



SSC CHSL 21 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.

Hindu : Temple :: Muslim : ?

- A Synagogue
- B Mosque
- C Gurudwara
- D Church

Answer: B

Explanation:

Relationship between a religion and its worshiping place is given. Hindus worship in Temples, while Muslims worship in *Mosque*.

=> Ans - (B)

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Question 2

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

CIRCLE : CLECI R :: MANNER : ?

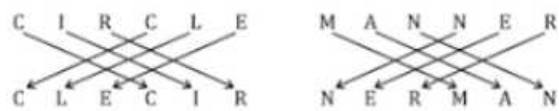
- A NAMNER
- B NERNAM
- C RENNAM
- D NERMAN

Answer: D

Explanation:

Expression = CIRCLE : CLECI R :: MANNER : ?

The pattern followed is :



Thus, MANNER : **NERMAN**

=> Ans - (D)

Question 3

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

GROUPS : FQNTOR :: TORTURE : ?

- A SNTSTQD
- B SNQSTQD
- C SNQTSQD

D SMQSTQD

Answer: B

Explanation:

Expression = GROUPS : FQNTOR :: TORTURE : ?

The pattern followed is :

G	R	O	U	P	S	T	O	R	T	U	R	E
-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓	-1↓
F	Q	N	T	O	R	S	N	Q	S	T	Q	D

Thus, TORTURE : SNQSTQD

=> Ans - (B)

Question 4

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

989 : 26 :: 868 : ?

A 32

B 22

C 10

D 21

Answer: B

Explanation:

Expression = 989 : 26 :: 868 : ?

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

Eg :- $9 + 8 + 9 = 26$

Similarly, $8 + 6 + 8 = 22$

=> Ans - (B)

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Question 5

Find out the odd word/letters/number/number pair from the given alternatives.

A Fish

B Turtle

C Crocodile

D Frog

Answer: A

Explanation:

Except fish other three are amphibians, hence it is the odd one out.

=> Ans - (A)

Question 6

Find out the odd word/letters/number/number pair from the given alternatives.

- A ST39
- B GF15
- C NO29
- D LM25

Answer: B

Explanation:

According to the corresponding value of position.

$$S + T = 19 + 20 = 39$$

$$G + F = 7 + 6 = 13$$

$$N + O = 14 + 15 = 29$$

$$L + M = 12 + 13 = 25$$

=> Ans - (B)

Question 7

Find out the odd word/letters/number/number pair from the given alternatives.

- A 423
- B 789
- C 567
- D 356

Answer: D

Explanation:

Except 356 other three are divisible by 3, hence it is the odd one out.

=> Ans - (D)

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Question 8

Find out the odd word/letters/number/number pair from the given alternatives.

- A 484
- B 784
- C 676
- D 575

Answer: D

Explanation:

Except 575 other three are perfect squares, hence it is the odd one out.

$$484 = (22)^2, 784 = (28)^2, 676 = (26)^2$$

=> Ans - (D)

Question 9

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
Wind turbine, Generation, Battery bank, ?, Distribution

- A Steam
- B Turbine
- C Water
- D Transmission

Answer: D

Explanation:

Steps of generating electricity from windmill.

= Wind turbine -> Generation -> Battery bank -> Transmission -> Distribution

=> Ans - (D)

Question 10

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
JD,?,QK, VP, BV

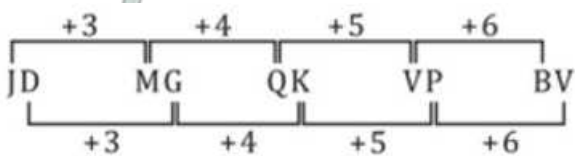
- A NP
- B NO
- C MG
- D MH

Answer: C

Explanation:

Expression : JD,?,QK, VP, BV

The pattern followed is :



Thus, missing term = **MG**

=> Ans - (C)

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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.
OK, SN, WQ, AT, ?

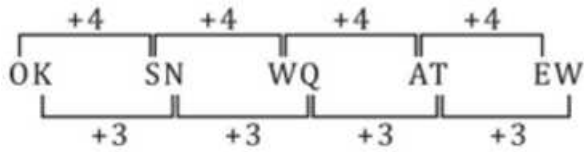
- A KN
- B HJ
- C GH
- D EW

Answer: D

Explanation:

Expression : OK, SN, WQ, AT, ?

The pattern followed is :



Thus, missing term = EW

=> Ans - (D)

Question 12

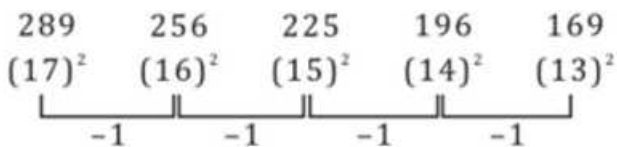
A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. 289, 256, 225, 196, ?

