



SSC CHSL 8 Feb 2017 Afternoon Shift

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Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/number from the given alternatives.

School : Teacher :: Hospital : ?

- A Clerk
- B Doctor
- C Student
- D Patient

Answer: B

Explanation:

A teacher teaches in a school, similarly a doctor operates in a hospital.

=> Ans - (B)

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Question 2

Select the related word/letters/number from the given alternatives.

JY : 35 :: RT : ?

- A 48
- B 38
- C 35
- D 24

Answer: B

Explanation:

Expression = JY : 35 :: RT : ?

Numerical values of the respective letters are added.

Eg :- J = 10, Y = 25 \equiv 10 + 25 = 35

Similarly, R = 18, T = 20 \equiv 18 + 20 = 38

=> Ans - (B)

Question 3

Select the related word/letters/number from the given alternatives.

AD : N :: BD : ?

- A P
- B X
- C Y
- D Z

Answer: B

Explanation:

Expression = $AD : N :: BD : ?$

Numerical values of the corresponding alphabets are concatenated.

Eg :- $A = 1, D = 4 \equiv 14 = N$

Similarly, $B = 2, D = 4 \equiv 24 = X$

=> Ans - (B)

Question 4

Select the related word/letters/number from the given alternatives.

$97 : 2 :: 84 : ?$

A 4

B 3

C 6

D 5

Answer: A

Explanation:

Expression = $97 : 2 :: 84 : ?$

The pattern followed is that the second number is the difference of the digits of the first number.

Eg :- $9 - 7 = 2$

Similarly, $8 - 4 = 4$

=> Ans - (A)

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Question 5

Select the odd word/letters/number/number pair from the given alternatives.

A Niece

B Nephew

C Aunt

D Sister

Answer: B

Explanation:

Niece, aunt and sister are all females while nephew is a male, hence nephew is the odd one out.

=> Ans - (B)

Question 6

Select the odd word/letters/number/number pair from the given alternatives.

A AE

B IO

C UA

D GH

Answer: D

Explanation:

Apart from GH, all other pairs constitutes of vowels, hence GH is the odd one out.

=> Ans - (D)

Question 7

Select the odd word/letters/number/number pair from the given alternatives.

A 17

B 23

C 29

D 33

Answer: D

Explanation:

Apart from 33, all are prime numbers, hence 33 which is a composite number is the odd one out.

=> Ans - (D)

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Question 8

Select the odd word/letters/number/number pair from the given alternatives.

A 7214

B 3618

C 3519

D 9436

Answer: C

Explanation:

Apart from 3519, all are even numbers, hence 3519 is the odd one out.

=> Ans - (C)

Question 9

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

Glacier, Waterfall, River, ?

A Sea

B Rivulet

C Mountain

D Ice

Answer: A

Explanation:

Glacier, waterfall and river all get merged with sea.

= Glacier, Waterfall, River, Sea

=> Ans - (A)

Question 10

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:

(I) All shawls are carpets.

(II) No carpet is a pullover.

Conclusion:

(I) No shawls are pullovers.

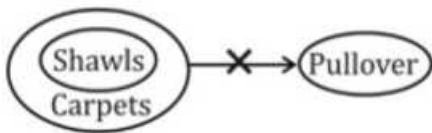
(II) All carpets are shawls.

- A Conclusion I follows
- B Conclusion II follows
- C Neither I nor II follows
- D Both I and II follows

Answer: A

Explanation:

The venn diagram for above statements is :



Conclusion:

(I) No shawls are pullovers = true

(II) All carpets are shawls = false

Thus, only conclusion I follows

=> Ans - (A)

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Question 11

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
?, HI, OP, WX

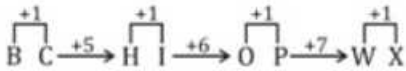
- A AB
- B BC
- C DE
- D EF

Answer: B

Explanation:

Expression : ?, HI, OP, WX

The pattern followed is :



Thus, missing term = BC

=> Ans - (B)

Question 12

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
144, 256, 400, ?

A 441

B 576

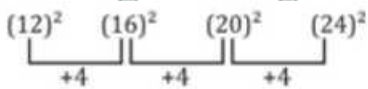
C 625

D 289

Answer: B

Explanation:

The pattern followed is :



Thus, $24^2 = 576$

=> Ans - (B)

Question 13

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
5, 7.5, 12.5, 22.5, ?

A 42.5

B 42

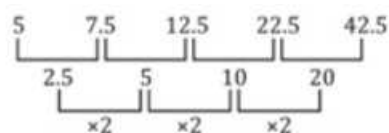
C 44

D 43.5

Answer: A

Explanation:

The pattern followed is :



Thus, missing number = 42.5

=> Ans - (A)

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Question 14

Vineet is taller than Raman but shorter than Jyoti. Sumit is the shortest. Deepak is taller than Sumit but shorter than Raman. Who is the tallest?

- A Jyoti
- B Raman
- C Vineet
- D Deepak

Answer: A

Explanation:

Vineet is taller than Raman but shorter than Jyoti, => Jyoti > Vineet > Raman.

Also, Sumit is the shortest.

Deepak is taller than Sumit but shorter than Raman, => Raman > Deepak > Sumit.

Thus, combining above statements, we get : **Jyoti > Vineet > Raman > Deepak > Sumit**

∴ Jyoti is the tallest.

