



SSC CHSL 23 Jan 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.

V. V. S. Laxman : Cricket :: Dhyan Chand : ?

- A Hockey
- B Football
- C Basketball
- D Volleyball

Answer: A

Explanation:

Expression = V. V. S. Laxman : Cricket :: Dhyan Chand : ?

V. V. S. Laxman was a cricket player, similarly Dhyan Chand was a hockey player.

=> Ans - (A)

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Question 2

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

TN : WQ :: BV : ?

- A QT
- B LK
- C EY
- D EZ

Answer: C

Explanation:

Expression = TN : WQ :: BV : ?

The pattern followed is :

T	N
(+3)	(+3)
W	Q

Similarly, BV : EY

B	V
(+3)	(+3)
E	Y

=> Ans - (C)

Question 3

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

Convenient: Inconvenient :: Reveal: ?

- A Outspoken
- B Disclose
- C Conceal
- D Communicate

Answer: C

Explanation:

Expression = Convenient: Inconvenient :: Reveal: ?

Convenient and Inconvenient are antonyms, similarly opposite of reveal is conceal.

=> Ans - (C)

Question 4

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

6 : 108 :: 11 : ?

- A 363
- B 333
- C 253
- D 340

Answer: A

Explanation:

Expression = 6 : 108 :: 11 : ?

The pattern followed is = $n : 3n^2$

Eg :- $6 : 3 \times (6)^2 = 6 : 108$

Similarly, $3 \times (11)^2 = 3 \times 121 = 363$

=> Ans - (A)

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Question 5

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

- A Ethical
- B Genuine
- C Prejudiced
- D Reliable

Answer: C

Explanation:

Except prejudiced other three denote a positive meaning, hence it is the odd one out.

=> Ans - (C)

Question 6

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

- A TSP
- B IHE
- C MLI
- D POM

Answer: D

Explanation:

(A) : T (-1 letter) = S (-3 letters) = P

(B) : I (-1 letter) = H (-3 letters) = E

(C) : M (-1 letter) = L (-3 letters) = I

(D) : P (-1 letter) = O (-2 letters) = M

=> Ans - (D)

Question 7

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

- A 176
- B 263
- C 132
- D 297

Answer: B

Explanation:

The positive difference between the first two digits is equal to the last digit, but $6 - 2 \neq 3$, hence 263 is the odd one out.

=> Ans - (B)

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Question 8

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

- A 2437
- B 9118
- C 8548
- D 7649

Answer: A

Explanation:

The pattern followed is :

$$9 \times (1 + 1) = 18$$

$$8 \times (5 + 1) = 48$$

$$7 \times (6 + 1) = 49$$

$$\text{But, } 2 \times (4 + 1) = 10 \neq 37$$

=> Ans - (A)

Question 9

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

Hut, Cottage, Bungalow, ?

A Palace

B House

C Mall

D Hotel

Answer: A

Explanation:

The given order is of residential places in increasing order of size.

= Hut, Cottage, Bungalow, Palace

=> 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.

NR, SW, WA, ZD, ?

A BF

B BE

C CF

D DE

Answer: A

Explanation:

Expression : NR, SW, WA, ZD, ?

The pattern followed in each letter of the terms is :

1st letter : N (+5 letters) = S (+4 letters) = W (+3 letters) = Z (+2 letters) = B

2nd letter : R (+5 letters) = W (+4 letters) = A (+3 letters) = D (+2 letters) = F

Thus, missing term = **BF**

=> 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.

EF, K, JK, U, OP, ?

A Q

B G

C F

D E

Answer: D

Explanation:

Expression : EF, K, JK, U, OP, ?

Odd terms : Consecutive pairs of alphabets after a gap of three letters are written.

Eg :- EF (+4 letters) = JK (+4 letters) = OP

Even terms : K (+10 letters) = U (+10 letters) = E

=> 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.

14, 19, 29, 44, ?

A 50

B 52

C 43

D 64

Answer: D

Explanation:

Multiples of 5 are added.

$$14 + 5 = 19$$

$$19 + 10 = 29$$

$$29 + 15 = 44$$

$$44 + 20 = 64$$

=> Ans - (D)

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) Empty set is a subset of any set.

(II) A set is a subset of power set.

Conclusion:

(I) Empty set is a power set.

(II) A set is a subset of power set.

A Conclusion I follows

B Conclusion II follows

C Neither I nor II follows

D Both I and II follows

Answer: A

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Question 14

If 18th October 2011 was a Sunday, then what day of the week was it on 19th September 2012?

