



SSC CHSL 20 Jan 2017 Morning 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.

Traditional : Modern :: Sharp : ?

- A Difficult
- B Plain
- C Tough
- D Blunt

Answer: D

Explanation:

Expression = Traditional : Modern :: Sharp : ?

Traditional and modern are antonyms, similarly opposite of sharp is *blunt*.

=> Ans - (D)

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Question 2

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

XYZ : CBA :: QRS : ?

- A HIJ
- B JIH
- C JKL
- D LKJ

Answer: B

Explanation:

Expression = XYZ : CBA :: QRS : ?

Alphabets at the corresponding position from the *reverse* end are written.

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

Similarly, QRS : JIH

=> Ans - (B)

Question 3

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

JKL : LKJ :: YZA : ?

- A AZY
- B XZY

C CBA

D JKL

Answer: A

Explanation:

Expression = JKL : LKJ :: YZA : ?

The pattern followed is that the word is written in *reverse* order, i.e. first letter at last position, second at second last and so on.

Similarly, reverse of YZA : **AZY**

=> Ans - (A)

Question 4

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

37 : 21 :: 29 : ?

A 17

B 28

C 18

D 19

Answer: C

Explanation:

Expression = 37 : 21 :: 29 : ?

The second number is equal to the product of digits of first number.

Eg :- $3 \times 7 = 21$

Similarly, $2 \times 9 = 18$

=> Ans - (C)

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Question 5

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

A Serious

B Severe

C Harsh

D Deceptive

Answer: D

Explanation:

Except Deceptive other three are synonyms of each other, hence it is the odd one out.

=> Ans - (D)

Question 6

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

A RQP

- A Atlantic Ocean
- B Pacific Ocean
- C South Pacific Ocean
- D North Pacific Ocean

Answer: A

Explanation:

Oceans is increasing order according to size are given.

= Arctic Ocean -> Antarctic ocean -> Indian Ocean -> Atlantic Ocean

=> Ans - (A)

Question 10

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. DFI, JNS, TZG, ?

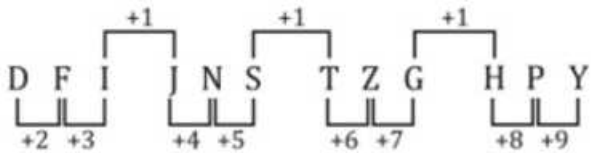
- A HPV
- B HPY
- C HPX
- D IPV

Answer: B

Explanation:

Expression : DFI, JNS, TZG, ?

The pattern followed is :



Thus, missing term = HPY

=> Ans - (B)

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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. VT, RP, NL, ?

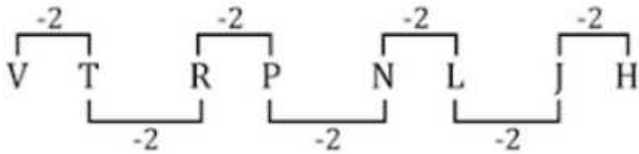
- A HJ
- B KL
- C IJ
- D JH

Answer: D

Explanation:

Expression : VT, RP, NL, ?

The pattern followed is :



Thus, missing term = JH

=> Ans - (D)

Question 12

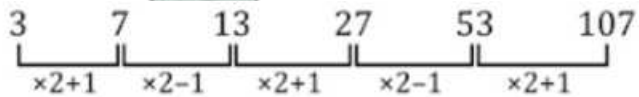
A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
3, 7, 13, 27, 53, ?

- A 105
- B 106
- C 107
- D 103

Answer: C

Explanation:

The pattern followed is :



Thus, missing term = 107

=> Ans - (C)

Question 13

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 pilots are brave men.
- (II) All astronauts are pilots.

Conclusion:

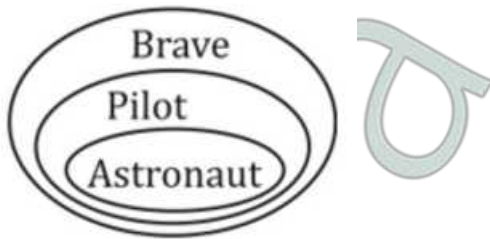
- (I) All astronauts are brave men.
- (II) Some pilots are astronauts.

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

Answer: D

Explanation:

The venn diagram for above statements is :



Conclusion:

(I) All astronauts are brave men = true

(II) Some pilots are astronauts = true

Thus, both I and II follows

=> Ans - (D)

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Question 14

Ravish is 7 years older than Vikas. Akash is 3 years younger than Ravish. Mohit is 5 years younger than Akash. Who is the youngest among all the four?