- A 164
- B 165
- C 169
- D 170

Answer: C

Explanation:

The pattern followed is that squares of natural numbers in decreasing order are given.



Thus, missing term = 169

=> 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 statement 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.

Statement:

- (I) Government is taking measures for safety of women in multi-dimensional aspects.
- (II) Sensitization programmes for awareness are up through various modes of promotion.

Conclusions:

- (I) Women helpline has been introduced for 24x7 for helping the females.
- (II) The number of rape and extortion cases have reduced in last six months.

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

Answer: C

Explanation:

The given statements indicate that government is taking measures for safety of women in multi-dimensional aspects, and sensitization

programmes for awareness are up through various modes of promotion. It did not mention anything about decrease in rape or extortion cases or about the women helpline number.

Thus, neither I nor II follow.

=> Ans - (C)

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Question 14

I hire a taxi from my home to go to my workplace. The fare system in the city is such that for the first kilometre, I am charged Rs 25, and after that, I am charged Rs 6 per kilometre. If my workplace is 10 km far from my home, what amount do I have to pay if I go by taxi?

A Rs. 64

B Rs. 89

C Rs. 90

D Rs. 79

Answer: D

Explanation:

Fare for 1st km = Rs. 25 and fare or rest of the journey = Rs. 6/km

Distance travelled = 10 km

=> Amount to be paid = $(1 \times 25) + (9 \times 6)$

= $25 + 54 = Rs. 79$

=> Ans - (D)

Question 15

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

- i. Argument
- ii. Augmentation
- iii. Agility
- iv. Astute

A iii,ii,i,iv

B iii,i,iv,ii

C iii,i,ii,iv

D iv,ii,iii,i

Answer: B

Explanation:

As per the order of dictionary :

= Agility -> Argument -> Astute -> Augmentation

≡ iii,i,iv,ii

=> Ans - (B)

Question 16

In a certain code language, "DIGIT" is written as "@#^#*" and "EAR" is written as "?!<". How is "TIGER" written in that code language?

A *#?^<

B #*^?<

C *#^##

D *#^?<

Answer: D

Explanation:

The codes for each letter is given :

T -> *

I -> #

G -> ^

E -> ?

R -> <

Thus, TIGER : *#^?<

=> Ans - (D)

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Question 17

Find the missing number in the given Series?

4	6	8
32	42	56
8	?	7

A 6

B 9

C 7

D 8

Answer: C

Explanation:

In each column, the number at the middle is obtained by multiplying the other two.

Eg :- $4 \times 8 = 32$ and $8 \times 7 = 56$

Similarly, $6 \times x = 42$

=> $x = \frac{42}{6} = 7$

=> Ans - (C)

Question 18

If "A" means "subtraction", "B" means "division", "C" means "addition" and "D" means "multiplication", then $330 \text{ B } 6 \text{ A } 32 \text{ C } 45 \text{ D } 12 = ?$

A 525

B 547

C 582

D 563

Answer: D

Explanation:

Expression : $330 \div 6 - 32 + 45 \times 12 = ?$

$$\begin{aligned} &\equiv 330 \div 6 - 32 + 45 \times 12 \\ &= \left(\frac{330}{6}\right) + (-32) + (45 \times 12) \\ &= 55 - 32 + 540 = 563 \end{aligned}$$

=> Ans - (D)

Question 19

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

A OPQP

B POQP

C PQQP

D PONQ

Answer: B

Explanation:

The pattern followed is that in groups of 5, the term 'NOPPQ' is repeated.

= NOPPQ NOPPQ NOPPQ

=> Ans - (B)

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Question 20

A person leaves from his office on his motorcycle to watch a movie. He rides 50 km towards east, turns right and rides for another 24 km. Finally, he turns towards the west and rides 43 km further and reaches the movie hall. What is the minimum distance between the movie hall and his office?

A 15 km

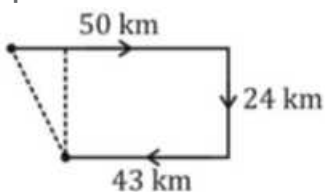
B 31 km

C 25 km

D 10 km

Answer: C

Explanation:



The person starts from his office and rides 50 km east, then turned right and ride south for 24 km, finally he turned left and travelled west for 43 km.

Thus, shortest distance between his office and movie hall

$$= \sqrt{(24)^2 + (50 - 43)^2}$$

$$= \sqrt{576 + 49}$$

$$= \sqrt{625} = 25 \text{ km}$$

=> Ans - (C)

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 1 are numbered from 0 to 4 and that of Matrix 2 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, 'Z' can be represented by 41, 01 etc. and H can be represented by 65, 59 etc. Similarly, you have to identify the set for the word 'PULP'.