- A Thursday
- B Friday
- C Sunday
- D Monday

Answer: D

Explanation:

According to the question, 18th October 2011 is Sunday

Number of days left in October = $31 - 18 = 13$

Similarly, odd days from 18th October 2011 till 19th September 2012

$= (13 + 30 + 31 + 31 + 29 + 31 + 30 + 31 + 30 + 31 + 31 + 19) \% 7$ (February has 29 days in a leap year)

$= 6 + 2 + 3 + 3 + 1 + 3 + 2 + 3 + 2 + 3 + 3 + 5 = 36$

Now, dividing 36 by 7, remainder = 1

Thus, day on 19th September 2012 = Sunday (+1) = Monday

=> Ans - (D)

Question 15

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

- i. Treasure
- ii. Treat
- iii. Tremor
- iv. Trestle

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

Answer: A

Explanation:

As per the order of dictionary :

= Treasure -> Treat -> Tremor -> Trestle

\equiv i, ii, iii, iv

=> Ans - (A)

Question 16

In a certain code language, "EXCITED" is written as "DETCIXE". How is "KINLEY" written in that code language?

- A YELNIK
- B NIKLEY

C NIKYEL

D LJOMFZ

Answer: A

Explanation:

"EXCITED" is written as "DETICXE"

The word is written in reverse order i.e., the first letter is written at the end, second at second last and so on.

Similarly, KINLEY is written as **YELNIK**

=> Ans - (A)

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Question 17

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

7	6	9
7	8	11
94	84	?

A 81

B 45

C 99

D 28

Answer: C

Explanation:

In each column, the number at the end is reverse of the product of other two.

Eg :- $7 \times 7 = 49 \equiv 94$

$6 \times 8 = 48 \equiv 84$

Similarly, $9 \times 11 = 99 \equiv 99$

=> Ans - (C)

Question 18

If "\$" means "added to", "@" means "divided by", "#" means "multiplied by" and "%" means "minus", then

$136 @ 17 \# 0 \$ 19 \% 5 = ?$

A 67

B 24

C 14

D 23

Answer: C

Explanation:

Expression = $136 @ 17 \# 0 \$ 19 \% 5 = ?$

$\equiv 136 \div 17 \times 0 + 19 - 5$

$$= (17 \times 0) + 14$$

$$= 0 + 14 = 14$$

=> Ans - (C)

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?

S_RTR_ST_T_S

A TRSR

B RTSS

C TSRR

D TSRS

Answer: C

Explanation:

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

= STR TRS STR TRS

=> Ans - (C)

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Question 20

You go in the south direction, then turn left, then again take a left and then go to the right. Which direction are you facing now?

A East

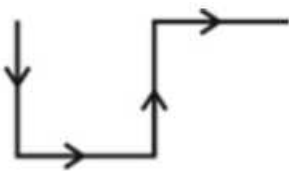
B North

C West

D South

Answer: A

Explanation:



We go in the south direction, then turn left walk towards east, then again take a left to walk northwards, and finally go to the right.

Thus, we are facing east at the end.

=> Ans - (A)

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 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, F can be represented by 32, 42 etc., and M can be represented by 88, 68 etc. Similarly, you have to identify the set for the word MOVIE.

Matrix - I

	0	1	2	3	4
0	I	N	U	H	E
1	U	I	E	L	L
2	V	G	I	N	E
3	V	W	F	I	U
4	V	V	F	N	E

Matrix - II

	5	6	7	8	9
5	I	S	D	R	O
6	O	I	I	M	S
7	O	S	G	I	O
8	D	M	T	M	I
9	S	D	D	M	S

- A 98, 59, 42, 33, 44
- B 86, 79, 40, 22, 43
- C 88, 65, 20, 11, 24
- D 68, 75, 30, 00, 13

Answer: C

Explanation:

- (A) : 98, 59, 42, 33, 44 = MOFIE
- (B) : 86, 79, 40, 22, 43 = MOVIN
- (C) : 88, 65, 20, 11, 24 = **MOVIE**
- (D) : 68, 75, 30, 00, 13 = MOVIL

=> Ans - (C)

Question 22

Sourabh's mother is the daughter of Ajeet's only sister. Ritik is the grandson of Ajeet. How is Ritik related to Sourabh?

- A Cousin
- B Brother
- C Uncle
- D Maternal uncle

Answer: A

Explanation:

Sourabh's mother is the daughter of Ajeet's only sister, => Sourabh is the grandson of Ajeet.

Ritik is the grandson of Ajeet.

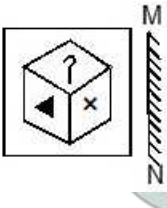
=> Ritik and Sourabh are cousins.

=> Ans - (A)

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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: D

Explanation:

If a mirror is placed on the line MN,

The facing of the figure to the left and right direction changes to opposite direction in mirror image(right facing changes to left and vice versa)

The symbol x on the right side will be on the left side in the mirror image and the mirror image of x remains same

The question mark open towards left will be open towards right in the mirror image

The edge of the dark triangle facing left which is on the left side will face towards right and will be on right side in the mirror image

∴ The mirror image of the given figure is

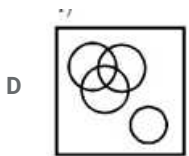
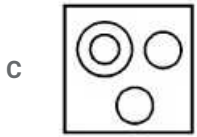
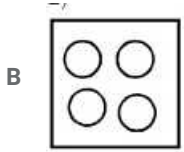
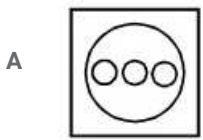


Hence, the correct answer is Option D

Question 24

Identify the diagram that best represents the relationship among the given classes.