A Vikas

B Ravish

C Mohit

D Akash

Answer: C

Explanation:

Let Vikas's age = x years

=> Ravish's age = $(x + 7)$ years

=> Akash's age = $(x + 7) - 3 = (x + 4)$ years

∴ Mohit's age = $(x + 4) - 5 = (x - 1)$ years

Thus, **Mohit** is the youngest among all the four.

=> Ans - (C)

Question 15

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

i. Opposite

ii. Optimist

iii. Orthodox

iv. Operation

A iii, i, ii, iv

B iv, i, ii, iii

C ii, i, iii, iv

D iv, iii, ii, i

Answer: B

Explanation:

As per the order of dictionary :

= Operation -> Opposite -> Optimist -> Orthodox

≡ iv, i, ii, iii

=> Ans - (B)

Question 16

In a certain code language, "SCENE" is written as "TBFMF". How is "TRAIN" written in that code language?

A UQBHO

B OHBQU

C UQCHO

D HOBQU

Answer: A

Explanation:

"SCENE" is written as "TBFMF"

The pattern followed is :

S	C	E	N	E
+1↓	+1↑	+1↓	+1↑	+1↓
T	B	F	M	F

Similarly, for TRAIN :

T	R	A	I	N
+1↓	+1↑	+1↓	+1↑	+1↓
U	Q	B	H	O

=> Ans - (A)

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Question 17

Find the missing number in the given series in the table?

3	4	12
5	6	30
8	?	72

A 9

B 10

C 12

D 18

Answer: A

Explanation:

In each row, the number at the end is obtained by multiplying other two.

Eg :- $3 \times 4 = 12$ and $5 \times 6 = 30$

Similarly, $8 \times x = 72$

$$\Rightarrow x = \frac{72}{8} = 9$$

\Rightarrow Ans - (A)

Question 18

If "S" denotes "multiplied by", "V" denotes "subtracted from", "M" denotes "added to" and "L" denotes "divided by", then $7 V 13 M 35 L 7 S 6 = ?$

A 23

B 21

C 28

D 24

Answer: D

Explanation:

Expression : $7 V 13 M 35 L 7 S 6 = ?$

$$\equiv 7 - 13 + 35 \div 7 \times 6$$

$$= -6 + (5 \times 6)$$

$$= -6 + 30 = 24$$

\Rightarrow Ans - (D)

Question 19

In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
 $p_rrq_p_rr_p$

A qqqp

B qpqq

C pqqr

D rppq

Answer: B

Explanation:

The pattern followed is that in groups of 3, the term 'pqr' is alternatively repeated in this and reverse order.

$$= pqr\ rqp\ pqr\ rqp$$

\Rightarrow Ans - (B)

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Question 20

A is to the west of C. B is to the north-east of A and is equidistant from A and C. In which direction is B with respect to C?

A North-east

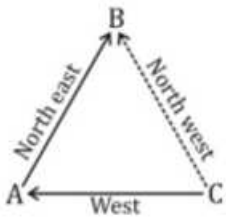
B North-west

C East

D South-west

Answer: B

Explanation:



A is to the west of C. B is to the north-east of A and is equidistant from A and C.

Thus, B is to the North-west of C.

=> Ans - (B)

Question 21

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 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 34, 43, etc., and 'FE' can be represented by 56, 67, etc. Similarly, you have to identify the set for the word 'FLUTE'.

MATRIX 1

	0	1	2	3	4
0	F	I	D	K	U
1	I	F	D	U	K
2	E	E	F	E	E
3	I	U	D	F	N
4	U	I	D	N	F

MATRIX 2

	5	6	7	8	9
5	T	H	L	M	L
6	J	T	H	L	M
7	C	C	L	C	C
8	J	L	O	T	H
9	L	J	O	O	T

A 22, 77, 13, 88, 21

B 44, 88, 40, 58, 20

C 11, 86, 31, 89, 24

D 33, 95, 04, 67, 23

Answer: A

Explanation:

(A) : 22, 77, 13, 88, 21 = FLUTE

(B) : 44, 88, 40, 58, 20 = FTUME

(C) : 11, 86, 31, 89, 24 = FLUHE

(D) : 33, 95, 04, 67, 23 = FLUHE

=> Ans - (D)

Question 22

Nikhil is father in law of Tara. Tara is the wife of Rahul. How is Rahul's brother related to Nikhil?

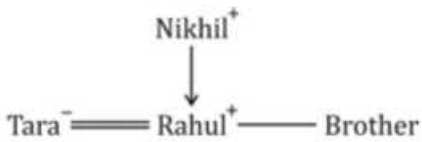
- A Brother
- B Father
- C Son
- D Father-in-law

Answer: C

Explanation:

Nikhil is father in law of Tara. Tara is the wife of Rahul, => Nikhil is the father of Rahul.