Matrix 1

	0	1	2	3	4
0	E	Z	R	L	G
1	S	L	M	Q	H
2	L	X	L	W	P
3	A	V	K	P	O
4	C	Z	L	Y	I

Matrix 2

	5	6	7	8	9
5	V	M	P	G	H
6	H	P	U	D	U
7	P	Z	Y	U	Z
8	N	X	U	A	K
9	M	U	I	S	L

A 24,96,42,34

B 33,67,10,75

C 57,87,11,22

D 66,78,03, 33

Answer: D

Explanation:

(A) : 24,96,42,34 = PULO

(B) : 33,67,10,75 = PUSP

(C) : 57,87,11,22 = PULL

(D) : 66,78,03, 33 = PULP

=> Ans - (D)

Question 22

Raman is Sunaina's father and Sunaina is Vidur's wife. Saksham is the father of Vidur's father. How is Saksham related to Sunaina?

A Father-in-law

B Grandfather-in-law

C Son

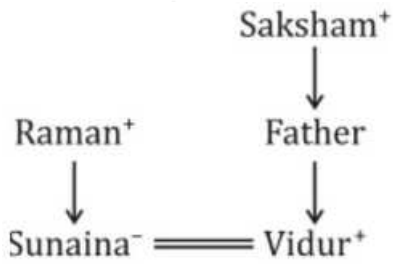
D Husband

Answer: B

Explanation:

Raman is Sunaina's father and Sunaina is Vidur's wife.

Also, Saksham is the father of Vidur's father.



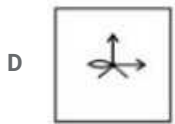
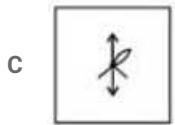
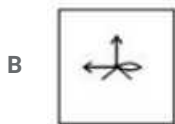
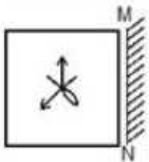
Thus, Saksham is Sunaina's **grandfather-in-law**.

=> Ans - (B)

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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 ?



Answer: A

Explanation:

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

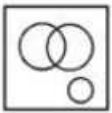



So the leaf petal (oval) in the middle will be reversed, and will now point at bottom left.

Also, in the question figure, the the direction of arrows will be changed (from 7:00 to 5:00), hence it will appear at right side, hence the first option is the right image.

=> Ans - (A)

Question 24

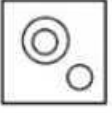
Identify the diagram that best represents the relationship among the given classes, Bird, Reptile, Snake

- A 
- B 
- C 
- D 

Answer: C

Explanation:

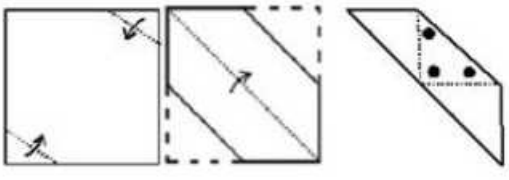
All snakes are reptiles, but birds are different from them, hence the venn diagram that best describes above relation is :

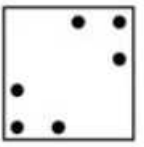
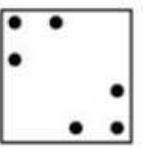
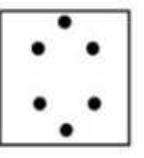


=> Ans - (C)

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



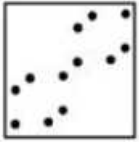
Answer: D

Explanation:

When the paper is unfolded to the bottom, three dots will appear similarly on the bottom part.

When the paper is unfolded again to the top right and bottom left, three dots each will appear similarly on the top right and bottom left part of the paper.

∴ When the paper is opened it will appear as shown below



Hence, the correct answer is Option D

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Which caves is a cultural mix of religious arts of Buddhism, Hinduism and Jainism?

- A Ajanta
- B Ellora
- C Elephanta
- D Badami

Answer: B

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Question 27

Which Indian actor has won maximum number of National awards?

- A Tabu
- B Kamal Haasan
- C Shabana Azmi
- D Kangana Ranaut

Answer: C

Question 28

Which of the following induces souring of milk?

- A Acetic Acid
- B Citric Acid
- C Ascorbic Acid
- D Lactic Acid

Answer: D

Question 29

Which non-flowering, spore bearing plants have roots?

- A mosses
- B angiosperms
- C ferns
- D gymnosperms

Answer: C

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Question 30

What is an excretory organ of cockroach?

- A Malpighian Tubules
- B Nephridia
- C Coxal Gland
- D Green Gland

Answer: A

Question 31

The Chemical formula of Cadmium nitrate is.....