=> Ans - (A)

Question 15

Arrange the given words in the sequence in which they occur in the dictionary.

i. Rainbow ii. Rancour iii. Rattle iv. Rainy

- A i, iii, ii, iv
- B i, iv, ii, iii
- C i, iv, iii, ii
- D ii, i, iv, iii

Answer: B

Explanation:

As per the order of dictionary :

= Rainbow -> Rainy -> Rancour -> Rattle

≡ i, iv, ii, iii

=> Ans - (B)

Question 16

In a certain code language, "BORROW" is written as "769965" and "BOMB" is written as "7647". How is "WOMB" written in that code language?

- A 5647
- B 5467
- C 5677
- D 5776

Answer: A

Explanation:

The codes for each letter is given :

W -> 5

O -> 6

M -> 4

B -> 7

Thus, WOMB : 5647

=> Ans - (A)

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Question 17

In the following question, select the missing number from the given series

5	15	10
4	17	9
10	?	10

A 11

B 12

C 15

D 10

Answer: D

Explanation:

The sum of three digits in the horizontal row is equal to 30

$$1) 5 + 15 + 10 = 30$$

$$2) 4 + 17 + 9 = 30$$

$$3) 10 + x + 10 = 30 ; x = 10$$

Hence, option D is the correct answer.

Question 18

If "A" denotes "multiplied by", "B" denotes "subtracted from", "C" denotes "added to" and "D" denotes "divided by", then
7 B 17 C 88 D 11 A 6 = ?

A 27

B 28

C 38

D 26

Answer: C

Explanation:

Expression : 7 B 17 C 88 D 11 A 6 = ?

$$\equiv 7 - 17 + 88 \div 11 \times 6$$

$$= -10 + (8 \times 6)$$

$$= -10 + 48 = 38$$

=> Ans - (C)

Question 19

Which set of letters when sequentially placed at the gaps in the given letter series shall complete it?

A_BC_BBC_BB_

A BAAC

B BBBC

C BABA

D ABBC

Answer: A

Explanation:

The pattern followed is that in groups of 4, the term 'ABBC' is repeated.

= ABBC ABBC ABBC

=> Ans - (A)

SSC CHSL Study Material

Question 20

Rahul moves 5 km towards south and then takes a left turn to move 5 km more. Again, he takes a left turn and moves 10 km and finally, he moves 5 km towards west. In which direction is he now from his initial position?

A West

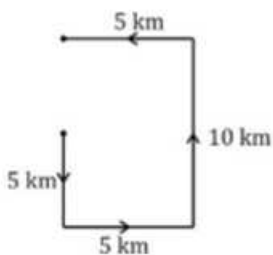
B East

C South

D North

Answer: D

Explanation:



Rahul moves 5 km towards south and then takes a left turn to move 5 km towards east. Again, he takes a left turn and moves 10 km northwards and finally, stops after moving 5 km towards west.

Thus, he is North from his initial position.

=> Ans - (D)

Question 21

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of two matrix-I are numbered from 0 to 4 and that of matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'N' can be represented by 21, 43 etc. and 'R' can be represented by 66, 57 etc. Similarly, you have to identify the set of the word 'JOIN'.

Matrix - I

	0	1	2	3	4
0	J	H	J	K	A
1	E	J	O	J	O
2	J	N	P	O	S
3	T	F	O	H	D
4	Q	O	W	N	F

Matrix - II

	5	6	7	8	9
5	X	Z	R	P	A
6	Z	R	I	I	S
7	I	C	F	K	N
8	N	I	G	N	M
9	M	V	N	P	N

A 00,43,32,79

B 02,67,14,57

C 11,32,66,79

D 20,23,86,97

Answer: D

Explanation:

(A) : 00,43,32,79 = JNON

(B) : 02,67,14,57 = JIOR

(C) : 11,32,66,79 = JORN

(D) : 20,23,86,97 = JOIN

=> Ans - (D)

Question 22

Johnny's father is the brother-in-law of Nisha's only sister. How is Johnny related to Nisha?

A Son

B Grandson

C Father

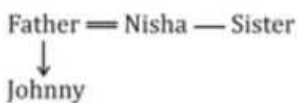
D Cousin

Answer: A

Explanation:

Johnny's father is the brother-in-law of Nisha's only sister.

Relation is :

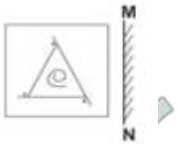


Thus, Johnny is Nisha's son.

=> Ans - (A)

Question 23

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



A



B



C



D



Answer: B

Explanation:

A vertical mirror is placed, so the object on the left will appear right in reverse position and vice-versa.

So the curl in the middle will be reversed, thus the last two options will be eliminated.

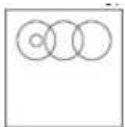
Also, in the question figure, the rightmost line is extended on both sides, hence it will appear at left side, hence second option is the right image.

=> Ans - (B)

Question 24

The diagram that identify best represents the relationship among the given classes.
Doctor, Smoker, Indian, Non-Smoker

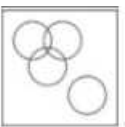
A



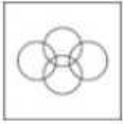
B



C



D



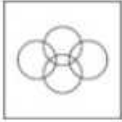
Answer: D

Explanation:

A doctor can be a smoke, a non smoker or and Indian. Similarly, an Indian can be all of the three.

But a smoker cannot be a non smoker.

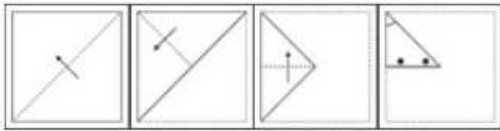
Thus, the venn diagram that best describes above relationship is :



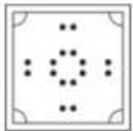
=> Ans - (D)

Question 25

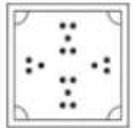
A piece of paper is folded and punched as shown below in the question figures, indicate how it will appear when opened.