Relation is :



Thus, Rahul's brother is son of Nikhil.

=> Ans - (C)

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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: A

Explanation:

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





So the black portion at bottom right will be reversed to bottom left.

Also, in the question figure, the circle at top left will appear at top right in the mirror, hence first option is the right image.

=> Ans - (A)

Question 24

Identify the diagram that best represents the relationship among the given classes.
Stationery, Pencil, Rubber

- A 
- B 
- C 
- D 

Answer: D

Explanation:

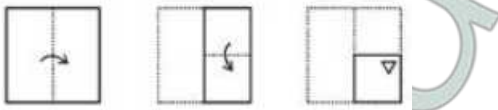
Both rubber and pencil are types of stationery, but are completely different from each other, hence the venn diagram that best describes above relation is :


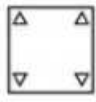
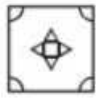



=> Ans - (D)

Question 25

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



- A 
- B 
- C 
- D 

Answer: A

Explanation:

When the paper is unfolded, the pattern of cutting will be similar in the four parts of the paper.

When the paper is unfolded first to the top, a triangle will appear at similar position but the edge towards top.

When the paper is unfolded again to the left, two triangles will appear similarly one each at the top left and bottom left part of the paper.

∴ When the paper is opened it will appear 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 world heritage site comprises of the tomb of Iltutmish?

- A Humayun's Tomb
- B Mahabodhi Temple Complex
- C Qutub Minar
- D Red Fort Complex

Answer: C

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Question 27

Highest Civilian Honour received by Mary Kom is

- A Padma Shri
- B Padma Bhushan
- C Padma Vibhushan
- D Bharat Ratna

Answer: B

Question 28

Which drug is used for Pain Relief?

- A Risedronate
- B Tramadol
- C Folic Acid
- D Bupropion

Answer: B

Question 29

Sugarcane is a type of

- A creeper
- B tree
- C shrub
- D grass

Answer: D

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Question 30

Who is commonly known as "the Father of Microbiology"?

- A Robert Hooke
- B Antonie Philips van Leeuwenhoek
- C Carl Linnaeus
- D Charles Darwin

Answer: B

Question 31

Which of the following is a Synthetic rubber?

- A Leoprene
- B Monoprene
- C Neoprene
- D Isoprene

Answer: C

Question 32

NaCl has which kind of bonds?

- A nonpolar bonds
- B polar covalent bonds
- C Metallic bonds
- D ionic bonds

Answer: D

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Question 33

Which of the following is equivalent to 1 Kilobyte?

- A 128 Bytes
- B 256 Bytes
- C 512 Bytes
- D 1024 Bytes

Answer: D

Question 34

Marathi is the official language of

- A Chandigarh
- B Dadra and Nagar Haveli
- C Daman and Diu
- D Delhi

Answer: B

Question 35

If demand curve for racing cycles is $D = 59600 - 6P$ and supply curve is $S = 29600 + 4P$, find the equilibrium Quantity?

- A 118000
- B 300
- C 41600
- D 6000

Answer: C

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Question 36

Which of the following statements is incorrect, if resources were unlimited?

- A there would still be scarcity and opportunity costs
- B there would still be scarcity but no opportunity costs
- C there would be no scarcity, but there would be opportunity costs.
- D there would neither be scarcity nor opportunity costs

Answer: C

Question 37

For the aquatic organisms, the source of food is

- A Phytoplankton
- B Sea Weed

C Aqua plankton

D Zooplankton

Answer: A

Question 38

Haemoglobin has the highest affinity with which gas?

A SO₂

B CO₂

C CO

D NO₂

Answer: C

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Question 39

The Lena river passes through which country?

A China

B USA

C Russia

D Brazil

Answer: C

Question 40

Mars is theplanet from the Sun.

A 2nd

B 4th

C 6th

D 8th

Answer: B

Question 41

Which city is located on the banks of the river Alaknanda?

A Badrinath

B Ayodhya

C Allahabad

D Lucknow

Answer: A

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Question 42

Kalinga War was fought in the year

- A 1604 BC
- B 261 BC
- C 731 AD
- D 1113 AD

Answer: B

Question 43

The League of Nations was formed at the end of which war?

- A World War I
- B World War II
- C Gulf War I
- D Gulf War II

Answer: A

Question 44

Who developed the theory of Evolution?

- A Charles Darwin
- B Isaac Newton
- C Pranav Mistry
- D Galileo Galilei

Answer: A

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Question 45

Which among the following is not a unit of distance?