- A $Cd(NO_3)_2$
- B $CdNO_3$
- C b: $CdNO_3$
c: $Cd_2(NO_3)_2$
- D Cd_2NO_3

Answer: A

Question 32

The common name of hydrogen peroxide is

- A borax

B bleach (liquid)

C baking soda

D gypsum

Answer: B

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Question 33

.....is a series of supercomputers designed and assembled by the Centre for Development of Advanced Computing (C-DAC) in Pune, India.

A PARAM

B TITAN

C SHAKTI

D VIGYAN

Answer: A

Question 34

Bharatanatyam is a folk dance of which state?

A Kerala

B Tamil Nadu

C Andhra Pradesh

D Uttarakhand

Answer: B

Question 35

Reema wants to buy a certain designer party dress. The shop is offering a discount of 20% on that dress which is marked at Rs 5000. If Reema was willing to pay even Rs 7000 for that dress, Reema's consumer surplus is

A Rs 3000

B Rs 2000

C Rs 1000

D Rs 7000

Answer: A

Explanation:

Marked price = Rs. 5000

Discount % = 20%

=> Selling price = $5000 \times \frac{(100-20)}{100}$

= $50 \times 80 = Rs. 4000$

Thus, Reema's consumer surplus = $7000 - 4000 = \text{Rs. } 3000$

=> Ans - (A)

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Question 36

The unemployment created at certain times of the year, when the demand for goods and services are lower than normal, is.....

- A Cyclical unemployment
- B Frictional unemployment
- C Seasonal unemployment
- D Structural unemployment

Answer: C

Question 37

Evaporation of water takes place in which part of plants?

- A Stem
- B Stomata
- C Branch
- D Fruit

Answer: B

Question 38

Kalakkad-Mundanthurai Tiger Reserve is in which state?

- A Tamil Nadu
- B Chhattisgarh
- C Arunachal Pradesh
- D Uttarakhand

Answer: A

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Question 39

Picture of which US President is on the 5 dollar note?

- A George Washington
- B Thomas Jefferson
- C Abraham Lincoln
- D Andrew Jackson

Answer: C

Question 40

Which country is the largest producer of Guava?

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

Answer: D

Question 41

Port Blair is the Capital City of.....

- A Andaman and Nicobar Islands
- B Andhra Pradesh
- C Bihar
- D West Bengal

Answer: A

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Question 42

Battle of Plassey was fought in.....

- A 1657
- B 1707
- C 1757
- D 1807

Answer: C

Question 43

Shah Jahan (1627-1657 AD) was the ruler of which dynasty?

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

Answer: A

Question 44

Who was the first Indian astronaut to travel in space?

- A Rakesh Sharma
- B Ravish Malhotra
- C Kalpana Chawla
- D Sheikh Muszaphar Shukor

Answer: A

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Question 45

AV= constant, where A= area of cross-section and V= velocity of fluid. This equation is called.....

- A Equation of discontinuity
- B Equation of continuity
- C Equation of sustenance
- D Equation of parallelism

Answer: B

Question 46

A body in equilibrium.....

- A can move with constant acceleration
- B is always at rest
- C can move with constant velocity
- D can move with variable acceleration

Answer: C

Question 47

All India Trinamool Congress was founded in the year.....

- A 1925
- B 1955
- C 1984
- D 1998

Answer: D

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Question 48

Indian National Congress is a part of which political group?

- A United Progressive Alliance
- B National Democratic Alliance
- C Janata Parivar
- D Rashtra Parivar

Answer: A

Question 49

Which among the following countries won the Sultan Azlan Shah cup in 2016?

- A Netherlands
- B Germany
- C England
- D Australia

Answer: D

Question 50

Who wrote the book -"The Algebra of Infinite Justice"?

- A Bankim Chandra Chatterji
- B Arundhati Roy
- C Ashwaghosha
- D Anita Desai

Answer: B

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English

Instructions

For the following questions answer them individually

Question 51

Select the word with the correct spelling.

- A crockery
- B filigre
- C mobillity
- D saccristy

Answer: A

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Question 52

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

- A To reveal secret information unintentionally
- B To lose inherited wealth
- C To spread rumours to intentionally harm someone
- D To spend away hard earned savings

Answer: A

Question 53

Improve the bracketed part of the sentence.
The pool was dry as the water (had been drained off) the day before.

- A has been drained off
- B was drained
- C has been drained away
- D no improvement

Answer: D

Question 54

Select the antonym of cosset

- A ignore
- B close
- C caress
- D fondle

Answer: A

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Question 55

Rearrange the parts of the sentence in correct order.
The essay is about
P-namely,
Q-what its title says,
R-the enemies of intellectual liberty

- A RPQ
- B QRP

C QPR

D PRQ

Answer: C

Question 56

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 combination of high IQ and general knowledge makes it easier to.....these skills.