French, German, Spanish, Languages

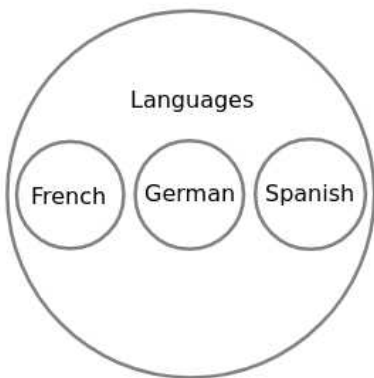


Answer: A

Explanation:

French, German, Spanish are different languages of different countries

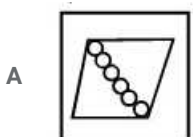
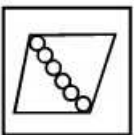
∴ The diagram that best represents the relationship between them is



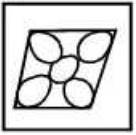
Hence, the correct answer is Option A

Question 25

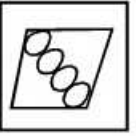
A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



B



C



D



Answer: A

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Who built the Group of Monuments at Mahabalipuram?

- A Chola Kings
- B Pallava Kings
- C Chera Kings
- D Chalukya Kings

Answer: B

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Question 27

Who has won maximum Filmfare Awards as a Music Director?

- A Laxmikant Pyarelal
- B A. R. Rahman
- C Anu Malik
- D Jatin Lalit

Answer: B

Question 28

Contraction of heart is also known as

- A Systole

- B Aristotle
- C Diastole
- D Lub

Answer: A

Question 29

Azadirachta indica is the botanical name of which of the following?

- A Rose plant
- B Apple tree
- C Neem
- D Mango

Answer: C

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Question 30

Which of the following is the main end product of carbohydrate digestion?

- A Fats
- B Lipids
- C Glucose
- D Cellulose

Answer: C

Question 31

Which of the following elements has the lowest melting point?

- A Titanium
- B Tungsten
- C Argon
- D Nickel

Answer: C

Question 32

The common name of sulphur is

- A Freon
- B galena
- C lime

D brimstone

Answer: D

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Question 33

HTML in computer science stands for?

- A HyperText Markup Language
- B HyperText Main Language
- C HyperText Memory Language
- D HyperText Mandatory Language

Answer: A

Question 34

Kala Ghoda Arts festival is held in which city?

- A New Delhi
- B Hyderabad
- C Pune
- D Mumbai

Answer: D

Question 35

If for a perfectly competitive firm, price is Rs 7.2, output is 4500 units, average variable costs are Rs 1.2, and average total costs are Rs 4. The firm's profits are equal to

- A Rs 7200
- B Rs 9000
- C Rs 14400
- D Rs 19800

Answer: C

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Question 36

A minimum wage ____.

- A is the price floor below which workers may not sell their labor
- B is set at a price below the equilibrium wage
- C creates a price ceiling below which the wage cannot legally go

D decreases unemployment

Answer: A

Question 37

Which rays cause skin damage?

A X-Rays

B UV Rays

C Infra red rays

D Yellow Rays

Answer: B

Question 38

The Great Himalayan National Park is in which state?

A Jammu & Kashmir

B Arunachal Pradesh

C Himachal Pradesh

D Sikkim

Answer: C

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Question 39

Which is an Indian Government Savings Bond, primarily used for small savings and income tax saving investments in India?

A Provident Fund

B Life Insurance Policies

C National Saving Certificate

D Long term government bonds

Answer: C

Question 40

Mercury is the _____ planet from the Sun.

A 1st

B 3rd

C 5th

D 7th

Answer: A

Question 41

Raipur is the Capital City of

- A Assam
- B Chhattisgarh
- C Dadra and Nagar Haveli
- D Telangana

Answer: B

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Question 42

Bimbisara was the king of which dynasty?

- A Haryanka
- B Maurya
- C Shunga
- D Nanda

Answer: A

Question 43

World War I started in the year?

- A 1914
- B 1919
- C 1939
- D 1945

Answer: A

Question 44

India's famous Mars -Mission was called?

- A BRO
- B SIS
- C MOM
- D DAD

Answer: C

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Question 45

In a projectile motion, a large angle with the horizontal produces _____.

- A flat trajectory
- B curve trajectory
- C straight trajectory
- D high trajectory

Answer: D

Question 46

What is the unit of the physical quantity, Electrical conductance?

- A lux
- B ohm
- C farad
- D siemens

Answer: D

Question 47

What is the full form of the Indian Political Party, "CPI"?

- A Common Party of India
- B Commonly Party of India
- C Communist Party of India
- D Community Party of India

Answer: C

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Question 48

How many members can be nominated by the President of India in the Rajya Sabha?