- A Light year
- B Longsec
- C Astronomical unit
- D Parsec

Answer: B

Question 46

The apparent weight of a person in a lift which is moving down with uniform acceleration is

- A greater than the weight when the person is stationary
- B twice the weight when the person is stationary
- C less than the weight when the person is stationary
- D same as the weight when the person is stationary

Answer: C

Question 47

The form of power structure in which power effectively rests with a faction of persons or families is called

- A Tyranny
- B Fascism
- C Oligarchy
- D Plutocracy

Answer: C

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Question 48

The number of parliamentary seats (Lok Sabha) of Haryana is

- A 10
- B 26
- C 28
- D 48

Answer: A

Question 49

Jeev Milkha Singh is associated with which game?

- A Polo
- B Badminton
- C Golf
- D Tennis

Answer: C

Question 50

Name the author of the book "Pakistan the Gathering Storm".

- A Parvez Musharraf
- B Benazir Bhutto
- C Chetan Bhagat
- D Javier Moro

Answer: B

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English

Instructions

For the following questions answer them individually

Question 51

Select the synonym of:
to entrain

- A to alight
- B to debark
- C to mount
- D to disembark

Answer: C

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Question 52

Select the word with the correct spelling.

- A virtuous
- B tabbulate
- C infinete
- D feytishes

Answer: A

Question 53

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'.

Gita had been(A)/dancing at the party little(B)/more than usual.(C)/No error(D)

- A A
- B B
- C C

D D

Answer: B

Question 54

Select the antonym of
vivified

A invigorated

B revived

C dull

D animated

Answer: C

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Question 55

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.
Beauty is in the eye of the beholder

A The world is beautiful if one can see it that way

B To see only beautiful things if one wants to make his life beautiful

C That which one person finds beautiful or admirable may not appeal to another

D For an infatuated person even bad qualities of the beloved appear good

Answer: C

Question 56

Rearrange the parts of the sentence in correct order.

Earlier its forays

P-were concentrated on ancient

Q-and medieval India

R-in history

A RPQ

B RQP

C PQR

D QPR

Answer: A

Question 57

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.

.....your crime and your sentence may be reduced, suggested the police.

A Apologise

- B Communicate
- C Confess
- D Inform

Answer: C

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Question 58

In the following question, a sentence has been given in Active/Passive voice. Out of four alternatives suggested, select the one, which best expresses the same sentence in Passive/Active voice.

The painters painted the entire building.

- A The entire building had been painted by the painters.
- B The painters had an entire building painted.
- C The entire building was painted by the painters.
- D The entire building has been painted by the painters.

Answer: C

Question 59

Improve the bracketed part of the sentence

His condition has only deteriorated, his life (hangs with threads).

- A is hanging on threads
- B hangs by a thread
- C hangs on a thread
- D no improvement

Answer: B

Question 60

Rearrange the parts of the sentence in correct order:

Guardians of

P-the tyranny of the state

Q-four square against

R-intellectual liberty must stand

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

Answer: B

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Question 61

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.

Mother said, "Oh! It's a scorpion. Don't go near it, children."

- A Mother exclaimed with disgust that, that was a scorpion and told the children not to go near it.
- B Mother exclaimed disgustingly that, it was a scorpion and told the children not to go near it.
- C Mother exclaimed with disgust that it was a scorpion and told the children not to go near it.
- D Mother exclaimed with disgust that, that was a scorpion and told the children not to go near that.

Answer: C

Question 62

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. to have as belonging to one; own.

- A to dominate
- B to possess
- C to abandon
- D to hog

Answer: B

Question 63

Select the word with the correct spelling.

- A panacease
- B saboteur
- C contraste
- D columunar

Answer: B

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Question 64

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase. Necessity is the mother of invention

- A solution to a problem is easy if one is sufficiently desperate
- B great inventions happen only if you are desperate
- C there is always a mother behind every great scientist who has invented something
- D when the need for something becomes essential, you are forced to find ways of getting it

Answer: D

Question 65

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. the action of making amends for a wrong one has done

- A reparation
- B extortion
- C reclamation
- D retrieval

Answer: A

Question 66

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 payment of dues have beendelayed , informed the executive to the client.

- A incredibly
- B crazily
- C amazingly
- D unduly

Answer: D

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Question 67

Select the synonym of discerning

- A naive
- B asinine
- C inept
- D astute

Answer: D

Question 68

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'.

Ramesh is far arrogant(A)/to learn the error(B)/of his ways.(C)/No error(D).

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

Answer: A

Question 69

Improve the bracketed part of the sentence.

We are late because my wife took two hours to (put up) her make-up.