A have

B acquire

C procure

D get

Answer: B

Question 57

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.

"Bring me a cup of coffee" said Nita to her mother.

A Nita asked her mother that would she bring her a cup of coffee.

B Nita asked her mother that if she could bring her a cup of coffee.

C Nita asked her mother that could she bring her a cup of coffee.

D Nita asked her mother to bring her a cup of coffee.

Answer: D

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Question 58

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.

Despite the bank's security staff.....a vigil over the treasury boxes, the cash was stolen.

A putting

B placing

C keeping

D taking

Answer: C

Question 59

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.

Why did he break the vase?

- A Why is the vase broken by him?
- B Why was the vase broken by him?
- C Why had been the vase broken by him?
- D Why has been the vase broken by him?

Answer: B

Question 60

Select the synonym of
privation

- A hardship
- B abundance
- C private
- D luxury

Answer: A

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Question 61

Select the synonym of
carnage

- A accord
- B butchery
- C concord
- D cessation

Answer: B

Question 62

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.
To spin one's wheels

- A to take a chance
- B to do a job quickly
- C to narrate someone a confusing story
- D to waste one's time

Answer: D

Question 63

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'.

The average age at which(A)/people die of heart diseases(B)/are decreasing.(C)/No error(D)

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

Answer: C

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Question 64

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. to kill someone by covering their nose and mouth so that they suffocate

- A to smite
- B to extirpate
- C to lynch
- D to smother

Answer: D

Question 65

Select the word with the correct spelling.

- A smoldder
- B alveolar
- C canvaccess
- D innosent

Answer: B

Question 66

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'.

Hardly had I stepped(A)/out of my house when(B)/I saw them coming towards my house.(C)/No error(D)

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

Answer: D

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Question 67

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

To break up into small parts as the result of impact or decay

- A to disintegrate
- B disharmony
- C to disinherit
- D to denigrate

Answer: A

Explanation:

Disintegrate means to break into some parts.

Question 68

Select the antonym of hollow

- A alveolate
- B cleft
- C cavernous
- D solid

Answer: D

Question 69

Rearrange the parts of the sentence in correct order.

It was never meant

P-upon fundamental rights

Q-to become a tool

R-to broaden the scope of restrictions

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

Answer: D

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Question 70

Improve the bracketed part of the sentence.

(Her all) answers were incorrect.

- A Of all her
- B Her every answer

- C All in her
- D no improvement

Answer: D

Explanation:

The sentence is correct. Hence, no improvement is needed.

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.

To impose costs on one of the parties at the end of a.....litigation is common; it is meant, among other things, to act as a.....against litigants abusing the process and the system of the law. But to seek pre-deposits with a view to prioritising a certain kind of case over another, byearly dates of hearing to those that are capable of paying huge.....of money, is simply staggering. It reinforces a scheme of classism that ought to have no place in any court of law, let.....the apex court of the land.

Question 71

To impose costs on one of the parties at the end of a.....litigation is common

- A chronic
- B protracted
- C perpetual
- D infinite

Answer: B

Question 72

to act as a.....against litigants abusing the process and the system of the law.

- A deterrent
- B incentive
- C catalyst
- D stimulus

Answer: A

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Question 73

by.....early dates of hearing

- A conceding
- B rewarding
- C donating
- D granting

Answer: D

Question 74

capable of paying huge.....of money

- A total
- B quantity
- C sums
- D worth

Answer: C

Question 75

let.....the apex court of the land.

- A only
- B lonely
- C alone
- D sole

Answer: C

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Mathematics

Instructions

For the following questions answer them individually

Question 76

If $4(4x + 5) > 2x - 1 > 4x - 3$, then the value of x is

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

Answer: D

Explanation:

Expression 1 : $4(4x + 5) > 2x - 1$

$$\Rightarrow 16x + 20 > 2x - 1$$

$$\Rightarrow 16x - 2x > -1 - 20$$

$$\Rightarrow 14x > -21$$

$$\Rightarrow x > \frac{-3}{2} \text{ -----(i)}$$

Expression 2 : $2x - 1 > 4x - 3$

$$\Rightarrow 4x - 2x < 3 - 1$$

$$\Rightarrow 2x < 2$$

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

Combining inequalities (i) and (ii), we get : $\frac{-3}{2} < x < 1$

The only value that x can take among the options = 0

\Rightarrow Ans - (D)

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Question 77

Point Q(-2,b) is the midpoint of segment EF. Co-ordinates of E are (-7,-6) and F are (a,0). What is the value of a and b?