A



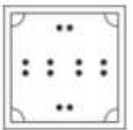
B



C



D



Answer: A

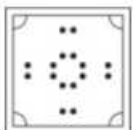
Explanation:

When the paper is unfolded first to the bottom, two dots will appear similarly.

When the paper is unfolded next to the top, four dots will appear similarly at the top.

When the paper is unfolded again to the bottom, four dots on the right side and four dots on the bottom side will appear.

∴ When the paper is unfolded it appears as shown below



Hence, the correct answer is Option A

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Which programming language is developed by James A Gosling?

- A ASP.Net
- B Java
- C PHP
- D C#

Answer: B

Explanation:

James A Gosling is known as the father of the **Java** programming language as he developed this programming language.

=> Ans - (B)

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Question 27

Kaleidoscope was invented by _____.

- A John Barber
- B Tim Berners-Lee
- C Alan Blumlein
- D David Brewster

Answer: D

Explanation:

Kaleidoscope was invented by the Scottish physicist **Sir David Brewster** in 1816.

=> Ans - (D)

Question 28

The nitrogenous waste of Human Beings is

- A Ammonia
- B Urea
- C Ammonium Nitrate
- D Uric Acid

Answer: B

Explanation:

The major nitrogenous waste product in Human Beings is **Urea**.

=> Ans - (B)

Question 29

Haustoria or sucking roots are found in which of the following?

- A Wheat
- B Mango
- C Chestnut
- D Cuscuta

Answer: D

Explanation:

Cuscuta is total stem parasite that has Haustoria or sucking roots.

=> Ans - (D)

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Question 30

Equus Asinus is the scientific name of

- A Donkey
- B Cow
- C Deer
- D Kangaroo

Answer: A

Explanation:

Equus Asinus is the scientific name of **Donkey**.

=> Ans - (A)

Question 31

_____ is an anaesthetic agent.

- A Acetylene
- B Glycol
- C Diethylether
- D Ethylene

Answer: C

Explanation:

Diethylether (or ether) is an anaesthetic agent for blocking pain.

=> Ans - (C)

Question 32

_____ is used for making chemical apparatus like beakers, flasks etc.

- A Potash glass
- B Hard glass
- C Soda glass
- D Jena glass

Answer: B

Explanation:

Hard Glass is used for making chemical apparatus like beakers, flasks etc.

=> Ans - (B)

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Question 33

Rashtrapati Bhavan was built in _____.

- A 1852
- B 1912
- C 1947
- D 1986

Answer: B

Explanation:

Rashtrapati Bhavan was built in **1912**

=> Ans - (B)

Question 34

Santhara is a religious ritual of _____ community.

- A Sikhs
- B Jews
- C Jain
- D Buddhists

Answer: C

Explanation:

Santhara (fast to death) is a religious ritual of **Jain** community.

=> Ans - (C)

Question 35

If for a perfectly competitive firm, price is Rs. 60, output is 300 units, average variable costs are Rs. 18, and average total costs are Rs. 36. The firm's profits are equal to

- A Rs. 5400
- B Rs. 3600

C Rs. 7200

D Rs. 1800

Answer: C

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Question 36

Which of the following will cause an increase in demand for a good?

A an increase in income if the good is an inferior goods

B a decrease in the price of the goods

C a decrease in income if the good is a normal goods

D an increase in the price of its substitute goods

Answer: D

Explanation:

Increasing the price of its substitute goods will increase the demand for a good. While, a decrease in the price of the goods cause an increase in quantity demanded, not an increase in demand.

=> Ans - (D)

Question 37

The ionosphere overlaps which two layers of the atmosphere?

A Troposphere and Mesosphere

B Mesosphere and Stratosphere

C Ionosphere and Homosphere

D Exosphere and Thermosphere

Answer: D

Explanation:

The ionosphere overlaps **Exosphere and Thermosphere** in the atmosphere.

=> Ans - (D)

Question 38

Carcinogenic chemicals cause

A Heart diseases

B Diabetes

C Cancer

D Asthma

Answer: C

Explanation:

Carcinogenic chemicals cause **Cancer**.

=> Ans - (C)

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Question 39

First country to appoint Lokpal or equivalent to a Lokpal is _____.

- A Brazil
- B Burma
- C Sweden
- D India

Answer: C

Explanation:

Sweden was the first country to appoint Lokpal or equivalent to a Lokpal.

=> Ans - (C)

Question 40

Which are the oldest mountains in India?

- A Western Ghats
- B Satpura Range
- C Aravallis
- D Eastern Ghats

Answer: C

Explanation:

The **Aravalli Range** are the oldest fold mountains in India. The Appalachian Mountains are oldest in the world.

=> Ans - (C)

Question 41

Which country is the largest producer of Rice?

- A Brazil
- B China
- C United States
- D India

Answer: B

Explanation:

China is the largest producer of Rice and India is at second position.

=> Ans - (B)

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Question 42

Who built Jama Masjid?

- A Guru Ramdas
- B Shah Jahan
- C Rao Jodhaji
- D Mahatma Gandhi

Answer: B

Explanation:

Mughal emperor **Shah Jahan** built the Jama Masjid between 1644 and 1656.

=> Ans - (B)

Question 43

Battle of Haldighati was fought in the year _____.

- A 1764
- B 1526
- C 1576
- D 1857

Answer: C

Explanation:

The Battle of Haldighati was fought on **18 June 1576** between cavalry and archers supporting the Rana of Mewar, Maharana Pratap and the Mughal emperor Akbar's forces in Rajasthan.

