



RRB JE 22nd May 2019 Shift-1

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Instructions

For the following questions answer them individually

Question 1

Decimal part of any number is always _____.

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

Answer: D

Explanation:

In a decimal number, the decimal part is always < 1 .

For example,

Decimal part of 7.123 is 0.123 which is < 1

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Question 2

What is the name of the scheme proposed by the HRD Ministry to track academic performance of school children across the country?

- A Shaala ASMITA
- B Achievers
- C The performers
- D Pradarshan

Answer: A

Question 3

Which of these is NOT a joint?

- A Ankle
- B Elbow
- C Neck
- D Knee

Answer: C

Explanation:

The *cervical spine* and the hyoid bone constitute the bones of the neck. The *cervical spine* is comprised of the 7 uppermost *vertebrae* of the *vertebral column*, whereas all the others are the joints.

Question 4

A postman was returning to the post office which was in front of him to the north. When the post office was 100 m away from him, he turned left and moved 50 m to deliver the last letter at the Shanti villa. He, then moved in the same direction for 40 m, turned to his right and moved 100 m. How many metres was he away from the post office?

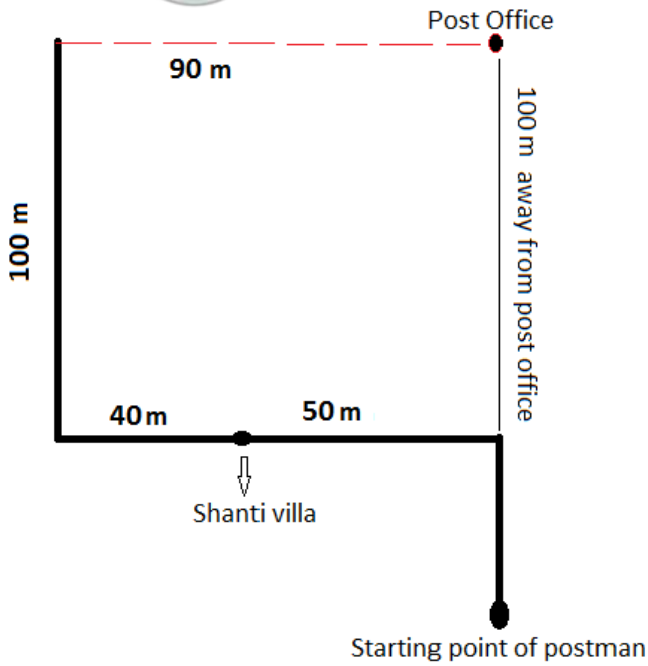
- A 90 m

- B 150 m
- C 10 m
- D 100 m

Answer: A

Explanation:

From the given statements,



Therefore from the diagram it is known that Post office is 90m away from him.

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Question 5

Silver article turns black when kept in the open for a few days due to formation of-

- A AgS
- B $AgSO_4$
- C H_4S
- D Ag_2S

Answer: D

Question 6

Complete the series.

1, 2, 6, 24, 120, (...)

- A 725
- B 711
- C 720
- D 715

Answer: C

Explanation:

Pattern is:

$$1 \times 2 = 2$$

$$2 \times 3 = 6$$

$$6 \times 4 = 24$$

$$24 \times 5 = 120$$

$$120 \times 6 = 720$$

Therefore the required number is 720.

Question 7

Blood circulates from arteries to veins through microscopic vessels known as-

- A Capillaries
- B Calories
- C Cells
- D Corpuscles

Answer: A

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Question 8

Anjali can complete a job in 10 days. Banu can do it in 5 days. In how many days can the job be done, if they work together?

- A 3.5 days
- B 3 days 8 hours
- C 7.5 days
- D 6 days

Answer: B

Explanation:

Given,

Anjali can do a work in 10 days and Banu can do a work in 5 days.

LCM of 10 and 5 is 50. Therefore total jobs to be completed is 50.

Anjali $10 \times 5 = 50$ (Therefore, Anjali can do 5 works per day)

Banu $5 \times 10 = 50$ (Banu can do 10 works per day)

Both together can do $5 + 10 = 15$ works per day

for three days $15 \times 3 = 45$ works can be completed

balance 5 work can be calculated as $\frac{5}{15} = \frac{1}{3}$

Option is given in hours, so to convert it into hours $\frac{1}{3} \times 24 = 8$ hours

Hence total time taken is 3 days 8 hours

Question 9

Find the ODD one out from the given options.

- A 1975 : 1579
- B 7319 : 1793

C 3152 : 5321

D 4283 : 8432

Answer: A

Explanation:

The position of the numbers are rearranged in every option as follows:

The odd number places are interchanged first and written together and then the even number places are interchanged and written together.

For instance in 7319, 7 and 1 are interchanged and 3 and 9 are interchanged to get 1793.

Similarly, the same process is carried out for other options.

As per this, option (1) violates this rule.

Hence 1975 has to be written as 5197. But its wrongly written. Hence our answer.

Question 10

What are the LCM and HCF of the reciprocals of 18 and 24?

A $1/72, 1/6$

B $1/6, 1/4$

C 72, 6

D $1/6, 1/72$

Answer: D

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Question 11

Which Indian city is also called Tatanagar?

A Jamshedpur

B Ranchi

C Dhanbad

D Bhilai

Answer: A

Question 12

In a bag, there are coins of 25 paise, 10 paise and 5 paise in the ratio of 1 : 2 : 3. If there are Rs.30 in all, how many 5 paise coins are there?

A 50

B 150

C 100

D 200

Answer: B

Explanation:

Let the number of coins of 25, 10 & 5 Paise be $p : 2p : 3p$.

Total value in Paise is $30 \times 100 = 3000$

$(25p + 20p + 15p) = 60p$

So $p = \frac{3000}{60} = 50$

therefore number of 5paise coins is $3p = 3 \times 50 = 150$ coins.