A $a = 3; b = -3$

B $a = -3; b = -3$

C $a = 3; b = 3$

D $a = -3; b = 3$

Answer: A

Explanation:

Coordinates of mid point of line joining points (x_1, y_1) and $(x_2, y_2) = \left(\frac{x_1+y_1}{2}, \frac{y_1+y_2}{2} \right)$

Coordinates of E(-7,-6) and F(a,0). Mid point of EF is Q(-2,b)

$$\Rightarrow -2 = \frac{-7+a}{2}$$

$$\Rightarrow a - 7 = -4$$

$$\Rightarrow a = 7 - 4 = 3$$

Similarly, $b = \frac{-6+0}{2}$

$$\Rightarrow b = \frac{-6}{2} = -3$$

\Rightarrow Ans - (A)

Question 78

Find x.

$$693.5 - (47.23 - x) - 82.48 = 8.172$$

A -720.578

B -555.618

C -650.078

D 831.382

Answer: B

Explanation:

Expression : $693.5 - (47.23 - x) - 82.48 = 8.172$

$$\Rightarrow 693.5 - 47.23 + x = 8.172 + 82.48$$

$$\Rightarrow 646.27 + x = 90.652$$

$$\Rightarrow x = 90.652 - 646.27$$

$$\Rightarrow x = -555.618$$

\Rightarrow Ans - (B)

Question 79

Coefficient of x^2 in $(x + 7)(5 - 3x)(3x - 6)$ is

- A 96
- B -30
- C 42
- D -18

Answer: B

Explanation:

A coefficient is a numerical or constant quantity placed before and multiplying the variable in an algebraic expression. Eg : In ax^2 , coefficient is a

$$\begin{aligned} \text{Expression : } & (x + 7)(5 - 3x)(3x - 6) \\ &= (5x - 3x^2 + 35 - 21x)(3x - 6) \\ &= (-3x^2 - 16x + 35)(3x - 6) \\ &= 3x(-3x^2 - 16x + 35) - 6(-3x^2 - 16x + 35) \\ &= -9x^3 - 48x^2 + 105x + 18x^2 + 96x - 210 \\ &= -9x^3 - 30x^2 + 201x - 210 \\ \therefore \text{Coefficient of } x^2 &= -30 \\ \Rightarrow \text{Ans - (B)} \end{aligned}$$

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Question 80

A man travels 420 kilometres in, partly by rail and partly by steamer. He spends 8 hours more time on steamer. If the velocity of the steamer is 35 km/hr and the velocity of rail is 65 km/hr, how much distance does he cover by steamer?

- A 395 km
- B 329 km
- C 494 km
- D 592 km

Answer: B

Explanation:

Let distance covered by steamer = d km
 \Rightarrow Distance covered by rail = $(420 - d)$ km
Let time taken on rail = t hours and time taken on steamer = $(t + 8)$ hours
Speed of rail = 65 km/hr and speed of steamer = 35 km/hr
Using, speed = distance/time
For steamer, $\frac{d}{t+8} = 35$
 $\Rightarrow d = 35t + 280$ -----(i)
For rail, $\frac{420-d}{t} = 65$

Substituting value of d from equation (i), we get :

$$\Rightarrow 420 - (35t + 280) = 65t$$

$$\Rightarrow 420 - 280 = 65t + 35t = 100t$$

$$\Rightarrow t = \frac{140}{100} = 1.4 \text{ hours}$$

Substituting value of t in equation (i), $\Rightarrow d = (35 \times 1.4) + 280$

$$= 49 + 280 = 329 \text{ km}$$

Question 81

If $\cos -300^\circ = x$, then the value of x is

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

Answer: A

Explanation:

Expression : $\cos -300^\circ = x$

$$\because \cos(-x) = \cos(x)$$

$$= \cos(300)$$

$$= \cos(360 - 60) = \cos(60)$$

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

\Rightarrow Ans - (A)

Question 82

What is the slope of the line $4x - 8y = 3$?

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

Answer: C

Explanation:

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

Now, equation of line $4x - 8y = 3$

$$\Rightarrow \text{Slope} = \frac{-4}{-8} = \frac{1}{2}$$

\Rightarrow Ans - (C)

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Question 83

Rajat sells a machine for Rs 53 lakhs at a loss. Had he sold it for Rs 64 lakh, his gain would have been 10 times the former loss. Find the cost price of the machine.

- A Rs 63 lakhs
- B Rs 69.3 lakhs
- C Rs 45 lakhs
- D Rs 54 lakhs

Answer: D

Explanation:

Let cost price of the machine = Rs. x lakhs

When selling price = Rs. 53 lakhs

$$\Rightarrow \text{Loss} = \text{Rs. } (x - 53) \text{ lakhs}$$

If selling price = Rs. 64 lakhs

$$\Rightarrow \text{Profit} = \text{Rs. } (64 - x) \text{ lakhs}$$

According to ques, Profit = $10 \times$ loss

$$\Rightarrow (64 - x) = 10 \times (x - 53)$$

$$\Rightarrow 64 - x = 10x - 530$$

$$\Rightarrow 10x + x = 530 + 64 = 594$$

$$\Rightarrow x = \frac{594}{11} = \text{Rs. } 54 \text{ lakhs}$$

\Rightarrow Ans - (D)

Question 84

The ratio of present ages of Rambha and Sarvesh is 8:5. After 7 years the ratio of their ages will be 5:4. What is Rambha's present age?