- A 4
- B 8
- C 12
- D 16

Answer: C

Question 49

Which state won the Ranji trophy in 2015-2016?

- A Railways
- B Mumbai
- C Karnataka
- D Bengal

Answer: B

Question 50

Who is the author of "Everyone Has A Story"?

- A Durjoy Datta
- B Savi Sharma
- C Ajay K Pandey
- D Preeti Shenoy

Answer: B

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English

Instructions

For the following questions answer them individually

Question 51

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'.

I wish you(A)/can hear(B)/yourself talking.(C)/No error(D)

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

Answer: B

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Question 52

Improve the bracketed part of the sentence.

I took for a ride the motorcycle (which Rohit has) bought yesterday.

- A that Rohit
- B that which Rohit has
- C that Rohit had

D no improvement

Answer: A

Question 53

Rearrange the parts of the sentence in correct order.

Whether the emergence
P-will change the ugly dynamic
Q-of these popular protests
R-in Brazil is to be seen

A QPR

B RQP

C PQR

D PRQ

Answer: A

Question 54

Select the antonym of taciturn

A reticent

B curt

C laconic

D verbose

Answer: D

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Question 55

Select the word with the correct spelling.

A snoping

B leniency

C bivoacs

D kerbsid

Answer: B

Question 56

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.

No one responded to Rahul's query.

A Rahul's query was not responded to by anyone.

B Rahul's query is not being responded to by anyone.

C Rahul's query has not been responded to by anyone.

D Rahul's query had not been responded to by anyone.

Answer: A

Question 57

Select the antonym of to jostle

A to scramble

B to shove

C to eschew

D to hustle

Answer: C

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Question 58

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. a person involved in a lawsuit.

A pseudo

B litigant

C suspect

D appellant

Answer: B

Question 59

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase. blood is thicker than water

A relations are more important than merit

B all crimes are not equal so punishment for murder is not same as that of theft

C family relationships and loyalties are the strongest and most important ones

D deceit from a family member hurts more than being cheated by strangers

Answer: C

Question 60

Rearrange the parts of the sentence in correct order.

After walking around

P-to quench their thirst

Q-a bit, the women searched

R-for a hand pump

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

Answer: B

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Question 61

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'.

I'll never be marrying(A)/anyone, but(B)/will be a dancer.(C)/No error(D)

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

Answer: A

Question 62

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 princess asked, 'What is it that makes you stronger and braver than other men?'

- A The princess asked him what was it that made him stronger and braver than other men.
- B The princess asked him that, what was it that made him stronger and braver than other men.
- C The princess asked him that, what was making him stronger and braver than other men.
- D The princess asked him, what has made him stronger and braver than other men.

Answer: A

Question 63

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.

He had never been of a _____ constitution, and after a little more than a week's illness he died.

- A superb
- B energetic
- C dynamic
- D robust

Answer: D

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Question 64

Select the synonym of Panorama

- A puny
- B wee
- C diminutive
- D spectacle

Answer: D

Question 65

Improve the bracketed part of the sentence.

Corruption has become (the day's order).

- A today's order
- B the order of the day
- C the order of today
- D no improvement

Answer: B

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.

It doesn't look like you're all that _____ at singing either.

- A ignorance
- B skilled
- C adept
- D adapt

Answer: C

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Question 67

Select the word with the correct spelling.

- A clinched
- B manteling
- C vivicity
- D alergic

Answer: A

Question 68

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.

Either of two parallels of latitude on the earth, one 23°27' north of the equator and the other 23°27' south of the equator

- A tropic
- B torrid
- C arctic
- D frigid

Answer: A

Question 69

Select the synonym of initiative

- A apathy
- B cowardice
- C dynamism
- D lethargy

Answer: C

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Question 70

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

once in a blue moon

- A an imaginary situation
- B feeling sad
- C a beautiful sight
- D to happen very rarely

Answer: D

Explanation:

Start Group:

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.

Decisions that profoundly _____(1)_____ not only the present _____(2)_____ succeeding generations, should not be taken in a _____(3)_____, or through one-time referendums. This is basic political common _____(4)_____. But in a voter turnout of 72.2 per cent, 51.9 per cent decided that Britain should exit the European Union (EU). The _____(5)_____ of the Brexit vote are painfully clear.

Question 71

(1)

- A effect
- B affect
- C are effecting
- D are affecting

Answer: B

Question 72

(2)

- A even though
- B but even though
- C however also
- D but also

Answer: D

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Question 73

(3)

- A speed
- B rush
- C fast
- D race

Answer: B

Question 74

(4)

- A sense
- B feeling
- C attitude
- D philosophy

Answer: A

Question 75

(5)

- A residue
- B corollary
- C consequences
- D sequel

Answer: C

Explanation:

End Group:

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Mathematics

Instructions

For the following questions answer them individually

Question 76

If $(6x - 1) - (8x - 5) = 7$, then the value of x is _____ .