=> Ans - (C)

Question 44

First Indian woman to get Bharat Ratna.

- A Indira Gandhi
- B Vijay Laxmi Pandit
- C Mother Teresa
- D Leela Seth

Answer: A

Explanation:

Indira Gandhi was the first woman to be awarded with the highest civilian award, Bharat Ratna of India in the year 1971 for her great involvement in the field of Public Affairs of the state, Uttar Pradesh.

=> Ans - (A)

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Question 45

When ice floats on water, its _____ part remains outside the water.

- A 0.5
- B 0.3
- C 0.1
- D 1

Answer: C

Explanation:

$(\frac{1}{10})^{th}$ i.e. **0.1** part of ice remains outside water when ice floats on water.

=> Ans - (C)

Question 46

Instrument for measuring low temperatures is called

- A Diagonometer
- B Cryometer
- C Chromatoptometer
- D Thermometer

Answer: B

Explanation:

A **cryometer** is used to measure low temperatures.

=> Ans - (B)

Question 47

In Lok Sabha the total number of members from states is

- A 630
- B 530
- C 430
- D 330

Answer: B

Explanation:

In Lok Sabha, there are upto **530** members to represent the states.

=> Ans - (B)

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Question 48

At the time of emergency in 1975, who was serving as the President of India?

- A Morarji Desai
- B Fakhruddin Ali Ahmed
- C V P Singh

D Indira Gandhi

Answer: B

Explanation:

The Indian Emergency of 25th June 1975-21st March 1977 was a 21 month period, when President was **Fakhruddin Ali Ahmed**.

=> Ans - (B)

Question 49

Kevin Durant plays which International Sport?

A Golf

B Baseball

C Basketball

D Boxing

Answer: C

Explanation:

Kevin Durant is an American professional **basketball** player for the Golden State Warriors.

=> Ans - (C)

Question 50

Who is the author of the book -"My Experiments with Truth"?

A Aristotle

B Winston Churchill

C Jarnes Morris

D Mahatma Gandhi

Answer: D

Explanation:

My Experiments with Truth is the autobiography of **Mahatma Gandhi** covering his life from early childhood through to 1921.

=> Ans - (D)

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Mathematics

Instructions

For the following questions answer them individually

Question 51

If $3.352 - (9.759 - x) - 19.64 = 7.052$, then what is the value of x?

A -6.181

B 13.581

C 33.099

D 39.803

Answer: C

Explanation:

$$\text{Expression : } 3.352 - (9.759 - x) - 19.64 = 7.052$$

$$\Rightarrow 3.352 - 9.759 + x = 7.052 + 19.64$$

$$\Rightarrow x = 26.692 + 9.759 - 3.352$$

$$\Rightarrow x = 36.451 - 3.352$$

$$\Rightarrow x = 33.099$$

\Rightarrow Ans - (C)

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Question 52

Square of $(7 - 4x)$ is

A $16x^2 - 28x + 49$

B $49 - 28x - 16x^2$

C $49 - 56x - 16x^2$

D $16x^2 - 56x + 49$

Answer: D

Explanation:

To find : $(7 - 4x)^2$

$$= (7)^2 + (-4x)^2 + 2(7)(-4x)$$

$$= 16x^2 + 49 - 56x$$

\Rightarrow Ans - (D)

Question 53

On a certain principal if the Simple interest for two years is Rs 3000 and Compound interest for the two years is Rs 3225, what is the rate of Interest?

A 7.5 percent

B 30 percent

C 15 percent

D 22.5 percent

Answer: C

Explanation:

Let the principal amount = Rs. $100x$ and rate of interest = $r\%$

Time period = 2 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100} = 3000$$

$$\Rightarrow \frac{100x \times r \times 2}{100} = 3000$$

$$\Rightarrow 2rx = 3000$$

$$\Rightarrow x = \frac{3000}{2r} = \frac{1500}{r}$$

$$\text{Compound Interest} = P\left[\left(1 + \frac{r}{100}\right)^T - 1\right] = 3225$$

$$\Rightarrow 100x\left[\left(1 + \frac{r}{100}\right)^2 - 1\right] = 3225$$

$$\Rightarrow 100x\left[\left(1 + \frac{r^2}{100^2} + 2\frac{r}{100}\right) - 1\right] = 3225$$

$$\Rightarrow \left(100 \times \frac{1500}{r}\right)\left[\frac{r^2}{10000} + \frac{2r}{100}\right] = 3225$$

$$\Rightarrow 15r + 3000 = 3225$$

$$\Rightarrow 15r = 3225 - 3000 = 225$$

$$\Rightarrow r = \frac{225}{15} = 15\%$$

\Rightarrow Ans - (C)

Question 54

At 10% discount the selling price of a toaster is Rs 18000, what is the selling price if the discount is 37.5%?

A Rs 7812.5

B Rs 12500

C Rs 8593.75

D Rs 15468.75

Answer: B

Explanation:

Let Marked Price of the oven = Rs. $100x$

If discount is 10%, Selling price = $\frac{100-10}{100} \times 100x = 90x$

According to ques, $\Rightarrow 90x = 18000$

$$\Rightarrow x = \frac{18000}{90} = 200$$

If discount is 37.5%, selling price = $\frac{100-37.5}{100} \times 100x = 62.5x$

$$= 62.5 \times 200 = \text{Rs. } 12,500$$

\Rightarrow Ans - (B)

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Question 55

An engineering student has to secure 24% marks to pass. He gets 61 and fails by 29 marks. What is the maximum marks for that exam?