Question 13

Find the value of $\sin^{\frac{7\pi}{4}} \sin^{\frac{\pi}{4}} \sin^{\frac{3\pi}{4}} \sin^{\frac{5\pi}{4}}$

- A $\frac{1}{4}$
- B $\frac{3}{16}$
- C $1/8$
- D $\frac{1}{16}$

Answer: A

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Question 14

Which of these substances is present in tobacco?

- A Nicotine
- B Morphine
- C Caffeine
- D Hashish

Answer: A

Question 15

Which of the following is an eye disorder?

- A Myopia
- B Jaundice
- C Arthritis
- D Sinus

Answer: A

Question 16

A watch is sold at 5% loss. If the cost price had been 20% more and selling price Rs.115 less, there would have been 40% loss. What is the cost price?

- A Rs.500
- B Rs.520
- C Rs.450
- D Rs.550

Answer: A

Question 17

Find the ODD one out from the given options.

- A 317
- B 137
- C 153
- D 731

Answer: C

Question 18

Who discovered that mosquitoes spread malaria?

- A Sir Ronald Ross
- B Homi Bhabha
- C Sir Issac Newton
- D Michael S Brown

Answer: A

Question 19

The underground water due to the hot rocks present inside the Earth _____ which can turn the turbines of generator to produce electricity.

- A Cools down
- B Turns to ice
- C Turns to steam at high pressure
- D Flows out

Answer: C

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Question 20

70% of the employees in a firm are men. 30% of men and 20% of women employees opt for voluntary retirement. What is the percentage of the total number of employees continue in service?

- A 70%
- B 27%
- C 30%
- D 73%

Answer: D

Explanation:

Given,

70% of the employees in a firm are men.

Let total number of employees = 100.

therefore, number of men = 70 and number of women = 30

30% of men and 20% of women employees opt for voluntary retirement,

$$70 \times \frac{30}{100} = 21 \text{ (number of men opt for voluntary retirement)}$$

$$30 \times \frac{20}{100} = 6 \text{ (number of women opt for voluntary retirement)}$$

Total number of employees opt for voluntary retirement is $21 + 6 = 27$

\therefore Remaining employees is $100 - 27 = 73$. Hence 73% employees continue in service

Question 21

Which of the following elements is known as the eka-boron?

- A Aluminium
- B Gallium
- C Silicon
- D Scandium

Answer: D

Question 22

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

32	85	64
5	13	10
1	3	?
6	40	24

- A 7
- B 6
- C 2
- D 4

Answer: C

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Question 23

Find the Compound Interest on a sum of Rs.1000 at the rate of 10% per annum for 1.5 years when interest is compounded half-yearly

- A Rs.160.55
- B Rs.167.36
- C Rs.150.25
- D Rs.157.63

Answer: D

Explanation:

Principal(P) = Rs 4000

Rate of Interest(r) = 10%

Time = 2.5 years Here first we take n = 2 years.

$A = P(1 + r/100)^n$ Where A = Amount and n = number of years

$$A = 4000 (11/10)^2$$

$$A = 4000 (121 / 100)$$

$$A = \text{Rs } 4840$$

The Amount after two years = Rs 4840 Now Principal = Rs 4840

$$\text{Simple interest for last } \frac{1}{2} \text{ year is } = \text{PRT}/100 = (4840 \times 10 \times 1 / 2) / 100 = \text{Rs. } 242$$

$$\text{Amount after } 2 \frac{1}{2} \text{ year} = \text{Rs } 4840 + \text{Rs } 242 = \text{Rs } 5082$$

$$\text{C.I} = A - P$$

$$\text{C.I} = \text{Rs } 5082 - \text{Rs } 4000 = \text{Rs } 1082$$

∴ The compound interest is Rs 1082.

Amount after $1\frac{1}{2}$ years when interest is compounded yearly

$$\begin{aligned} &= 5000 \times (1 + 4/100)^1 \times (1 + 12 \times 4/100) \\ &= 5000 \times 104/100 \times (1 + 21/100) = 5000 \times 104/100 \times 102/100 = 50 \times 104 \times 51/50 = 104 \times 51 = \text{Rs. } 5304 \end{aligned}$$

Compound Interest for $1\frac{1}{2}$ years when interest is compounded yearly

$$= \text{Rs. } (5304 - 5000)$$

Amount after $1\frac{1}{2}$ years when interest is compounded half-yearly

$$\begin{aligned} &= P(1 + (R/2)/100)^{2T} = 5000(1 + (4/2)/100)^{2 \times 3} = 5000(1 + 2/100)^3 = 5000(102/100)^3 = 5000(102/100)(102/100)(102/100) \\ &= 50 \times 102 \times 51 \times 51 = 102 \times 51 \times 5150 \\ &= \text{Rs. } 5306.04 \end{aligned}$$

Compound Interest for $1\frac{1}{2}$ years when interest is compounded half-yearly = Rs.(5306.04 - 5000) Difference in the compound interests = (5306.04 - 5000) - (5304 - 5000) = 5306.04 - 5304 = Rs. 2.04

Question 24

When two or more resistances are connected between the same two points, they are said to be connected in-

- A Parallel
- B Across
- C Series
- D Line

Answer: A

Question 25

If $x^2 - 4x + 4b = 0$ has two real solutions, find the value of 'b'.

- A $b = +1, -1$
- B $b = 0$
- C $b \geq 1$
- D $b < 1$

Answer: D

Explanation:

Given,

$$x^2 - 4x + 4b = 0 \text{ has two real solutions.}$$

So the discriminant must equal or greater than 0.

On comparing the given equation with $ax^2 + bx + c = 0$

$$a = 1 ; b = -4 ; c = 4b$$

substituting the values in equation $b^2 - 4ac \geq 0$,
 $(-4)^2 - 4(1)(4b) \geq 0$

$$16 - 16b \geq 0$$

$$16 \geq 16b$$

$$1 \geq b$$

Thus,

The required value of b is either 1 or lesser than 1. As in option only $b < 1$ is represented, the answer is option D- $b < 1$.