- A 5
- B 30
- C 8
- D 48

Answer: C

Explanation:

Let Rambha's present age = $8x$ years and Sarvesh's present age = $5x$ years

$$\text{According to ques, } \Rightarrow \frac{8x+7}{5x+7} = \frac{5}{4}$$

$$\Rightarrow 32x + 28 = 25x + 35$$

$$\Rightarrow 32x - 25x = 35 - 28$$

$$\Rightarrow 7x = 7$$

$$\Rightarrow x = \frac{7}{7} = 1$$

\therefore Rambha's age = $8 \times 1 = 8$ years

\Rightarrow Ans - (C)

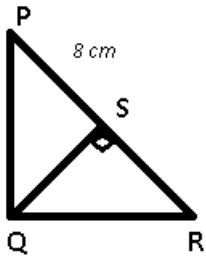
Question 85

Δ PQR is right angled at Q. QS is the altitude. PQ is $4\sqrt{29}$ cm and PS is 8 cm. Find length of SR?

- A $10\sqrt{29}$ cm
- B $8\sqrt{29}$ cm
- C 50 cm
- D 20 cm

Answer: C

Explanation:



Given : $PQ = 4\sqrt{29}$ cm and $PS = 8$ cm

In $\triangle PQS$, $\Rightarrow (PQ)^2 = (PS)^2 + (QS)^2$

$$\Rightarrow (4\sqrt{29})^2 = (8)^2 + (QS)^2$$

$$\Rightarrow (QS)^2 = 464 - 64 = 400$$

$$\Rightarrow (QS) = \sqrt{400} = 20 \text{ cm}$$

Let $SR = x$ cm

Using, $(QS)^2 = (PS) \times (SR)$

$$\Rightarrow (20)^2 = 8 \times x$$

$$\Rightarrow x = \frac{400}{8} = 50 \text{ cm}$$

\Rightarrow Ans - (C)

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Question 86

In a rectangle.....

- A Consecutive angles are congruent as well as supplementary
- B Diagonals are perpendicular to each other
- C Diagonals bisect opposite angles
- D Diagonals are not equal

Answer: A

Explanation:

In a rectangle, all the angles are right angle and thus consecutive angles are congruent (equal) as well as supplementary (sum = 180°)

\Rightarrow Ans - (A)

Question 87

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

- A $\tan A$

- B $\sin A$
- C $\cos A$
- D $\cot A$

Answer: D

Explanation:

Expression : $\sqrt{\operatorname{cosec}^2 A - 1}$

$\therefore (\operatorname{cosec}^2 A - \cot^2 A = 1)$

$= \sqrt{\cot^2 A} = \cot A$

\Rightarrow Ans - (D)

Question 88

A can do a work in 15 days and B in 20 days. If they work on it together for 5 days, then what fraction of work is left?

- A $2/9$
- B $3/10$
- C $5/12$
- D $1/4$

Answer: C

Explanation:

Let total work to be done = 60 units

A's efficiency = $\frac{60}{15} = 4$ units/day

B's efficiency = $\frac{60}{20} = 3$ units/day

(A + B)'s 1 day's work together = $4 + 3 = 7$ units/day

Now, work done by them together in 5 days = $5 \times 7 = 35$ units

\Rightarrow Work left = $60 - 35 = 25$ units

\therefore Fraction of work that is left = $\frac{25}{60} = \frac{5}{12}$

\Rightarrow Ans - (C)

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Question 89

A dishonest milkman buys milk at Rs 30 per litre and adds $1/5$ of water to it and sells the mixture at Rs 32 per litre. What will be his gain?

- A 33.33 percent
- B 50 percent
- C 28 percent
- D 25 percent

Answer: C

Explanation:

The milkman adds $\left(\frac{1}{5}\right)^{th}$ of water, thus total mixture = $1 + \frac{1}{5} = \frac{6}{5}$

Cost price per litre of the mixture = $\frac{30}{\frac{6}{5}} = 30 \times \frac{5}{6} = Rs\ 25$

Selling price per litre = Rs. 32

\therefore Profit % = $\frac{32-25}{25} \times 100$

= $7 \times 4 = 28\%$

=> Ans - (C)

Question 90

If the radius of a circle is increased by 21%, then its area will increase by what percent?