- A $-3/2$
- B $3/2$
- C $11/2$
- D $-11/2$

Answer: A

Explanation:

Expression : $(6x - 1) - (8x - 5) = 7$

$$\Rightarrow -2x + 4 = 7$$

$$\Rightarrow -2x = 7 - 4 = 3$$

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

\Rightarrow Ans - (A)

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Question 77

If $7/8$ th of $5/4$ th of a number is 315, then $5/9$ th of that number is _____ .

- A 123
- B 81
- C 140
- D 160

Answer: D

Explanation:

Let the number be x

$$\Rightarrow \frac{7}{8} \times \frac{5}{4} \times x = 315$$

$$\Rightarrow x = 9 \times 8 \times 4 = 32 \times 9$$

$$\therefore \frac{5}{9} \text{th of the number} = \frac{5}{9} \times 32 \times 9$$

$$= 160$$

Question 78

The average marks of 56 students is shown as 60. It includes a wrong entry of 92 marks instead of 29 marks. The correct average is _____.

A 58.875 marks

B 61.125 marks

C 63.375 marks

D 56.625 marks

Answer: A

Explanation:

$$\text{Total marks of 56 students} = 56 \times 60 = 3360$$

$$\text{Replacing 92 by 29 in the data, } \Rightarrow \text{Total marks} = 3360 - 92 + 29 = 3297$$

$$\Rightarrow \text{Correct average} = \frac{3297}{56} = 58.875$$

\(\Rightarrow\) Ans - (A)

Question 79

If $13x^2 = 17^2 - 9^2$, find the value of x?

A 16

B 12

C 8

D 4

Answer: D

Explanation:

$$\text{Expression : } 13x^2 = 17^2 - 9^2$$

$$\Rightarrow 13x^2 = (17 - 9)(17 + 9)$$

$$\Rightarrow 13x^2 = 8 \times 26$$

$$\Rightarrow x^2 = 8 \times 2 = 16$$

$$\Rightarrow x = \sqrt{16} = 4$$

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Question 80

If $2 + 2x < 3 + 5x$ and $3(x - 2) < 5 - x$; then x can take which of the following values?

A 1

B 3

C -1

D -2

Answer: A

Explanation:

Expression 1 : $2 + 2x < 3 + 5x$

$$\Rightarrow 5x - 2x > 2 - 3$$

$$\Rightarrow x > \frac{-1}{3} \text{ -----(i)}$$

Expression 2 : $3(x - 2) < 5 - x$

$$\Rightarrow 6x - 12 < 5 - x$$

$$\Rightarrow 6x + x < 5 + 12$$

$$\Rightarrow x < \frac{17}{7} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-1}{3} < x < \frac{17}{7}$

Thus, x can take values = 0, 1, 2

\Rightarrow Ans - (A)

Question 81

If the radius of a circle is increased by 17% its area increases by _____.

A 34 percent

B 36.89 percent

C 17 percent

D 18.445 percent

Answer: B

Explanation:

Let radius = 10 cm

$$\Rightarrow \text{Area of circle} = \pi(10)^2 = 100\pi \text{ sq. cm}$$

If radius is increased by 17%, \Rightarrow New radius = 11.7 cm

$$\text{New area} = \pi(11.7)^2 = 136.89\pi \text{ sq. cm}$$

$$\Rightarrow \% \text{ increase in area} = \frac{136.89 - 100}{100} \times 100$$

$$= 36.89 \%$$

Question 82

A bank offers 20% compound interest per half year. A customer deposits Rs 2800 each on 1st January and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is _____.

A Rs 3584

B Rs 868

C Rs 1792

D Rs 448

Answer: C

Explanation:

Principal = Rs. 2800 and Rate = 20%

Amount for first half-year = $2800 \times \frac{100}{120} = Rs.3360$

Principal for next 6 months = Rs.3360+Rs.2800 = Rs.6160.

Amount received in next half year = $6160 \times \frac{100}{120} = Rs.7392$

Total interest = Rs.7392 - Rs.5600 = Rs.1792.

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Question 83

4 hrs after a goods train passed a station, another train travelling at a speed of 60 km/hr following that goods train passed through that station. If after passing the station the train overtakes the goods train in 8 hours. What is the speed of the goods train?

- A 40 km/hr
- B 48 km/hr
- C 60 km/hr
- D 32 km/hr

Answer: A

Explanation:

Let the speed of goods train = x km/hr

Speed of another train = 60 km/hr

Distance between the two trains = $60 \times 4 = 240$ km

The trains are moving in same direction, => Relative speed = $(60 - x)$ km/hr

Time = $4 + 8 = 12$ hours

=> speed = distance/time

$$\Rightarrow 60 - x = \frac{240}{12} = 20$$

$$\Rightarrow x = 60 - 20 = 40 \text{ km/hr}$$

=> Ans - (A)

Question 84

Ticket for an adult is Rs 1000 and a child is Rs 500. One child goes free with two adults. If a group has 17 adults and 5 children what is the discount the group gets?