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Question 26

If the object is placed between infinity and optical centre O of the concave lens, how will the image be formed after refraction?

- A Diminished
- B Point size
- C Of same size
- D Enlarged

Answer: A

Question 27

If $x = 3 - \sqrt{2}$ then find the value of $3x^2 + 2x + 4$

- A $35 - 2\sqrt{2}$
- B $20 - \sqrt{2}$
- C $35 - 20\sqrt{2}$
- D $35 + \sqrt{2}$

Answer: C

Question 28

With which sport was Arthur Pereira associated?

- A Football
- B Tennis
- C Basket ball
- D Volley ball

Answer: A

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Question 29

Which of the following types of medicines is used for treating indigestion?

- A Antacid
- B Antibiotic

C Antiseptic

D Analgesic

Answer: A

Question 30

Which of the following is the strongest material on earth?

A Aerographene

B Soap stone

C Carbyne

D Aerographite

Answer: C

Question 31

A clock is set to the right time at 4:00 AM on Thursday. If it gains 20 seconds in every 3 hours, then what is the time shown on the clock at 8:30 PM on Friday night?

A 8 hours 30 minutes 30 seconds PM

B 9 hours 34 minutes PM

C 8 hours 34 minutes PM

D 8 hours 34 minutes 30 seconds PM

Answer: D

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Question 32

Rahul starts walking towards west. After a while, he turns left and then to his right. Again he turns left and then right. How many times did he turn towards south?

A Four turns

B Three turns

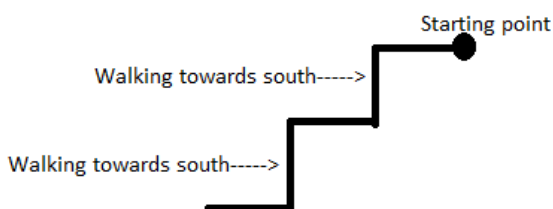
C Two turns

D One turn

Answer: C

Explanation:

Rahul's path:



Therefore there are 2 turns towards south.

Question 33

In a certain code, 'ABC DEF' is written as 'ZYX WVU'. How would 'LOSS' be written in that code?

- A OWHH
- B OLHH
- C OHLL
- D OMHH

Answer: B

Explanation:

Given,

'ABC DEF' is written as 'ZYX WVU'

To solve this code, first write out the alphabet, and then write out the alphabet in reverse below it:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Z Y X W V U T S R Q P O N M L K J I H G F E D C B A

∴ 'LOSS' can be coded as 'OLHH', as the reverse of 'L' is 'O', 'O' is 'L', 'S' is 'H'.

Question 34

Which of the following Indian Presidents served the longest in office?

- A Dr. Shankar Dayal Sharma
- B Dr. S. Radhakrishnan
- C R. Venkatraman
- D Dr. Rajendra Prasad

Answer: D

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Question 35

Complete the series.

48, 24, 72, 36, 108, (...)

- A 52
- B 67
- C 54
- D 73

Answer: C

Explanation:

Numbers in the given series are alternately divided by 2 and multiplied by 3.

$$\text{i.e., } \frac{48}{2} = 24$$

$$24 \times 3 = 72$$

$$\frac{72}{2} = 36$$

$$36 \times 3 = 108$$

$$\text{Required number} = \frac{108}{2} = 54.$$

Question 36

What is the full form of SONAR?

- A Sound Navigation and Receiving
- B Sound Not in Aircraft Range
- C Sound in Navy and In Receivers
- D Sound Navigation and Ranging

Answer: D

Question 37

How is food energy measured?

- A Metre
- B Calories
- C Kilowatt
- D Kilogram

Answer: B

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Question 38

What is the difference between the largest and the smallest fractions among $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$ and $\frac{5}{6}$?

- A $\frac{3}{5}$
- B $\frac{1}{7}$
- C $\frac{1}{6}$
- D $\frac{2}{5}$

Answer: C

Explanation:

Given fraction,

$\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$ and $\frac{5}{6}$

values of fraction,

$$\frac{2}{3} = 0.666$$

$$\frac{3}{4} = 0.75$$

$$\frac{4}{5} = 0.8$$

$$\frac{5}{6} = 0.803$$

so the smallest fraction is $\frac{2}{3}$ and largest fraction is $\frac{5}{6}$

Difference between the largest and the smallest fractions = $\frac{5}{6} - \frac{2}{3}$

$$= \frac{5-4}{6}$$

$$= \frac{1}{6}$$

therefore, Option C is the answer.

Question 39

The interior angle of a regular polygon is 150 degrees. The polygon is a/an:

- A Septagon
- B Dodecagon
- C Decagon
- D Octagon

Answer: B

Explanation:

Since an interior angle is 150 degrees, its adjacent exterior angle is 30 degrees. Exterior angles of any polygon always add up to 360. With the polygon being regular, we can just divide 360 by 30 to get 12 sides.

Also, a geometric figure with 12 sides is called a dodecagon.

Question 40

The scientific name of modern man is

- A Homo sapiens
- B Homo neanderthalensis
- C Homo erectus
- D Homo habilis

Answer: A

Explanation:

Homo sapiens is the only extant human species. The name is Latin for 'wise man' and was introduced in 1758 by Carl Linnaeus. Extinct species of the genus Homo include Homo erectus, extant from roughly 1.9 to 0.4 million years ago, and a number of other species.

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Question 41

In which natural phenomenon is static electricity involved?

- A Rain
- B Lightning
- C Twister
- D Hail storm

Answer: B

Question 42

Which number will best complete the relationship given below?

Basketball : 5 :: Football : ?

- A 7
- B 11
- C 13

D 15

Answer: B

Explanation:

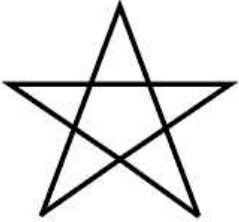
Number of players in each team for basketball is 5 while the number of players in each team for football is 11.

therefore the relationship is, Basketball : 5 :: Football : 11.

so the answer is 11.