A 375 marks

B 400 marks

C 425 marks

D 450 marks

Answer: A

Explanation:

Let maximum marks = $100x$

$$\Rightarrow \text{Passing marks} = \frac{24}{100} \times 100x = 24x$$

According to ques,

$$\Rightarrow 24x - 29 = 61$$

$$\Rightarrow 24x = 61 + 29 = 90$$

$$\Rightarrow x = \frac{90}{24} = \frac{15}{4}$$

$$\therefore \text{Maximum marks} = 100 \times \frac{15}{4} = 25 \times 15 = 375$$

\Rightarrow Ans - (A)

Question 56

If $7 + 3x \geq 5 - x/2$ and $2x + 3 \leq 5 - 2x$; then x can take which of the following values?

A 0

B 1

C 2

D -1

Answer: A

Explanation:

Expression 1 : $7 + 3x \geq 5 - x/2$

$$\Rightarrow 3x + \frac{x}{2} \geq 5 - 7$$

$$\Rightarrow \frac{7x}{2} \geq -2$$

$$\Rightarrow x \geq \frac{-4}{7} \text{ -----(i)}$$

Expression 2 : $2x + 3 \leq 5 - 2x$

$$\Rightarrow 2x + 2x \leq 5 - 3$$

$$\Rightarrow 4x \leq 2$$

$$\Rightarrow x \leq \frac{2}{4} = \frac{1}{2} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-4}{7} \leq x \leq \frac{1}{2}$

Thus, the only possible value that x can take among the given options = 0

\Rightarrow Ans - (A)

Question 57

The third proportional of two numbers 9 and 15 is

A 21

B 30

C 25

D 45

Answer: C

Explanation:

Three numbers a, b, c are in proportion iff $b^2 = ac$ where b is the mean proportion and c is the third proportion

The given numbers are 9 and 15

$$\Rightarrow (15)^2 = 9 \times c$$

$$\Rightarrow c = \frac{15 \times 15}{9}$$

$$\Rightarrow c = 5 \times 5 = 25$$

\Rightarrow Ans - (C)

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Question 58

What will be the roots of the quadratic equation $x^2 - 25x + 156 = 0$?

A 12, 13

B 25, 1

C 9, 16

D 31, 6

Answer: A

Explanation:

$$\text{Equation : } x^2 - 25x + 156 = 0$$

$$\Rightarrow x^2 - 12x - 13x + 156 = 0$$

$$\Rightarrow x(x - 12) - 13(x - 12) = 0$$

$$\Rightarrow (x - 12)(x - 13) = 0$$

$$\Rightarrow x = 12, 13$$

\Rightarrow Ans - (A)

Question 59

If a cone of radius 3.5 cm and height 9.6 cm is melted and constructed into a cylinder of the same radius, what will be the height of this cylinder? (Take $\pi = 22/7$)

A 3.2 cm

B 6.4 cm

C 1.6 cm

D 4.8 cm.

Answer: A

Explanation:

Let height of cylinder = h cm and radius, $r = 3.5$ cm

Height of cone, $H = 9.6$ cm and Radius, $R = 3.5$ cm

Volume of cylinder = Volume of cone

$$\Rightarrow \pi r^2 h = \frac{1}{3} \pi R^2 H$$

$$\Rightarrow (3.5)^2 \times h = \frac{1}{3} \times (3.5)^2 \times 9.6$$

$$\Rightarrow h = \frac{9.6}{3} = 3.2 \text{ cm}$$

\Rightarrow Ans - (A)

Question 60

Which of the following is not a quadratic equation?

A $3x(x + 5) - 11 = 2x(x - 2) + 6$

B $4x(x + 3) + 7 = 4x(x - 11) + 9$

C $x(x + 2) - 15 = x(2x - 5) + 11$

D $4x^2 - 6x - 9 = 0$

Answer: B

Explanation:

(A) : $3x(x + 5) - 11 = 2x(x - 2) + 6$

$\Rightarrow 3x^2 + 15x - 11 = 2x^2 - 4x + 6$

$\Rightarrow x^2 + 19x - 17 = 0$

(B) : $4x(x + 3) + 7 = 4x(x - 11) + 9$

$\Rightarrow 4x^2 + 12x + 7 = 4x^2 - 44x + 9$

$\Rightarrow 56x - 2 = 0$

(C) : $x(x + 2) - 15 = x(2x - 5) + 11$

$\Rightarrow x^2 + 2x - 15 = 2x^2 - 5x + 11$

$\Rightarrow x^2 - 7x + 26 = 0$

(D) : $4x^2 - 6x - 9 = 0$

\therefore Option (B) is not a quadratic equation.

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Question 61

A shopkeeper by selling 9 Rolex watches, earns a profit equal to the selling price of 4 Rolex watches. His profit percentage is

A 44.4 percent

B 88.8 percent

C 80 percent

D 8.8 percent

Answer: C

Explanation:

Let cost price of a watch = $Rs.x$

Selling price of a watch = $Rs.y$

\Rightarrow Selling price of 4 watches = $Rs.4y$

According to ques, $\Rightarrow 9(y - x) = 4y$

$\Rightarrow 9y - 9x = 4y$

$\Rightarrow 5y = 9x$

$\Rightarrow \frac{x}{y} = \frac{5}{9}$

Let Cost price, $x = 5$ and selling price, $y = 9$

\therefore Profit % = $\frac{y-x}{x} \times 100$

$$= \frac{9-5}{5} \times 100$$

$$= 4 \times 20 = 80\%$$

=> Ans - (C)

Question 62

A circle is inscribed in a square. If the length of the diagonal of the square is $14\sqrt{2}$ cm, what is the area (in sq cm) of the circle?