- A put on
- B put
- C put over
- D no improvement

Answer: A

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Question 70

Select the antonym of wary

- A frugal
- B leery
- C prudent
- D inattentive

Answer: D

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 out of the four alternatives.

India has already madeconcessions to enable a consensus and successful outcome at Paris. Now it must ensure that it is not caught in a relentlessprocess where each concession becomes an argument for making the next one. The post-Paris negotiations will determine more.....the shape of the climate change architecture for the next several decades. Weensure that India's vital interests are safeguarded and the principleequity and equitable burden-sharing is reflected across this architecture.

Question 71

India has already madeconcessions to enable a consensus

- A so much
- B substantial
- C many
- D a lot of

Answer: B

Question 72

Now it must ensure that it is not caught in a relentlessprocess

- A lengthy
- B protracted
- C infinite
- D attrition

Answer: D

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Question 73

The post-Paris negotiations will determine morethe shape of the climate change

- A precisely
- B exactly
- C refinely
- D sophisticatedly

Answer: A

Question 74

Weensure that India's vital interests are safeguarded

- A would
- B could
- C must
- D have

Answer: C

Question 75

the principleequity

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

Answer: B

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Mathematics

Instructions

For the following questions answer them individually

Question 76

What are the co-ordinates of the centroid of a triangle, whose vertices are A(-2,5), B(3,-2) and C(5,3)?

A (-2,-2)

B (-2,2)

C (2,2)

D (2,-2)

Answer: C

Explanation:

Coordinates of centroid of triangle with vertices (x_1, y_1) , (x_2, y_2) and (x_3, y_3) is $\left(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}\right)$

Let coordinates of centroid G = (x, y)

Vertex A(-2,5) B(3,-2) and C(5,3)

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

$$\Rightarrow x = \frac{6}{3} = 2$$

$$\text{Similarly, } \Rightarrow y = \frac{5-2+3}{3}$$

$$\Rightarrow y = \frac{6}{3} = 2$$

\therefore Coordinates of centroid G = (2,2)

\Rightarrow Ans - (C)

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Question 77

Ravindra walks at 6 km/hr and Riya cycles at 11 km/hr towards each other. What was the distance between them when they started if they meet after 42 minutes?

A 17.9 kms

B 14.9 kms

C 8.9 kms

D 11.9 kms

Answer: D

Explanation:

Speed of Ravindra = 6 km/hr and Riya = 11 km/hr

Since they are moving in opposite direction, \Rightarrow Relative speed = 6 + 11 = 17 km/hr

Let distance between them = d km and time = $\frac{42}{60}$ hr

\Rightarrow time = distance/speed

$$\Rightarrow \frac{d}{17} = \frac{42}{60}$$

$$\Rightarrow d = \frac{42}{60} \times 17 = \frac{7 \times 17}{10}$$

$$\Rightarrow d = \frac{119}{10} = 11.9 \text{ km}$$

\Rightarrow Ans - (D)

Question 78

If $\cot 135^\circ = x$, then the value of x is

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

Answer: C

Explanation:

Expression : $\cot 135^\circ = x$

$$= \cot(180 - 45)$$

$$= -\cot(45)$$

$$= -1$$

=> Ans - (C)

Question 79

The slopes of two lines are $1/\sqrt{3}$ and $\sqrt{3}$. What is the angle between these two lines?

- A 15°
- B 45°
- C 60°
- D 30°

Answer: D

Explanation:

Slope of the two lines, $m_1 = \frac{1}{\sqrt{3}}$ and $m_2 = \sqrt{3}$

Let angle between them = θ

$$\text{Then, } \tan(\theta) = \left| \frac{m_2 - m_1}{1 + m_1 m_2} \right|$$

$$\Rightarrow \tan(\theta) = \frac{\sqrt{3} - \frac{1}{\sqrt{3}}}{1 + \frac{1}{\sqrt{3}} \cdot \sqrt{3}}$$

$$\Rightarrow \tan(\theta) = \frac{\tan(60) - \tan(30)}{1 + \tan(60)\tan(30)}$$

$$\Rightarrow \tan(\theta) = \tan(60 - 30) \quad \because [\tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}]$$

$$\Rightarrow \theta = 30^\circ$$

=> Ans - (D)

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Question 80

If $\sqrt{(1 - \cos^2 A)}/\cos A = x$, then the value of x is

- A $\cot A$

B cosecA

C tanA

D secA

Answer: C

Explanation:

$$\text{Expression : } \frac{\sqrt{1-\cos^2 A}}{\cos A}$$

$$\because (\sin^2 A + \cos^2 A = 1)$$

$$= \frac{\sqrt{\sin^2 A}}{\cos A}$$

$$= \frac{\sin A}{\cos A} = \tan A$$

=> Ans - (C)