Question 43

How many triangles are there in the given figure?



A 6

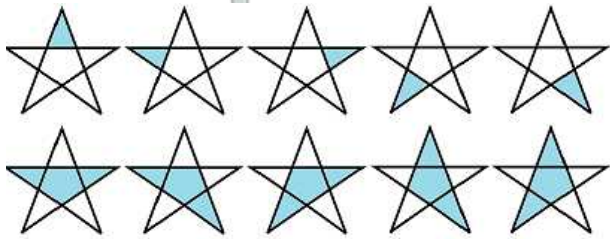
B 8

C 10

D 5

Answer: C

Explanation:



From the diagram it is known that there are 10 triangles in it.

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Question 44

In universal indicators, a pH of 4 to 5 indicates-

A Strong alkalis

B Strong acids

C Weak alkalis

D Weak acids

Answer: D

Question 45

Which of the following has a higher electric resistance?

A 100Ω, 80Ω bulb or 60Ω bulb?

A 100Ω

- B 80Ω
- C All have the same resistance
- D 60Ω

Answer: A

Question 46

The rolling of thunder occurs due to-

- A Successive reflections of sound from a number of reflecting surfaces such as clouds and land
- B Heavy rains pass the sound very fast
- C Supersonic aircraft passing through cloud
- D Single reflection of sound from a very big cloud

Answer: A

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Question 47

Up to which element was the law of octaves found to be applicable?

- A Oxygen
- B Calcium
- C Potassium
- D Cobalt

Answer: B

Question 48

Find the ODD one out from the given options.

- A F
- B H
- C U
- D N

Answer: C

Explanation:

As per the english alphabetical order, Letters F,H,N are in even places while 'U' is in odd place.

Therefore, U is the odd letter.

Question 49

What is the remainder when $7^2 \times 9^2$ is divided by 8?

- A 0
- B 3
- C 6

D 1

Answer: D



Explanation:

$$7^2 \times 9^2 = 49 \times 81 = 3969$$

to find the remainder, $\frac{3969}{8}$

by dividing, we get remainder = 1.

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Question 50

Complete the series.

C, H, M, R, (...)

A X

B W

C V

D Y

Answer: B

Explanation:

As per the english alphabetical order, number of letters between each letter in the series is same.



therefore 'W' is the answer.

Question 51

Find the smallest integer whose cube is equal to itself.

A 1

B 2

C -1

D 0

Answer: C

Explanation:

Solve from the options one by one,

I. $1 \rightarrow 1^3 = 1$

II. $2 \rightarrow 2^3 = 8$

III. $-1 \rightarrow -1^3 = -1$

IV. $0 \rightarrow 0^3 = 0$

In the case 1, -1 and 0, the cube of the number is itself but among these three numbers -1 is the smallest number.

therefore -1 is the answer

Question 52

The force of attraction between two objects of masses 'M' and 'm' which lie at a distance 'd' from each other is directly proportional to the-

- A Difference between masses of objects $M - m$
- B Sum of the masses of objects $M + m$
- C Product of the masses of objects $M \times m$
- D Sum of the squares of masses of objects $M^2 + m^2$

Answer: C

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Question 53

Which of the following creatures does NOT usually lay eggs in its own nest?

- A Sparrow
- B Cuckoo
- C Parrot
- D Pigeon

Answer: B

Question 54

Which number will best complete the relationship given below?

12 : 30 :: 20 : ?

- A 32
- B 25
- C 42
- D 35

Answer: C

Explanation:

Pattern followed,

$$(3 \times 3) + 3 = 12$$

$$(4 \times 4) + 4 = 20$$

$$(5 \times 5) + 5 = 30$$

$$(6 \times 6) + 6 = 42$$

therefore, 42 is the answer.

Question 55

If 23 @ 47 \$ 22 = 48 and 34 @ 18 \$ 13 = 39, then 12 @ 43 \$ 14 = ?

- A 35
- B 41
- C 29

D 31

Answer: B

Explanation:

Replace @ with + and \$ with -

Therefore $12 + 43 - 14 = 41$

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Question 56

Ratio of the volumes of a sphere of radius 'r' and a cylinder of radius 'r' and height '2r' is:

A 2 : 3

B 3 : 2

C 5 : 4

D 3 : 5

Answer: A

Explanation:

Given,

Radius of sphere = r

Radius of cylinder = r and its height = 2r.

Ratio of formula for volume of sphere and cylinder is,

$$\frac{4}{3} \times \pi r^3 : \pi r^2 h$$

substituting r and h values in the formula,

$$\frac{4}{3} \times \pi r^3 : \pi r^2 2r$$

$$\frac{4}{3} \times r^3 : 2r^3$$

$$\frac{4}{3} : 2$$

$$4 : 6$$

$$2 : 3$$

Therefore the answer is 2:3

Question 57

Complete the series.

BS, GT, KA, PN, (...)

A TG

B HI

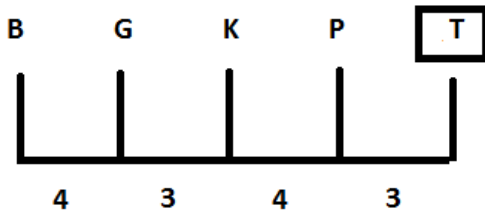
C AP

D HO

Answer: A

Explanation:

Taking first letter of each group one by one, the number of letters between them as per the english alphabetical order is



Taking second letter of each group, it would be 1 7, 13, 19 and so on. Hence $S+1 = T$, $T+7 = A$, $A+13 = N$ and $N+19 = G$.

The letters of the word 'STANG' is written one by one for each group.

Question 58

Rajan got married 8 years back. His age then was $\frac{5}{6}$ of his present age. His sister was 10 years younger at the time of his marriage. How old is she now?

- A 40
- B 20
- C 30
- D 38

Answer: D

Explanation:

Let Rajan's present age be x .