A 308

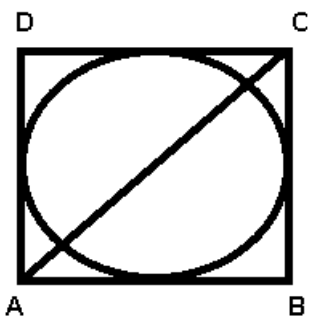
B 462

C 154

D 616

Answer: C

Explanation:



$$\text{Length of } AC = 14\sqrt{2} \text{ cm}$$

Let side of square = x cm = Diameter of circle

$$\text{In } \triangle ABC, \Rightarrow (AB)^2 + (BC)^2 = (AC)^2$$

$$\Rightarrow (x)^2 + (x)^2 = (14\sqrt{2})^2$$

$$\Rightarrow 2x^2 = 392$$

$$\Rightarrow x^2 = \frac{392}{2} = 196$$

$$\Rightarrow x = \sqrt{196} = 14 \text{ cm}$$

$$\text{Thus radius of circle} = \frac{14}{2} = 7 \text{ cm}$$

$$\therefore \text{Area of circle} = \pi r^2$$

$$= \frac{22}{7} \times (7)^2 = 22 \times 7 = 154 \text{ cm}^2$$

=> Ans - (C)

Question 63

In $\triangle PQR$, S and T are points on side PQ and PR respectively. ST is parallel to QR. If S divides PQ in the ratio 4:1 and length of QR is 15 cm, what is the length of ST?

A 3 cm

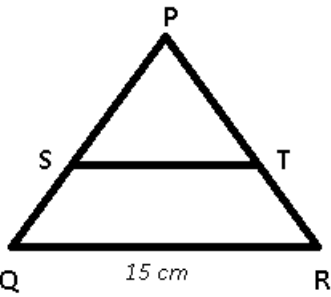
B 5 cm

C 12 cm

D 10 cm

Answer: C

Explanation:



It is given that $PS : SQ = 4 : 1$ and $QR = 15$ cm

Let $PS = 4$ cm and $SQ = 1$ cm

ST is parallel to QR

$$\Rightarrow \frac{PS}{PQ} = \frac{ST}{QR}$$

$$\Rightarrow \frac{4}{4+1} = \frac{ST}{15}$$

$$\Rightarrow \frac{4}{5} = \frac{ST}{15}$$

$$\Rightarrow ST = 4 \times 3 = 12 \text{ cm}$$

\Rightarrow Ans - (C)

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Question 64

If $(1 + \cos A) + \frac{1}{(1 - \cos A)} = x$, then value of x is

A $2\sec^2 A$

B $2\operatorname{cosec} A$

C $2\operatorname{cosec}^2 A$

D $2\sec A$

Answer: C

Explanation:

Expression: $(1 + \cos A) + \frac{1}{(1 - \cos A)}$

$$= \frac{(1 - \cos A) + (1 + \cos A)}{(1 + \cos A)(1 - \cos A)}$$

$$= \frac{2}{1 - \cos^2 A} = \frac{2}{\sin^2 A}$$

$$= 2\operatorname{cosec}^2 A$$

\Rightarrow Ans - (C)

Question 65

Of the 3 numbers whose average is 64, the first number is $\frac{1}{3}$ times the sum of other 2. The first number is

A 72

B 32

C 96

D 48

Answer: D

Explanation:

Let the three numbers be x, y, z

Sum of three numbers = $x + y + z = 64 \times 3 = 192$

According to ques, $\Rightarrow x = \frac{1}{3} \times (y + z)$

$$\Rightarrow x = \frac{1}{3} \times (192 - x)$$

$$\Rightarrow 3x = 192 - x$$

$$\Rightarrow 3x + x = 4x = 192$$

$$\Rightarrow x = \frac{192}{4} = 48$$

\Rightarrow Ans - (D)

Question 66

If $\cos 45^\circ - \sec 30^\circ = x$, then value of x is

A $\frac{(1+\sqrt{2})}{2}$

B $\frac{(2\sqrt{2}-\sqrt{3})}{2}$

C $\frac{(\sqrt{3}-2\sqrt{2})}{\sqrt{6}}$

D $\frac{4}{\sqrt{3}}$

Answer: C

Explanation:

Expression : $\cos 45^\circ - \sec 30^\circ = x$

$$= \frac{1}{\sqrt{2}} - \frac{2}{\sqrt{3}}$$

$$= \frac{\sqrt{3}-2\sqrt{2}}{\sqrt{6}}$$

\Rightarrow Ans - (C)

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Question 67

Ajit is two times as good a workman as Badrinath and therefore is able to finish a job in 30 days less than Badrinath. Working together, they can do it in

A 10 days

B 30 days

C 15 days

D 20 days

Answer: D

Explanation:

Ratio of times taken by Ajit and Badrinath = 1 : 2

The time difference is $(2 - 1)$ 1 day while Badrinath take 2 days and Ajit takes 1 day.

If difference of time is 1 days, Badrinath takes 2 days.