- A 14.7 percent
- B 32 percent
- C 12.82 percent
- D 22 percent

Answer: C

Explanation:

Cost price of adult ticket = Rs. 1000 and child ticket = Rs. 500

For 17 adults and 5 children, total cost = $(17 \times 1000) + (5 \times 500) = Rs.19,500$

If one child goes free with two adults, => 5 children will go with 10 adults, thus all the children will go for free.

Cost of 17 adults = $17 \times 1000 = \text{Rs.}17,000$

$$\text{Discount \%} = \frac{19500 - 17000}{19500} \times 100$$

= 12.82%

Question 85

Find the value of p if $-3x - 11$, $x + p$ and $5x + 7$ are in arithmetic progression.

- A 9
- B 2
- C -9
- D -2

Answer: D

Explanation:

Terms in arithmetic progression : $(-3x - 11)$, $(x + p)$, $(5x + 7)$

=> Difference between first two terms is equal to the difference between last two terms

$$\Rightarrow (x + p) - (-3x - 11) = (5x + 7) - (x + p)$$

$$\Rightarrow 4x + p + 11 = 4x + 7 - p$$

$$\Rightarrow 2p = 7 - 11 = -4$$

$$\Rightarrow p = \frac{-4}{2} = -2$$

=> Ans - (D)

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Question 86

The point $P(-4,1)$ divides the segment joining the points $(x,0)$ and $(0,y)$ in the ratio 3:2. Find x and y ?

- A $x = -10; y = 5/3$
- B $x = -10; y = -5/3$
- C $x = 10; y = 5/3$
- D $x = 10; y = -5/3$

Answer: A

Explanation:

Using section formula, the coordinates of point that divides line joining $A = (x_1, y_1)$ and $B = (x_2, y_2)$ in the ratio $a : b$

$$= \left(\frac{ax_2 + bx_1}{a+b}, \frac{ay_2 + by_1}{a+b} \right)$$

Now, point $P(-4,1)$ divides $(x,0)$ and $(0,y)$ in ratio = 3 : 2

$$\Rightarrow -4 = \frac{(3 \times 0) + (2 \times x)}{3+2}$$

$$\Rightarrow x = \frac{-4 \times 5}{2} = -10$$

Similarly, $1 = \frac{(3 \times y) + (2 \times 0)}{3+2}$

$$\Rightarrow 3y = 5, \Rightarrow y = \frac{5}{3}$$

=> Ans - (A)

Question 87

A shopkeeper, sold walnuts at the rate Rs 1,190 a kg and bears a loss of 10%. Now if he decides to sell it at Rs 1,249.5 per kg, what will be the result?

- A 11 percent loss
- B 5.5 percent loss
- C 5.5 percent gain
- D 11 percent gain

Answer: B

Explanation:

Let Cost price = Rs. x

Selling price = Rs. 1190

$$\Rightarrow \text{Loss \%} = \frac{x-1190}{x} \times 100 = 10$$

$$\Rightarrow \frac{x-1190}{x} = \frac{10}{100} = \frac{1}{10}$$

$$\Rightarrow 10x - 11900 = x$$

$$\Rightarrow x = \frac{11900}{9} = 1322.22$$

If selling price = Rs. 1249.5

$$\Rightarrow \text{Loss \%} = \frac{1322.22-1249.5}{1322.22} \times 100 \approx 5.5\%$$

Question 88

What is the equation of the line if its slope is $-2/5$ and y-intercept is 6?

- A $2x + 5y = 6$
- B $2x + 5y = 30$
- C $2x - 5y = 6$
- D $2x + 5y = -30$

Answer: B

Explanation:

Slope, $m = -\frac{2}{5}$ and y-intercept, $c = 6$

Equation of line = $y = mx + c$

$$\Rightarrow y = -\frac{2}{5}x + 6$$

$$\Rightarrow y = \frac{-2x+30}{5}$$

$$\Rightarrow 5y = -2x + 30$$

$$\Rightarrow 2x + 5y = 30$$

\Rightarrow Ans - (B)

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Question 89

Amal is 5 times as good a workman as Bhairav and therefore is able to finish a job in 48 days less than Bhairav. Working together, they can do it in

- A 20 days
- B 5 days
- C 25 days
- D 10 days

Answer: D

Explanation:

Ratio of times taken by Amal and Bhairav = 1 : 5

The time difference is (5 - 1) = 4 days while Bhairav takes 5 days and Amal takes 1 day.

If difference of time is 4 days, Bhairav takes 5 days.

If difference of time is 48 days, Bhairav takes = $\frac{5}{4} \times 48 = 60$ days

=> Amal takes 12 days

Amal's 1 day's work = $\frac{1}{12}$

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

=> (Amal + Bhairav)'s 1 day's work = $\frac{1}{12} + \frac{1}{60} = \frac{6}{60} = \frac{1}{10}$

∴ Amal and Bhairav together can do the work in 10 days.