Given that, at the time of his marriage his age was $\frac{5}{6}$ of his present age and got married 8 years back.

Therefore, $x - \frac{5}{6} \times x = 8$

$$\frac{6x-5x}{6} = 8$$

$$\frac{x}{6} = 8$$

$$x = 48$$

Given that, his sister is 10 years younger. So his sister's age is $48 - 10 = 38$

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Question 59

Speed of a boat in still water is 13 km/h. Speed of water current is 4 km/h. In what time can the boat cover 68 km upstream?

- A 7 hours
- B 8 hours
- C 4 hours
- D 7 hours 33 minutes

Answer: D

Explanation:

Given,

Speed of a boat in still water is 13 km/h and Speed of water current is 4 km/h.

Upstream speed = Speed of a boat in still water - Speed of water current

$$\therefore \text{Upstream speed} = 13 - 4 = 9$$

we know that $\text{Speed} = \frac{\text{Distance}}{\text{time}}$

$$9 = \frac{68}{\text{time}}$$

$$\text{time} = \frac{68}{9}$$

time = 7.55

converting 7.55 to hours, 7 hours and $0.55 \times 60 = 33$ min

∴ The answer is 7 hours and 33 min

Question 60

Find the smallest among these fractions.

$$\frac{1}{2}, \frac{3}{5}, \frac{2}{7}, \frac{5}{6}$$

A $\frac{2}{7}$

B $\frac{3}{5}$

C $\frac{1}{2}$

D $\frac{5}{6}$

Answer: A

Explanation:

solving the fractions,

$$\frac{1}{2} = 0.5$$

$$\frac{3}{5} = 0.6$$

$$\frac{2}{7} = 0.285$$

$$\frac{5}{6} = 0.833$$

among 0.5, 0.6, 0.285, 0.833,

0.285 is the smallest number. Therefore the answer is $\frac{2}{7}$

Question 61

A bus leaves Agra at 5 AM and reaches Delhi at 12 noon. Another bus leaves Delhi at 8 AM and reaches Agra at 3 PM. At what time do they meet?

A 11:30 AM

B 1:30 PM

C 9:30 AM

D 10 AM

Answer: D

Explanation:

First bus leaves at 5 am from Agra and reaches Delhi at 12 noon

The first bus takes 7 hours to reach Delhi

The second bus travels from Delhi to Agra from 8 am to 3 pm

This second bus also takes 7 hours to cover the same distance. (The distance between Agra - Delhi and Delhi to Agra is the same; let say x km)

If each bus covers x km in 7 hours, then in 1 hour each bus covers exactly $\frac{x}{7}$ km towards each other.

You can divide this distance in 7 portions and find the position of the two vehicles with respect to time. First bus approaching from $\frac{x}{7}$ position and second from x position

Distance covered with time for bus 1:

$$5\text{am} - 6\text{am} \text{ is } \frac{x}{7}$$

$$7\text{am} - \frac{2x}{7}$$

$$8\text{am} - \frac{3x}{7}$$

$$9\text{am} - \frac{4x}{7}$$

$$10\text{am} - \frac{5x}{7}$$

$$11\text{am} - \frac{6x}{7}$$

$$12\text{pm} - x$$

Distance covered with time for bus 2 with respect to first bus:

$$8\text{am} - 9\text{am is } \frac{6x}{7}$$

$$10\text{am} - \frac{5x}{7}$$

$$11\text{am} - \frac{4x}{7}$$

$$12\text{pm} - \frac{3x}{7}$$

$$1\text{pm} - \frac{2x}{7}$$

$$2\text{pm} - 3\text{pm is } \frac{x}{7}$$

The two vehicles meet at 10 am - after first vehicle covers five hours and the second 2 hours.

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Question 62

The time period between a full moon and the next full moon is slightly longer than how many days?

- A 29.5 days
- B 31 days
- C 28 days
- D 26 days

Answer: A

Explanation:

The time interval between a full (or new) moon and the next repetition of the same phase, a synodic month, averages about **29.53 days**.

Therefore, from the option, 29.53 is slightly longer than 29.5 days.

Question 63

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

$$2(101)5$$

$$8(246)3$$

$$3(???)7$$

- A 213
- B 231
- C 123
- D 132

Answer: A

Explanation:

In $2(101)5$ and $8(246)3$, multiplication of the two digits which are given outside the brackets is written as the first two digits inside the bracket.

The third digit inside the bracket is the addition of the first two digits present inside the bracket

for example,

In $2(101)5$,

$2 \times 5 = 10$ (which is written as the first two digits of the number which is present inside the bracket)

now, from 10, $1 + 0 = 1$ (which is written as the third digit of the number which is present inside the bracket)

In the same way for $3(???)7$,

$$3 \times 7 = 21$$

from 21, $2 + 1 = 3$

therefore the answer is $3(213)7$

Question 64

The difference between Compound Interest and Simple Interest on a certain sum for 2 years at 12.5% rate is Rs.45. What is the sum?

- A Rs.2440
- B Rs.2000
- C Rs.2880
- D Rs.3000

Answer: C

Explanation:

Given,

The difference between Compound Interest and Simple Interest on a certain sum for 2 years at 12.5% rate is Rs.45.

Formula for 2 years difference is,

$$\frac{PR^2}{100^2}$$

therefore, from the question, we know that $\frac{PR^2}{100^2} = 45$

substituting R in the formula, $\frac{P \times (12.5)^2}{100^2} = 45$

$$\therefore P = \frac{45 \times 100^2}{12.5^2}$$

$$P = \frac{45 \times 1000 \times 1000}{125 \times 125}$$

$$P = 2880$$

\therefore The sum is 2880.

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Question 65

Product of two coprime numbers is 903. Find their LCM.

- A 301
- B Cannot be determined
- C 39
- D 903

Answer: D

Explanation:

HCF of any two coprime numbers is always 1.

whenever the HCF is 1, LCM is the product of the two numbers.

since the product of two numbers = 903, LCM = 903.