Question 81

If $x + 2(3-5x) > -1 - 2x < 5 - x/3$; then the value of x is

A -3

B -4

C 2

D 3

Answer: A

Explanation:

$$\text{Expression 1 : } x + 2(3-5x) > -1 - 2x$$

$$\Rightarrow x + 6 - 10x > -1 - 2x$$

$$\Rightarrow 9x - 2x < 6 + 1$$

$$\Rightarrow 7x < 7$$

$$\Rightarrow x < 1 \text{ -----(i)}$$

$$\text{Expression 2 : } -1 - 2x < 5 - x/3$$

$$\Rightarrow 2x - \frac{x}{3} > -1 - 5$$

$$\Rightarrow \frac{5x}{3} > -6$$

$$\Rightarrow x > \frac{-18}{5} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-18}{5} < x < 1$

The only value that x can take among the options = -3

=> Ans - (A)

Question 82

An angle is four times its complementary angle. What is the measure of the angle?

A 72°

B 108°

C 54°

D 36°

Answer: A

Explanation:

Let the angle = θ

Its complementary angle = (4θ)

Sum of an angle and its complementary angle = 90°

$$\Rightarrow \theta + (4\theta) = 90^\circ$$

$$\Rightarrow 5\theta = 90^\circ$$

$$\Rightarrow \theta = \frac{90}{5} = 18^\circ$$

\therefore Measure of the angle = $4 \times 18 = 72^\circ$

\Rightarrow Ans - (A)

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Question 83

In a Kite

- A One diagonal bisects the other
- B Both diagonals form two congruent triangles
- C Adjacent angles are supplementary
- D Opposite sides are parallel

Answer: A

Explanation:

In a kite, only 1 diagonal form two congruent triangles and one diagonal bisect the other at right angle.

\Rightarrow Ans - (A)

Question 84

Akhilesh is two times as good a workman as Banshi and therefore is able to finish a job in 39 days less than Banshi. Working together, they can do it in

- A 13 days
- B 24 days
- C 26 days
- D 12 days

Answer: C

Explanation:

Ratio of times taken by Akhilesh and Banshi = 1 : 2

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

If difference of time is 1 day, Banshi takes 2 days.

If difference of time is 39 days, Banshi takes = $\frac{2}{1} \times 39 = 78$ days

So, Akhilesh takes 39 days

Akhilesh's 1 day's work = $\frac{1}{39}$

Bansi's 1 day's work = $\frac{1}{78}$

(Akhilesh + Bansi)'s 1 day's work together = $\frac{1}{39} + \frac{1}{78} = \frac{3}{78} = \frac{1}{26}$

∴ Akhilesh and Bansi together can do the work in = 26 days

⇒ Ans - (C)

Question 85

If $(4x - 3) = (3x + 8)$, then the numerical value of $(x + 1)^3$ is

A 1331

B 1000

C 1728

D 729

Answer: C

Explanation:

Expression : $(4x - 3) = (3x + 8)$

⇒ $4x - 3x = 8 + 3$

⇒ $x = 11$

∴ $(x + 1)^3 = (11 + 1)^3$

= $(12)^3 = 1728$

⇒ Ans - (C)

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Question 86

A rectangular swimming pool of length 30 m and breadth 15 m has a uniformly sloping floor. It is 1 m in depth on one end of its length and 2 m at the other. How much water is needed to completely fill this pool?

A 1350 cubic mts

B 2025 cubic mts

C 675 cubic mts

D 2700 cubic mts

Answer: C

Explanation:

The pool is 1 m in depth on one end of its length and 2 m at the other, thus the pool is in the shape of a trapezium whose volume will be equal to the product of area of trapezium and the width.

Length = 30 m and breadth = 15 m

⇒ Volume = $\left(\frac{1}{2} \times (1 + 2) \times 30\right) \times 15$

= $45 \times 15 = 675 m^3$

⇒ Ans - (C)

Question 87

The sum of all prime numbers between 58 and 62 is

- A 116
- B 114
- C 120
- D 111

Answer: C

Explanation:

Sum of all prime numbers between 58 and 62

$$= 59 + 61$$

$$= 120$$

=> Ans - (C)

Question 88

25% discount is offered on an item. By applying a promo code the customer wins 22% cash back. What is the effective discount?