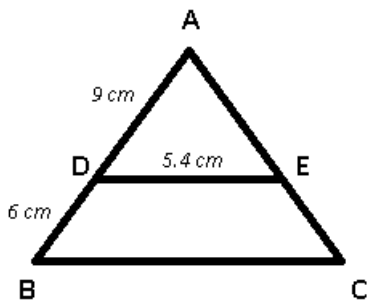
Question 90

In $\triangle ABC$, D and E are points on side AB and AC respectively. DE is parallel to BC. If lengths of AD, DB and DE are 9 cm, 6 cm and 5.4 cm respectively find length of BC?

- A 3.6 cm
- B 4.8 cm
- C 11.2 cm
- D 9 cm

Answer: D

Explanation:



DE is parallel to BC

$$\Rightarrow \frac{AD}{AB} = \frac{DE}{BC}$$

$$\Rightarrow \frac{9}{9+6} = \frac{5.4}{BC}$$

$$\Rightarrow \frac{9}{15} = \frac{5.4}{BC}$$

$$\Rightarrow BC = 15 \times 0.6 = 9 \text{ cm}$$

Question 91

In an army selection process, the ratio of selected to unselected was 6:1. If 90 less had applied and 30 less selected, the ratio of selected to unselected would have been 8:1. How many candidates had applied for the process?

- A 3150
- B 6300
- C 4725
- D 1575

Answer: D

Explanation:

Let $7x$ candidates applied for the process.

Candidates selected = $6x$ and candidates not selected = x

If candidates applied = $7x - 90$

Candidates selected = $6x - 30$

=> Candidates not selected = $(7x - 90) - (6x - 30) = x - 60$

According to ques,

$$\Rightarrow \frac{6x-30}{x-60} = \frac{8}{1}$$

$$\Rightarrow 6x - 30 = 8x - 480$$

$$\Rightarrow 2x = 480 - 30 = 450$$

$$\Rightarrow x = \frac{450}{2} = 225$$

∴ Number of candidates who applied for the process = $7 \times 225 = 1575$

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Question 92

In a triangle the length of the side opposite the angle which measures 30 degree is 12 cm, what is the length of the side opposite to the angle which measures 60 degree?

- A 9 cm
- B $12\sqrt{3}$
- C $\frac{(15\sqrt{3})}{2}$
- D $\frac{(9\sqrt{3})}{2}$

Answer: B

Explanation:

In the given triangle, two angles are 30° and 60° , => Third angle = 90°

In a 30-60-90 triangle, the hypotenuse is always twice as long as the side opposite the 30° angle and the side opposite the 60° angle is $\sqrt{3}$ times as long as the side opposite the 30° angle.

The ratio of sides opposite 30° , 60° and 90° angles = $1 : \sqrt{3} : 2$

Length of the side opposite the 30° angle = 12 cm

=> Length of side opposite the 60° angle = $12\sqrt{3}$ cm

=> Ans - (B)

Question 93

Volume of a cylinder is 13860 cubic cm. If circumference of its base is 132 cm, find the curved surface area of the cylinder?

- A 2640 sq cm
- B 3960 sq cm
- C 1320 sq cm
- D 660 sq cm

Answer: C

Explanation:

Let radius of cylinder = r cm and height = h cm

Circumference of base = $2\pi r = 132$

$$\Rightarrow 2 \times \frac{22}{7} \times r = 132$$

$$\Rightarrow r = \frac{132}{44} \times 7 = 21 \text{ cm}$$

Volume of cylinder = $\pi r^2 h = 13860$

$$\Rightarrow \frac{22}{7} \times (21)^2 \times h = 13860$$

$$\Rightarrow 22 \times 3 \times 21 \times h = 13860$$

$$\Rightarrow h = \frac{13860}{66 \times 21} = 10$$

\therefore Curved surface area of cylinder = $2\pi r h$

$$= 2 \times \frac{22}{7} \times 21 \times 10$$

$$= 44 \times 30 = 1320 \text{ cm}^2$$

Question 94

What is the value of $\tan 4\pi/3$?

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

Answer: B

Explanation:

Expression : $\tan\left(\frac{4\pi}{3}\right)$

$$= \tan\left(\pi + \frac{\pi}{3}\right)$$

$$= \tan \frac{\pi}{3} = \sqrt{3}$$

=> Ans = (B)

Question 95 $\cot^3 A$ is equal to

- A $3\cot A - \cot^3 A / (1 - 3\cot^2 A)$
 B $3\cot A + \cot^3 A / (1 - 3\cot^2 A)$
 C $3\cot A - \cot^3 A / (1 + 3\cot^2 A)$
 D $3\cot A + \cot^3 A / (1 + 3\cot^2 A)$