Question 66

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

Ten friends are sitting in two parallel rows of six seats each. One seat is vacant in each row. M, N, O, P and Q are sitting in row-1 facing south. D, E, F, G and H are facing north. Each likes different brand of shirts—Otto, Wrangler, Cherokee, Lee, Van Heusan, Derby, Ruggers, Allen Solly, Peter England and Raymond.

G sits third to the right of F and likes Lee. Only two people sit between E and the vacant seat. E does not like Van Heusan or Cherokee. Q is not an immediate neighbour of O. N likes Raymond. The one who likes Cherokee faces the one who likes Allen Solly. The one who likes Cherokee sits opposite to the one who sits on the third right of the person who sits opposite to G. O is not an immediate neighbour of P. H, who likes neither Van Heusan nor Derby, does not face the vacant seat. Neither G nor F sits at any of the extreme ends of the rows. P faces F. Vacant seats are not opposite to each other. Two seats are there between O and N, and N sits on the third right of the one who likes Ruggers. The one who likes Peter England faces the one who likes Lee. The persons who like Otto and Allen Solly are adjacent to each other. Vacant seat of row - 1 is not an immediate neighbour of P. E sits at one of the extreme ends of the row. F does not like Otto and Allen Solly. Vacant seat of row-1 does not face G who does not sit at any of the extreme ends of the row.

How many people will sit between vacant seat and E?

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

Answer: C

Question 67

A compound has the molecular formula C_2H_6O . The name of the compound is-

- A Ethanol
- B Both dimethyl ether and ethanol
- C Dimethyl ether
- D Ethanoic acid

Answer: B

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Question 68

The Constitution of India is republic, because it-

- A Contains a bill of rights
- B Provides for an elected Parliament
- C Provides for adult franchise
- D Has no hereditary elements

Answer: D

Question 69

Which of the following is India's First Integrated Green Field Smart City?

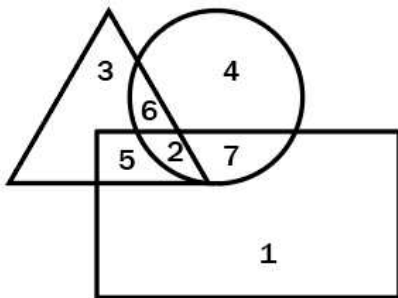
- A Bengaluru, Karnataka
- B Atal Nagar, Chhattisgarh
- C Bhopal, Madhya Pradesh

D Chennai, Tamil Nadu

Answer: B

Question 70

In the given figure, the circle represents married men, triangle represents working men, and rectangle represents adult. Which region represents married men who are also adults?



A 6

B 7

C 5

D 2

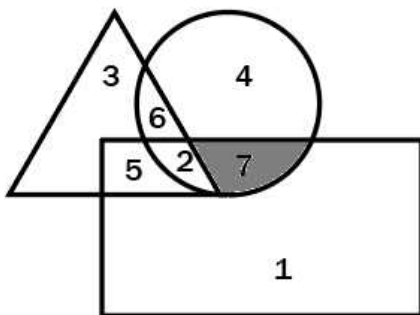
Answer: B

Explanation:

Given,

circle represents married men, triangle represents working men and rectangle represents adult.

We have to find the number of men who are married and also adult. So we have to select the part which contains both circle and rectangle alone.



In the figure, shaded part represents the number of men who are married and also adult.

Therefore the answer is 7.

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Question 71

What is the theme of 'World Water Day', 2019?

A Forests and Education - Learn to Love Forests

B Leave no One Behind

C The Sun, the Earth and the Weather

D Wetlands and Climate Change

Answer: B

Question 72

How much profit is got by selling goods at Rs.405 at a profit of 12.5%?

- A Rs.36
- B Rs.45
- C Rs.40
- D Rs.51

Answer: B

Explanation:

Given,

Selling price = 405, Profit = 12.5%

let cost price be x and 12.5% profit can be written as $100 + 12.5 = \frac{112.5}{100}$

$$x \times \frac{112.5}{100} = 405$$

$$x = \frac{405 \times 100}{112.5}$$

$$x = \frac{405 \times 1000}{1125}$$

$$x = 360$$

$$\text{profit earned} = 405 - 360$$

$$= 45$$

Question 73

If $0 < \theta \leq 90^\circ$, Solve for θ where $\cos^2\theta + 3\cos\theta + 2 = 2\sin^2\theta$

- A 60°
- B 45°
- C 30°
- D 90°

Answer: D

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Question 74

The substance that is usually lost by the body during dehydration is-

- A Sugar
- B Calcium Phosphate
- C Potassium chloride
- D Sodium chloride

Answer: D

Question 75

Under which of the following conditions can we boil water at room temperature?

- A At low pressure

- B At high pressure
- C At very high pressure
- D At atmospheric pressure

Answer: A

Question 76

Complete the series.

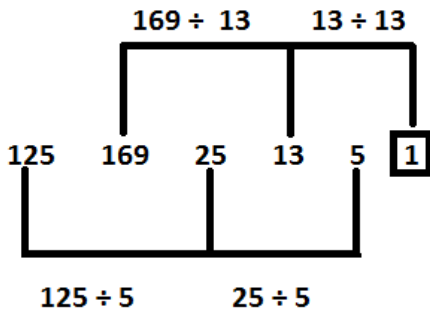
125, 169, 25, 13, 5, (...)

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

Answer: B

Explanation:

Pattern is,



thus the answer is 1.

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Question 77

Which of the following states is associated with the classical dance, Odissi?

- A Kerala
- B Bihar
- C Madhya Pradesh
- D Odisha

Answer: D

Question 78

Which Mughal Emperor founded Fatehpur Sikri as his capital city?

- A Humayun
- B Babur
- C Akbar
- D Aurangzeb

Answer: C

Question 79

Which of the following dams has been built on the river Krishna?