- A 41.5 percent
- B 50.63 percent
- C 47 percent
- D 27.5 percent

Answer: A

Explanation:

Let the marked price of item = Rs. $100x$

$$\text{Amount after 25 \% discount} = 100x - \frac{25}{100} \times 100x$$

$$= 100x - 25x = \text{Rs. } 75x$$

$$\text{Selling price after 22 \% cashback} = 75x - \frac{22}{100} \times 75x$$

$$= 75x - 16.5x = \text{Rs. } 58.5x$$

$$\Rightarrow \text{Total discounted amount} = 100x - 58.5x = \text{Rs. } 41.5x$$

$$\therefore \text{Effective discount} = \frac{41.5x}{100x} \times 100 = 41.5\%$$

=> Ans - (A)

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Question 89

39 is 5.2% of?

- A 75
- B 750
- C 1500

D 1875

Answer: B

Explanation:

Let the number be x

$$\Rightarrow 5.2\% \text{ of } x = 39$$

$$\Rightarrow \frac{5.2}{100} \times x = 39$$

$$\Rightarrow x = \frac{3900}{5.2} = \frac{300}{0.4}$$

$$\Rightarrow x = 750$$

\Rightarrow Ans - (B)

Question 90

A sum fetched a total simple interest of Rs. 8100 at the rate of 6% per year in 9 years. What is the sum?

A Rs 15000

B Rs 18000

C Rs 12000

D Rs 9000

Answer: A

Explanation:

Let the sum = Rs. $100x$

Rate = 6% under simple interest and time = 9 years

$$\Rightarrow \text{Simple interest} = \frac{P \times R \times T}{100}$$

$$\Rightarrow \frac{100x \times 6 \times 9}{100} = 8100$$

$$\Rightarrow 54x = 8100$$

$$\Rightarrow x = \frac{8100}{54} = 150$$

$$\therefore \text{Sum} = 100 \times 150 = \text{Rs } 15,000$$

\Rightarrow Ans - (A)

Question 91

If $a - b = -6$ and $a^2 + b^2 = 44$, then ab is

A -4

B 8

C 4

D -8

Answer: C

Explanation:

$$\text{Given : } (a - b) = -6 \text{ and } a^2 + b^2 = 44$$

$$\text{Using } (a - b)^2 = a^2 + b^2 - 2ab$$

$$\Rightarrow (-6)^2 = 44 - (2 \times ab)$$

$$\Rightarrow 2ab = 44 - 36 = 8$$

$$\Rightarrow ab = \frac{8}{2} = 4$$

\Rightarrow Ans - (C)

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Question 92

The first and last terms of an arithmetic progression are 29 and -49. If the sum of the series is -140, then it has how many terms?

- A 13
- B 14
- C 12
- D 11

Answer: B

Explanation:

In an arithmetic progression with first term, $a = 29$, last term, $l = -49$

Let number of terms = n

$$\therefore \text{Sum of A.P.} = \frac{n}{2}(a + l) = -140$$

$$\Rightarrow \frac{n}{2}(29 - 49) = -140$$

$$\Rightarrow \frac{-20n}{2} = -140$$

$$\Rightarrow n = \frac{(-140) \times 2}{-20} = 7 \times 2$$

$$\Rightarrow n = 14$$

\Rightarrow Ans - (B)

Question 93

The average weight of Sudesh, Jyothi and Ritu is 89 kg. If the average weight of Sudesh and Jyothi be 98 kg and that of Jyothi and Ritu be 83 kg, then the weight of Jyothi is

- A 58
- B 56
- C 95
- D 66

Answer: C

Explanation:

Let respective weights of Sudesh, Jyothi and Ritu is s, j, r kg

$$\text{Average weight of the three} = \frac{s+j+r}{3} = 89$$

$$\Rightarrow s + j + r = 89 \times 3 = 267 \text{ kg} \text{ -----(i)}$$

$$\text{Similarly, Total weight of Sudesh and Jyothi} = s + j = 98 \times 2 = 196 \text{ kg} \text{ -----(ii)}$$

$$\text{Total weight of Jyothi and Ritu} = j + r = 83 \times 2 = 166 \text{ kg} \text{ -----(iii)}$$

$$\text{Adding equations(ii) and (iii),} \Rightarrow s + 2j + r = 196 + 166 = 362 \text{ -----(iv)}$$

Subtracting equation (i) from (iv), we get :

$$\Rightarrow j = 362 - 267 = 95 \text{ kg}$$

\Rightarrow Ans - (C)

Question 94

By increasing the price of entry ticket to a fair in the ratio 7:17, the number of visitors to the fair has decreased in the ratio 9:5. In what ratio has the total collection increased or decreased?