If difference of time is 30 days, Badrinath takes $= \frac{2}{1} \times 30 = 60$ days

So, Ajit takes 30 days

Ajit's 1 day's work $= \frac{1}{30}$

Badrinath's 1 day's work $= \frac{1}{60}$

(Ajit + Badrinath)'s 1 day's work together $= \frac{1}{30} + \frac{1}{60} = \frac{3}{60} = \frac{1}{20}$

\therefore Ajit and Badrinath together can do the work in = 20 days

\Rightarrow Ans - (D)

Question 68

If $\cot(A/2) = x$, then x is equal to

- A $\tan A / (1 + \sec A)$
- B $1 / (\sec A + \cot A)$
- C $\tan A / (1 + \operatorname{cosec} A)$
- D $1 / (\operatorname{cosec} A - \cot A)$

Answer: D

Explanation:

Using double angle formula, we know that $\cos(2\theta) = \cos^2\theta - \sin^2\theta$

$$\Rightarrow \cos(2\theta) = (1 - \sin^2\theta) - \sin^2\theta$$

$$\Rightarrow \cos(2\theta) = 1 - 2\sin^2\theta$$

Replacing θ by $\frac{A}{2}$, we get :

$$\Rightarrow \cos A = 1 - 2\sin^2\left(\frac{A}{2}\right)$$

$$\Rightarrow 2\sin^2\left(\frac{A}{2}\right) = 1 - \cos A$$

$$\Rightarrow \sin^2\left(\frac{A}{2}\right) = \frac{(1 - \cos A)}{2}$$

$$\Rightarrow \sin\left(\frac{A}{2}\right) = \sqrt{\frac{(1 - \cos A)}{2}}$$

$$\text{Similarly, } \Rightarrow \cos\left(\frac{A}{2}\right) = \sqrt{\frac{(1 + \cos A)}{2}}$$

Now, to find : $\cot\left(\frac{A}{2}\right)$

$$= \cos\left(\frac{A}{2}\right) \div \sin\left(\frac{A}{2}\right)$$

$$= \sqrt{\frac{(1 + \cos A)}{2}} \div \sqrt{\frac{(1 - \cos A)}{2}}$$

$$= \sqrt{\frac{(1 + \cos A)}{2}} \times \sqrt{\frac{2}{(1 - \cos A)}}$$

$$= \sqrt{\frac{1 + \cos A}{1 - \cos A}}$$

$$= \sqrt{\frac{1 + \cos A}{1 - \cos A} \times \frac{1 - \cos A}{1 - \cos A}}$$

$$= \sqrt{\frac{1 - \cos^2 A}{(1 - \cos A)^2}} = \sqrt{\frac{\sin^2 A}{(1 - \cos A)^2}}$$

$$= \frac{\sin A}{1 - \cos A}$$

Dividing numerator and denominator by $(\sin A)$

$$= \frac{1}{\operatorname{cosec} A - \cot A}$$

=> Ans - (D)

Question 69

The length of the diagonal of a square is 10 cm. What is area of this square?

- A 50 sq cm
- B 100 sq cm
- C 200 sq cm
- D 25 sq cm

Answer: A

Explanation:

Let the side of square = s cm and diagonal, $d = 10$ cm

$$\Rightarrow (s)^2 + (s)^2 = (d)^2$$

$$\Rightarrow 2s^2 = (10)^2 = 100$$

$$\Rightarrow s^2 = \frac{100}{2} = 50$$

$$\therefore \text{Area of square} = s^2 = 50 \text{ cm}^2$$

=> Ans - (A)

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Question 70

A car travels a certain distance at 32 km/h and comes back at 68 km/h. What is the average speed for total journey?

- A 50 km/hr
- B 37.04 km/hr
- C 43.52 km/hr
- D 56.48 km/hr

Answer: C

Explanation:

Average speed of the journey is the harmonic mean of the speeds 32 and 68 km/hr

$$\text{Harmonic mean of two numbers 'x' and 'y'} = \frac{2xy}{x+y}$$

$$\text{Average speed} = \frac{2xy}{x+y}$$

$$= 2 \div \frac{68+32}{68 \times 32} = \frac{2 \times 68 \times 32}{100}$$

$$= \frac{4352}{100} = 43.52 \text{ km/hr}$$

=> Ans - (C)

Question 71

What is the slope of the line, parallel to the line $3x - 6y = 4$?

- A $-1/2$
- B $1/2$
- C 2
- D -2

Answer: B

Explanation:

Slope of line having equation : $ax + by + c = 0$ is $-\frac{a}{b}$

Slope of line passing $3x - 6y = 4$ is $-\frac{-3}{-6}$

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

Slope of two parallel lines is always equal.

=> Slope of the line parallel to the line having slope $1/2 = \frac{1}{2}$

=> Ans - (B)

Question 72

Refer the below data table and answer the following Question.

	Weight (kg)	Height in Meter
Aarti	68	1.65
Aarohi	55	1.61
Aarushi	71	1.68
Aasha	59	1.56

Who has the least weigh to height ratio ?

- A Aarti
- B Aarohi
- C Aarushi
- D Aasha

Answer: B

Explanation:

Ratio of weight to height

$$\text{Aarti : } \frac{68}{1.65} = 41.2$$

$$\text{Aarohi : } \frac{55}{1.61} = 34.1 \quad \text{[LEAST]}$$

$$\text{Aarushi : } \frac{71}{1.68} = 42.2$$

Aasha : $1.56 = 37.8$

=> Ans - (B)

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Question 73

Refer the below data table and answer the following Question.

Year	Company's % Profit
2011	25
2012	25
2013	10
2014	20
2015	20

What was the revenue of the company if its expenditure was Rs.275 crore in the year when its % profit was the least ?

- A 357.5
- B 330
- C 302.5
- D 275

Answer: C

Explanation:

Profit % was least in 2013 = 10%

Let revenue = Rs. x crore and expenditure = Rs. 275 crore

$$\Rightarrow \text{Profit \%} = \frac{x-275}{275} \times 100 = 10$$

$$\Rightarrow \frac{x-275}{275} = \frac{10}{100} = \frac{1}{10}$$

$$\Rightarrow x - 275 = \frac{275}{10} = 27.5$$

$$\Rightarrow x = 275 + 27.5 = 302.5$$

\therefore Revenue of the company = Rs. 302.5 crore

=> Ans - (C)

Question 74

The following table shows the number of children in each house of a society.