- A Bhakra Nangal
- B Nagarjuna Sagar
- C Narmada Sagar
- D Hirakud

Answer: B

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Question 80

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

P, Q, R, S, T, U, V and W are playing a game standing in a circle facing outwards. R is neither the neighbour of P nor V. S is the neighbour of P but not of W. T is the neighbour of W and is third to the right of U. Q is the neighbour of U and fourth to the left of S. Who among the following stands between S and T?

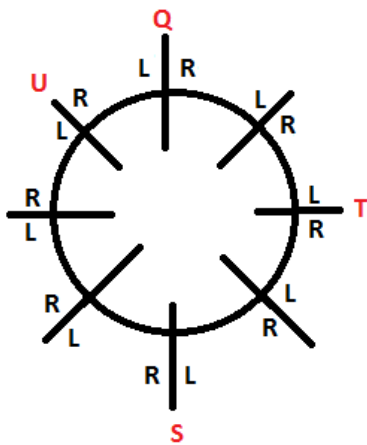
- A P
- B Q
- C R
- D W

Answer: C

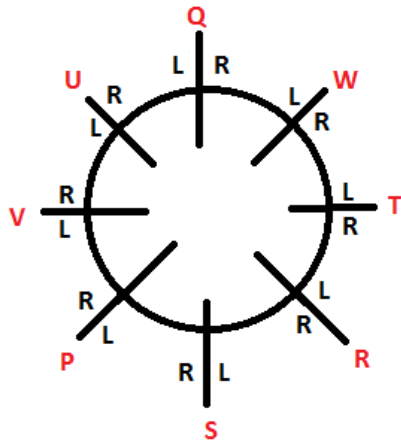
Explanation:

From the statements,

- i. T is the neighbour of W and is third to the right of U.
- ii. Q is the neighbour of U and fourth to the left of S.



- iii. R is neither the neighbour of P nor V.
- iv. S is the neighbour of P but not of W.



Therefore from the diagram it is known that R stands between S and T.

Question 81

Time taken for a journey is 50 minutes at 48 km/h speed. What should be the speed, if the journey time is reduced by 10 minute

- A 60 km/h
- B 80 km/h
- C 42 km/h
- D 76 km/h

Answer: A

Explanation:

Given,

$$\text{Time} = 50 \text{ minutes} = \frac{50}{60} \text{ hr} = \frac{5}{6} \text{ hr and}$$

$$\text{Speed} = 48 \text{ km/h}$$

We know that, Distance = S×T

$$\text{Distance} = 48 \times \frac{5}{6} = 40 \text{ km}$$

New time will be 10 minutes less, i.e., 50 - 10 = 40 minutes

$$\text{Therefore, Time} = \frac{40}{60} \text{ hr} = \frac{2}{3} \text{ hr}$$

Now we know,

$$\text{Speed} = \text{Distance/Time}$$

$$\text{New speed} = 40 \times \frac{3}{2} \text{ kmph} = 60 \text{ kmph}$$

Question 82

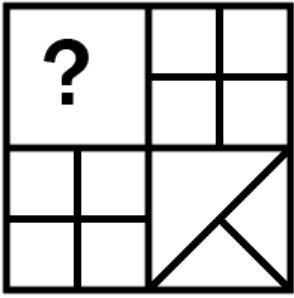
Which of the following countries in April has sent a team of climbers up Mount Everest to remeasure its height?

- A India
- B China
- C Russia
- D Nepal

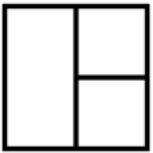
Answer: D

Question 83

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



A



B



C



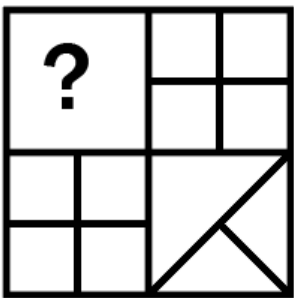
D



Answer: C

Explanation:

Given,



The two diagonal squares represents the mirror images.

Therefore the 4th square's mirror image should be in the 1st square.

from the options,



is the answer

Question 84

Complete the series.

9, 5.5, 7.5, 19, 84, (...)

A 621

B 688

C 652

D 695

Answer: B

Explanation:

Pattern of series,

$$(9 \times 0.5) + 1 = 5.5$$

$$(5.5 \times 1) + 2 = 7.5$$

$$(7.5 \times 2) + 4 = 19$$

$$(19 \times 4) + 8 = 84$$

$$(84 \times 8) + 16 = 688$$

therefore the answer is 688

Question 85

In which of these countries were the first Asian Games held?

A India

B China

C South Korea

D Japan

Answer: A

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Question 86

In which sport was Raghunandan Gokhale the first person to win the Dronacharya Award?

A Badminton

B Table-Tennis

C Kabaddi

D Chess

Answer: D

Question 87

When is 'National Energy Conservation Day' observed?

A 12 November

- B 06 October
- C 14 December
- D 02 October

Answer: C

Question 88

If 'Water' is called 'Food', 'Food' is called 'Tree', 'Tree' is called 'Sky', 'Sky' is called 'Well' and 'Well' is called 'Pond', which of the following would provide us fruits?

- A Sky
- B Well
- C Tree
- D Food

Answer: A

Explanation:

Given,

'Water' is called 'Food', 'Food' is called 'Tree', 'Tree' is called 'Sky', 'Sky' is called 'Well' and 'Well' is called 'Pond'.

Fruits are provided by tree.

here, as per the given statement 'Tree' is called 'Sky'. Therefore the answer is Sky.

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Question 89

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

$$7 + 10 \div 5 - 5 = 10$$

- A \div and +
- B \div and =
- C + and -
- D \div and -

Answer: C

Explanation:

We can interchange the symbols of the given equation $7 + 10 \div 5 - 5 = 10$ in three ways,

1. Interchanging \div and +, we get $7 \div 10 + 5 - 5 = 10$

$$\begin{aligned} \text{solving this equation, } 7 \div 10 + 5 - 5 &= \frac{7}{10} + 5 - 5 \\ &= \frac{7}{10} \\ &= 0.7 \end{aligned}$$

0.7 is not equal to 10. so this is not the answer.