A decreased in the ratio 85:63

B increased in the ratio 35:153

C increased in the ratio 63:85

D decreased in the ratio 153:35

Answer: C

Explanation:

Let cost of original ticket = Rs 7 and number of visitors = 90

$$\Rightarrow \text{Original revenue} = 7 \times 90 = \text{Rs } 630$$

After increase in cost of ticket

New cost of ticket = Rs 17 and number of visitors = 50

$$\Rightarrow \text{New Revenue} = 17 \times 50 = \text{Rs } 850$$

Since, new revenue is greater than original revenue, thus total collection has increased.

$$\therefore \text{Increase of total collection ratio} = \frac{630}{850} = 63 : 85$$

\Rightarrow Ans - (C)

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Question 95

What is the value of $\sqrt{\frac{1 - \sin A}{1 + \sin A}}$?

A $\cos A / (1 - \sin A)$

B $\operatorname{cosec} A / (1 + \sin A)$

C $\cos A / (1 + \sin A)$

D $\operatorname{cosec} A / (1 - \sin A)$

Answer: C

Explanation:

$$\text{Expression : } \sqrt{\frac{1 - \sin A}{1 + \sin A}}$$

Multiplying both numerator and denominator by $(\sqrt{1 + \sin A})$

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

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

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

=> Ans - (C)

Question 96

Raghuram sells a machine for Rs 43 lakhs at a loss. Had he sold it for Rs 53 lakh, his gain would have been 7 times the former loss. Find the cost price of the machine.

- A Rs 51.75 lakhs
- B Rs 59.14 lakhs
- C Rs 36.75 lakhs
- D Rs 44.25 lakhs

Answer: D

Explanation:

Let cost price of the machine = Rs. x lakhs

When selling price = Rs. 43 lakhs

=> Loss = Rs. $(x - 43)$ lakhs

If selling price = Rs. 53 lakhs

=> Profit = Rs. $(53 - x)$ lakhs

According to ques, Profit = $7 \times$ loss

=> $(53 - x) = 7 \times (x - 43)$

=> $53 - x = 7x - 301$

=> $7x + x = 301 + 53 = 354$

=> $x = \frac{354}{8} = \text{Rs. } 44.25 \text{ lakhs}$

=> Ans - (D)

Question 97

Read the data and answer the given questions

Division/STD	Boys	Girls
Division A/STD 5	30	30
Division B/STD 5	30	35
Division C/STD 5	25	10
Division A/STD 6	30	10
Division B/STD 6	40	30
Division C/STD 6	20	40

What is the ratio of boys to girls?

- A 31 : 35
- B 35 : 31
- C 37 : 33
- D 33 : 37

Answer: B

Explanation:

Total number of boys = $30 + 30 + 25 + 30 + 40 + 20 = 175$

Total number of girls = $30 + 35 + 10 + 10 + 30 + 40 = 155$

=> Required ratio = $\frac{175}{155}$

= 35 : 31

=> Ans - (B)

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Question 98

Read the data and answer the given question

Marks	No of Students
40 and above	10
30 and above	40
20 and above	69
10 and above	81
0 and above	102

How many students have marks 20 or more but less than 40?

- A 69
- B 40
- C 109
- D 59

Answer: D

Explanation:

Number of students who scored :

40 and above = 10

30 and above = $40 - 10 = 30$

20 and above = $69 - 40 = 29$

10 and above = $81 - 69 = 12$

0 and above = $102 - 81 = 21$

=> Students who have scored marks 20 or more but less than 40 = $29 + 30 = 59$

=> Ans - (D)

Question 99

Read the data and answer the given questions?

Years	GDP growth rate in %
2011	3
2012	-7
2013	-7
2014	4
2015	3

If the GDP of the country was \$1 trillion at the end of 2013, what was it at the beginning of 2015?

- A \$1.03 trillion
- B \$1.04 trillion
- C \$0.93 trillion

D \$1.07 trillion

Answer: B

Explanation:

GDP at the beginning of 2015 is equal to the GDP at the end of 2014

=> GDP growth rate in 2014 = 4%

GDP at the end of 2013 = GDP at the beginning of 2014 = \$1 trillion

∴ GDP at the beginning of 2015 = $\frac{100+4}{100} \times 1$ trillion

= $\frac{104}{100}$ = \$1.04 trillion

=> Ans - (B)

Question 100

Read the data and answer the given questions ?

Subjects	Marks scored
English	45
Hindi	70
Maths	30
Science	80
Arts	35

Five points are to be deducted from this students average of marks scored because of poor attendance. What will be this student's net average marks scored?

A 37

B 42

C 47

D 52

Answer: C

Explanation:

Total marks scored by the student = 45 + 70 + 30 + 80 + 35 = 260

=> Average marks = $\frac{260}{5} = 52$

But due to poor attendance, 5 marks are deducted

∴ Net average = 52 - 5 = 47

=> Ans - (C)

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