No of Children	No of Houses
0	4
1	13
2	10
3	5

What is the average number of children per house?

- A 2
- B 1.75
- C 1.5

D 1.25

Answer: C

Explanation:

Total number of houses = $4 + 13 + 10 + 5 = 32$

Total children = $(0 \times 4) + (1 \times 13) + (2 \times 10) + (3 \times 5)$

= $13 + 20 + 15 = 48$

\therefore Average number of children per house = $\frac{48}{32} = 1.5$

=> Ans - (C)

Question 75

Refer the below data table and answer the following Question.

Partners	Present % Share
Anand	15
Bassu	15
Chinmay	15
Dhiraj	20
Ejaz	35

If the company has issued six lakh shares between its five partners and if Basu offers to sell 15,000 of his shares to Ejaz, will have how many shares ?

A 240000 shares

B 210000 shares

C 225000 shares

D 195000 shares

Answer: C

Explanation:

Total shares = 6,00,000

Original shares with Ejaz = $\frac{35}{100} \times 600000 = 2,10,000$

If Basu offers to sell 15000 of his shares to Ejaz,

=> Shares with Ejaz = $2,10,000 + 15,000 = 2,25,000$

=> Ans - (C)

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English

Instructions

For the following questions answer them individually

Question 76

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

It does not suit you to cast _____ on the character of such a pure woman.

A praise

B abuses

C vituperations

D aspersions

Answer: D

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Question 77

Select the word with the correct spelling.

A marothon

B seagulls

C pungancy

D palpatted

Answer: B

Question 78

Select the word with the correct spelling.

A garotte

B dillution

C variably

D exhumming

Answer: C

Question 79

Select the antonym of homogeneous

A akin

B ditto

C disparate

D cognate

Answer: C

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Question 80

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

The comatose patient was kept under observation till his body's systems came back from suspended _____.

A dynamism

B elation

C animation

D ebullience

Answer: C

Question 81

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
an event serving as an introduction to something more important

A perform

B prelude

C introduce

D preface

Answer: B

Question 82

Improve the bracketed part of the sentence

The good fortune of (my being) your disciple in my youth has greatly benefited me in my career.

A my having been

B myself being

C being

D no improvement

Answer: A

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Question 83

In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best express the same sentence in Indirect/Direct speech.

The injured old man exclaimed, 'Will none of you help me?'

A The injured old man exclaimed whether none of them would help him.

B The injured old man exclaimed if none of them would help him.

C The injured old man said that could anyone of them help him.

D The injured old man cried if none of them would help him.

Answer: A

Question 84

In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

All the furnitures(A)/has been replaced(B)/by the landlord.(C)/No error(D)

A A

- B B
- C C
- D D

Answer: A

Question 85

Rearrange the parts of the sentence in correct order.

There is also
P-drought, the
Q-the hope that after two years of
R-monsoon will be good in the coming fiscal

- A QPR
- B RQP
- C PQR
- D PRQ

Answer: A

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Question 86

Select the synonym of scarcity

- A opulence
- B myriad
- C plethora
- D dearth

Answer: D

Question 87

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.
To bite the dust

- A To be killed
- B To fall down
- C To be dirt poor
- D To get dirty

Answer: A

Question 88

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.
To burn the midnight oil

- A When resources get finished half way
- B To read or work late into the night
- C Value of a small lamp is most when it is the darkest
- D To save some resources for the future

Answer: B

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Question 89

Improve the bracketed part of the sentence

Before I met your brother I (have had) a poor opinion of him.

- A had had
- B had
- C did have
- D no improvement

Answer: B

Question 90

Rearrange the parts of the sentence in correct order.

The party faithful, who
P-expectations, are now disillusioned
Q-had greeted his political arrival in 2004
R-with great enthusiasm, and

- A RQP
- B QRP
- C PRQ
- D PQR

Answer: B

Question 91

Select the antonym of feign

- A bluff
- B affect
- C act
- D fact

Answer: D

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Question 92

In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best express the same sentence in Indirect/Direct speech.

Has anyone from our team answered your question?

- A Did someone from our team answer to your question?
- B Is your question been answered by someone from our team?
- C Has your question been answered by anyone from our team?
- D Have your question been answered by anyone from our team?

Answer: C

Question 93

In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

This town has an ancient temple(A)/and beautiful waterfall(B)/so many tourists come here.(C)/No error(D)

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

Answer: B

Question 94

Select the synonym of cheeky

- A nervous
- B aghast
- C brash
- D startled

Answer: C

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Question 95

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. the conclusion that can be drawn from something although it is not explicitly stated

- A illustration
- B elucidation

C implication

D explication

Answer: C

Instructions

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank against the number given out of the four alternatives.

____(1)____ it became difficult to empirically prove that children ____ (2) ____ better in private schools, the attack ____ (3) ____ a new weapon per unit cost of learning outcomes. Most of the learning outcome researches almost ____ (4) ____ fail to understand the entire ____ (5) ____ of education in any depth and reduces it to learning of so-called 3Rs for economic purposes.

Question 96

(1)

A So

B Therefore

C When

D Then

Answer: C

Question 97

(2)

A learn

B study

C educate

D train

Answer: A

Question 98

(3)

A invents

B had invented

C is inventing

D invented

Answer: A

Question 99

(4)

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- A sometimes
- B always
- C often
- D rarely

Answer: B

Question 100

(5)

- A purpose
- B target
- C scheme
- D ambition

Answer: A

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