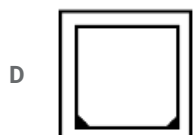
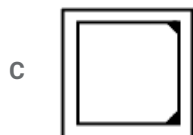
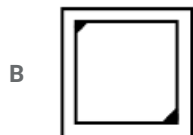
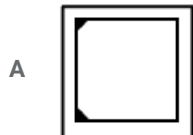
C Wave velocity

D Frequency

Answer: B

Question 79

Find the ODD one out from the given options.



Answer: B

Explanation:

B option is odd one because rectangular corner filled the color diagonally

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Question 80

What is the molecular formula of butane?

A C_2H_6

B C_3H_8

C C_5H_{12}

D C_4H_{10}

Answer: D

Question 81

The isotope used to remove the brain tumours and treatment of cancer is-

A C-12

B Co-60

C Na-24

D U-235

Answer: B

Question 82

Which word will best complete the relationship given below?

Animal : Zoo :: Patient : ?

A Ship

B Hospital

C Water

D Mountain

Answer: B

Explanation:

Animal stay in ZOO similarly patient stay in hospital

so correct answer is Hospital

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Question 83

Which part of human being grows at the rate of about half-an-inch per month?

A Hair

B Large intestine

C Ear

D Small intestine

Answer: A

Question 84

Which word will best complete the relationship given below?

Bharatnatyam : Tamil Nadu :: Kathak : ?

A Assam

B Manipur

C Uttar Pradesh

D Andhra Pradesh

Answer: C

Explanation:

Bharatnatyam : Tamil Nadu :: Kathak : Uttar Pradesh

Bharatnatyam originated in the state of Tamil Nadu

and Kathak originated in the state of Uttar pardesh

Question 85

Breaking of lead bromide into lead and bromine is an example of _____.

- A Decomposition reaction
- B Displacement reaction
- C Neutralisation reaction
- D Synthesis reaction

Answer: A

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Question 86

Which dynasty built the famous Khajuraho temples in the 10th and 11th centuries?

- A Chandela
- B Chalukya
- C Pandya
- D Chola

Answer: A

Question 87

Why the stars are not visible in the daytime?

- A They are not visible because of the bright sunlight
- B Stars do not emit their own light during daytime
- C Stars move far away in daytime
- D Stars are hidden in daytime by the shadow of moon

Answer: A

Question 88

The ionisation potential of nitrogen is-

- A Less than that of oxygen
- B The same as that of oxygen
- C Greater than that of oxygen
- D Half that of oxygen

Answer: C

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Question 89

PSLV-C42, launched by ISRO on 16 September 2018, was carrying how many observation satellites of UK?

- A Four
- B Three
- C One
- D Two

Answer: D

Question 90

Which Union Ministry is responsible for the issue of passports to citizens of India?

- A External Affairs
- B Information and Broadcasting
- C Defence
- D Home Affairs

Answer: A

Question 91

Which of the following gases evolved in a metal acid reaction?

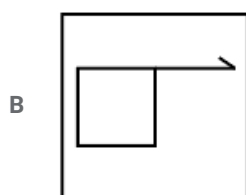
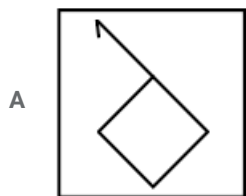
- A Oxygen
- B Depends upon acid
- C Hydrogen
- D No gas is evolved

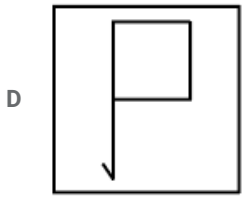
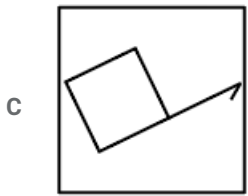
Answer: C

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Question 92

Find the ODD one out from the given options.



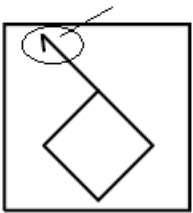


Answer: A

Explanation:

Option A is ODD one in other figure because direction of line symbol representing the arrow towards the box

Direction of line symbol representing the arrow towards the box



Question 93

Which of the following acids is commercially known as acetic acid?

- A Ethanoic acid
- B Butanoic acid
- C Propanoic acid
- D Methanoic acid

Answer: A

Question 94

What is the percentage form of the ratio 1 : 8?

- A 8%
- B 6.25%
- C 80%
- D 12.5%

Answer: D

Explanation:

percentage form of the ratio 1 : 8

$$\% = 100 \times \frac{1}{8} \%$$

$$= 12.5\%$$

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Question 95

If 6 men and 8 boys can complete a work in 10 days and 26 men and 48 boys can do it in 2 days, then find the ratio of capacity of a man to that of a boy.

- A 4 : 3
- B 6 : 5
- C 3 : 2
- D 2 : 1

Answer: D

Explanation:

$10(6M + 8B) = 2(26M + 48B)$ since the same work is done they will be equal

$$60M + 80B = 52M + 96B$$

$$8M = 16B \text{ or } M = 2B$$

$$M:B=2:1$$

Question 96

By selling a transistor for Rs.572, a shopkeeper earns a profit equivalent to 30% of the cost price of the transistor. What is the cost price of the transistor?

- A Rs.340
- B Rs.440
- C Rs.420
- D Rs.400

Answer: B

Explanation:

Given the selling price of transistor which is Rs 572 and a man gains 30%

we have to find the cost price of transistor

Selling price, S.P=Rs 572

Gain percentage=30%

By formula

$$S.P = C.P \left[1 + \frac{\text{Gain \%}}{100} \right]$$

$$572 = C.P \left[1 + \frac{30}{100} \right]$$

$$572 = C.P \times 1.3$$

$$C.P = \frac{572}{1.3} = 440$$

Hence, the cost price is Rs 440

Question 97

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

Statements:

- 1) All bats are balls.
- 2) All balls are gloves.

Conclusions:

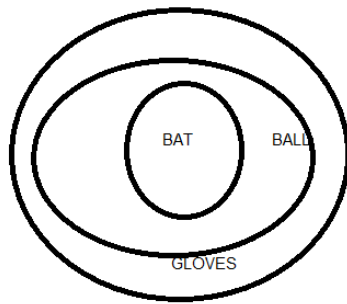
- I. Some gloves are bats.
- II. All bats are gloves.

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

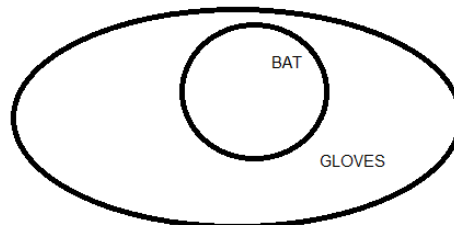
Answer: D

Explanation:

FINAL DIAGRAM



IT SHOWS THAT CONCLUSION 1 & 2 FOLLOW



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Question 98

The exchange of respiratory gases in the lungs occurs in-

- A Trachea
- B Bronchi
- C Alveoli
- D Bronchiole

Answer: C

Question 99

Methyl orange is-

- A** Red in acidic medium, yellow in basic medium
- B** Colourless in acidic medium, pink in basic medium
- C** Pink in acidic medium, colourless in basic medium
- D** Yellow in acidic medium, pink in basic medium

Answer: A

Question 100

Thrombosis is a disease of the-

- A** Blood
- B** Thyroid gland
- C** Lungs
- D** Nerve bursting

Answer: A

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