Answer: A**Explanation:**We know that $\cot 2A = \frac{\cot^2 A - 1}{2\cot A}$ and $\cot(A + B) = \frac{(\cot A \cdot \cot B - 1)}{\cot A + \cot B}$ Expression : $\cot 3A = \cot(2A + A)$

$$= \frac{(\cot A \cdot \cot 2A - 1)}{\cot A + \cot 2A}$$

$$\text{Now, } (\cot A \cdot \cot 2A - 1) = \cot A \left(\frac{\cot^2 A - 1}{2\cot A} \right) - 1$$

$$= \frac{\cot^3 A - \cot A - 2\cot A}{2\cot A} = \frac{\cot^3 A - 3\cot A}{2\cot A} \text{-----(i)}$$

$$\text{And, } (\cot A + \cot 2A) = \cot A + \left(\frac{\cot^2 A - 1}{2\cot A} \right)$$

$$= \frac{2\cot^2 A + \cot^2 A - 1}{2\cot A} = \frac{3\cot^2 A - 1}{2\cot A} \text{-----(ii)}$$

Dividing eqn(i) by (ii), we get :

$$= \frac{\cot^3 A - 3\cot A}{3\cot^2 A - 1}$$

$$= \frac{3\cot A - \cot^3 A}{1 - \cot^2 A}$$

Question 96 $\sec^2 A \operatorname{cosec}^2 A$ is equal to

- A $\sec^2 A - \operatorname{cosec}^2 A$
 B $\sqrt{\sec^2 A + \operatorname{cosec}^2 A}$
 C $\sec^2 A + \operatorname{cosec}^2 A$
 D $\sqrt{\sec^2 A - \operatorname{cosec}^2 A}$

Answer: C**Explanation:**Expression : $\sec^2 A \operatorname{cosec}^2 A$

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

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

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

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

$$= \frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} = \sec^2 A + \operatorname{cosec}^2 A$$

=> Ans - (C)

Question 97

Refer the below data table and answer the following Question.

	Quantity of Stock	Average Cost (Rs)
Mobile Phones	97	5000
Cameras	28	20000
TVs	80	33000
Refrigerators	79	29000
ACs	94	27000

What is the value of the total stock (in lakh rupees)?

A 851.4

B 114

C 378

D 85.14

Answer: D

Explanation:

Total cost of mobiles = $97 \times 5000 = \text{Rs. } 4,85,000$

Total cost of Cameras = $28 \times 20000 = \text{Rs. } 5,60,000$

Total cost of TVs = $80 \times 33000 = \text{Rs. } 26,40,000$

Total cost of Refrigerator = $79 \times 29000 = \text{Rs. } 22,91,000$

Total cost of AC = $94 \times 27000 = \text{Rs. } 25,38,000$

\therefore Total cost = $4,85,000 + 5,60,000 + 26,40,000 + 22,91,000 + 25,38,000 = \text{Rs. } 85,14,000$

Total cost in lakhs = Rs 85.14 lakhs

=> Ans - (D)

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Question 98

Refer the below data table and answer the following Question.

Year	Ratio : Import / Export
2011	0.9
2012	0.9
2013	1
2014	0.8
2015	1.5

If the imports in 2012 was Rs. 500 crores and the total exports in the years 2012 and 2013 together was Rs. 3200 crores, then the imports in 2013 was?

A 556

B 2111

C 2644

D 2020

Answer: C

Explanation:

Imports in 2012 = Rs. 500 crores

Let Exports in 2012 = Rs. y crores

Ratio of imports and exports in 2012 = 0.9

$$\Rightarrow \frac{500}{y} = 0.9$$

$$\Rightarrow y = \frac{500}{0.9} = 555.56$$

Total exports In the years 2012 and 2013 together = Rs. 3200 crores

\Rightarrow Exports in 2013 = Rs. (3200 - 555.56) crores = Rs. 2644.44 crores

Let imports in 2013 = Rs. x crores

Ratio of imports and exports in 2013 = $\frac{x}{2644.44} = 1$

$$\Rightarrow x = 2644.44 \approx 2644$$

\therefore Imports in 2013 was Rs. 2644 crores

\Rightarrow Ans - (C)

Question 99

Refer the below data table and answer the following Question.

Measured on Birthday	Height of the child (in cms)
4	100
5	110
6	120
7	130
8	135
9	140
10	145
11	155
12	165
13	170
14	180
15	185
16	195

What was the increase in the height of the child from the 10th Birthday to the 15th Birthday?

- A 50 cm
- B 45 cm
- C 40 cm
- D 35 cm

Answer: C

Explanation:

Height on 10th birthday = 145 cm

Height on 15th birthday = 185 cm

Increase in height = 185 - 145 = 40 cm

\Rightarrow Ans - (C)

Question 100

Refer the below data table and answer the following Question.

Deep Sleep	20
Dreaming	25
Light Sleep	5
Extremely Light Sleep	10
Awake	40

Between 10pm to 6am, a fitness band records the following data. How long was the user in Deep sleep or was Awake?

- A 4.3 hours
- B 4.8 hours
- C 3.3 hours
- D 5.3 hours

Answer: B

Explanation:

Total time between 10 pm to 6 am = 8 hours

% time spent in deep sleep and awake = $20 + 40 = 60\%$

=> Time spent in deep sleep and awake = $\frac{60}{100} \times 8$

= $\frac{48}{10} = 4.8$ hours

=> Ans - (B)

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