2. Interchanging \div and -, we get $7 + 10 - 5 \div 5 = 10$

$$\begin{aligned} \text{solving this equation, } 7 + 10 - 5 \div 5 &= 7 + 10 - \frac{5}{5} \\ &= 7 + 10 - 1 \\ &= 16 \end{aligned}$$

16 is not equal to 10. so this is not the answer.

3. Interchanging $+$ and $-$, we get $7 - 10 \div 5 + 5 = 10$

solving this equation, $7 - 10 \div 5 + 5 = 7 - \frac{10}{5} + 5$

$$= 7 - 2 + 5$$

$$= 10$$

10 is not equal to 10. LHS \neq RHS. so, $+$ and $-$ is the answer.

Question 90

How many atoms does a molecule of oxygen contain?

A 3

B 4

C 5

D 2

Answer: D

Question 91

Find the value of $\sin 120^\circ \sin 240^\circ \sin 270^\circ$

A $-\frac{1}{2}$

B $-\frac{1}{8}$

C $\frac{3}{4}$

D $\frac{1}{8}$

Answer: C

Explanation:

$$\sin 120^\circ \sin 240^\circ \sin 270^\circ$$

Trigonometric identities:

$$\sin(\pi - x) = \sin x$$

$$\sin(\pi + x) = -\sin x$$

$$\sin(2\pi - x) = -\sin x$$

$$\sin 120^\circ = \sin(\pi - 60^\circ) = \sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\sin 240^\circ = \sin(\pi + 60^\circ) = -\sin 60^\circ = -\frac{\sqrt{3}}{2}$$

$$\sin 270^\circ = \sin(2\pi - 90^\circ) = -\sin 90^\circ = -1$$

$$\sin 120^\circ \sin 240^\circ \sin 270^\circ = \frac{\sqrt{3}}{2} \times -\frac{\sqrt{3}}{2} \times -1 = \frac{-3}{4}$$

Therefore, Option C is correct.

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Question 92

When brake is applied in a bicycle, the brake pad touches the wheel. Now what stops the movement of the wheel?

A The magnetic force between the pad and the rim

B The electrostatic force between the pad and the rim

- C The friction between the pad and the rim
- D The brake pad falls down due to gravity and stops movement

Answer: C

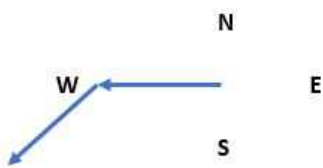
Question 93

Bala is facing west and moves forward; then he turns 45° to his left. Which direction is he facing now?

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

Answer: C

Explanation:



Moving forward, Bala will still be facing west. While turning 45° to his left, he will be facing south-west.

Question 94

Evaluate: 1299×1299

- A 1538501
- B 1687401
- C 1683701
- D 1685701

Answer: B

Explanation:

$$\begin{aligned} 1299 \times 1299 &= (1300 - 1) \times (1300 - 1) \\ &= 1300^2 + 1 - 2 \times 1300 \\ &= 1690000 + 1 - 2600 = 1687401 \end{aligned}$$

Therefore, Option B is correct

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Question 95

The radius of a circular wheel is $7/4$ m. How many revolutions does the wheel make to cover 22 km?

- A 100
- B 2000
- C 4000
- D 1000

Answer: B

Explanation:

$$r = 7/4 \text{ m}$$

$$s = 22 \text{ km} = 22000 \text{ m}$$

$$\text{Distance covered in 1 revolution} = 2\pi r = 2 \times \frac{22}{7} \times 4 = 11 \text{ m}$$

$$\text{Number of revolutions for 22000 m} = \frac{22000}{11} = 2000 \text{ m}$$

Question 96

The electrons present in the _____ of an atom are known as the valence electrons.

- A First shell
- B Penultimate shell
- C Second shell
- D Outermost shell

Answer: D

Question 97

The Simple Interest on some amount of money for 2 years is Rs.400. If 'r' is 4% more, then the Simple Interest will be Rs.400 more. What is the original amount of money?

- A Rs.5000
- B Rs.4000
- C Rs.10000
- D Rs.12000

Answer: A

Explanation:

Simple Interest (s) = Rs.400

Time (n) = 2 years

Principal (P) and Rate (r)

$$s = 400 = \frac{P \times 2 \times r}{100}$$

$$s' = 400 + 400 = 800 = \frac{P \times 2 \times (r+4)}{100}$$

Comparing LHS, $2s = s'$.

$$\text{i.e. } r + 4 = 2r$$

$$r = 4$$

$$P = \frac{400 \times 100}{2 \times 4} = \text{Rs. } 5000$$

Therefore, Option A is correct.

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Question 98

If P, Q and R can complete a job in 24, 16 and 12 days respectively, how long will they take to complete the job working together?

- A 5 days 12 hours
- B 5 days

C 6 days

D 5 days 8 hours

Answer: D

Explanation:

Let n be the time required to complete the work in days.

Time required by P = 24 days \Rightarrow Efficiency of P = $1/24$

Time required by Q = 16 days \Rightarrow Efficiency of P = $1/16$

Time required by R = 12 days \Rightarrow Efficiency of R = $1/12$

Time \times Efficiency = Work

$$n\left(\frac{1}{24} + \frac{1}{16} + \frac{1}{12}\right) = 1$$

$$\frac{1}{n} = \frac{2+3+4}{48} = \frac{3}{16}$$

i.e $n = 16 / 3 = 5$ days, 8hrs

Therefore, Option D is correct.

Question 99

_____ is the richest source of Vitamin-C.

A Red meat

B Milk

C Lemon

D Pulses

Answer: C

Question 100

Solder is an alloy of-

A Lead and tin

B Iron and lead

C Copper and tin

D Copper and aluminium

Answer: A

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