- A 42 percent
- B 21 percent
- C 23.205 percent
- D 46.41 percent

Answer: D

Explanation:

Let radius = 10 cm

=> Area of circle = $\pi(10)^2 = 100\pi$ sq. cm

If radius is increased by 21%, => New radius = 12.1 cm

New area = $\pi(12.1)^2 = 146.41\pi$ sq. cm

=> % increase in area = $\frac{146.41-100}{100} \times 100$

= 46.41%

=> Ans - (D)

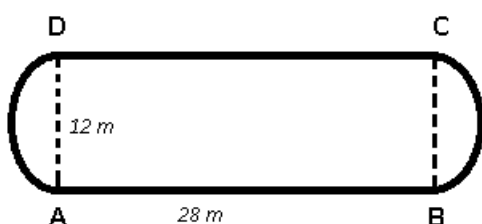
Question 91

A cylindrical capsule has hemispherical ends of the radii equal to radius of the cylindrical part. If length of the capsule is 40 m and radius 6 m, what is the total surface area of this capsule?

- A 3017.14 sq mts
- B 4525.71 sq mts
- C 1508.57 sq mts
- D 754.29 sq mts

Answer: C

Explanation:



Radius = 6 m and length of whole capsule = 40 m

=> Height of cylindrical part = AB = 40 - 6 - 6 = 28 m

Total surface area of cylinder = Curved surface area of cylinder + 2 × Curved surface area of hemisphere

$$= (2\pi rh) + (2 \times 2\pi r^2)$$

$$= (2\pi r)(h + 2r)$$

$$= (2 \times \frac{22}{7} \times 6)(28 + 2 \times 6)$$

$$= \frac{264}{7} \times 40$$

$$= 1508.57 \text{ m}^2$$

=> Ans - (C)

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Question 92

If $2\cos^2 A - 1 = x$, then the value of x is

A $\operatorname{cosec}^4 A - \sin^4 A$

B $\cos^4 A - \sin^4 A$

C $\cos^4 A - \tan^4 A$

D $\operatorname{cosec}^4 A - \tan^4 A$

Answer: B

Explanation:

Expression : $2\cos^2 A - 1 = x$

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

$$= 2\cos^2 A - (\sin^2 A + \cos^2 A)$$

$$= 2\cos^2 A - \cos^2 A - \sin^2 A$$

$$= \cos^2 A - \sin^2 A = (\cos^2 A - \sin^2 A) \times (1)$$

$$= (\cos^2 A - \sin^2 A) \times (\cos^2 A + \sin^2 A)$$

$$= \cos^4 A - \sin^4 A$$

=> Ans - (B)

Question 93

In a class of 56 students there are 28 girls. The average weight of these girls is 46 kg and average weight of the full class is 51 kgs. What is the average weight of the boys of the class?

A 55

B 56

C 53

D 54

Answer: B

Explanation:

Total number of students = 56 and number of girls = 28

=> Number of boys in class = 56 - 28 = 28

Average weight of girls = 46 kg

$$\Rightarrow \text{Total weight of girls} = 46 \times 28 = 1288 \text{ kg}$$

$$\text{Similarly, total weight of full class} = 51 \times 56 = 2856 \text{ kg}$$

$$\Rightarrow \text{Total weight of boys} = 2856 - 1288 = 1568 \text{ kg}$$

$$\therefore \text{Average weight of boys} = \frac{1568}{28} = 56 \text{ kg}$$

\Rightarrow Ans - (B)

Question 94

The ratio of ages of father and son is 7:2. Five years ago the product of their ages was 150. What is the age of the father?

A 30 years

B 45 years

C 35 years

D 40 years

Answer: C

Explanation:

Let father's age = $7x$ years and son's age = $2x$ years

According to ques, $\Rightarrow (7x - 5)(2x - 5) = 150$

$$\Rightarrow 14x^2 - 35x - 10x + 25 - 150 = 0$$

$$\Rightarrow 14x^2 - 45x - 125 = 0$$

$$\Rightarrow 14x^2 - 70x + 25x - 125 = 0$$

$$\Rightarrow 14x(x - 5) + 25(x - 5) = 0$$

$$\Rightarrow (x - 5)(14x + 25) = 0$$

$$\Rightarrow x = 5, \frac{-25}{14}$$

Since, age can't be negative, thus $x = 5$

\therefore Father's age = $7 \times 5 = 35$ years

\Rightarrow Ans - (C)

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Question 95

Three consecutive natural numbers are such that the square of the greatest is greater than the product of the other two by 19. The smallest of these numbers is

A 5

B 6

C 7

D 4

Answer: A

Explanation:

Let the three consecutive natural numbers be $(x - 1)$, (x) and $(x + 1)$

According to ques, $\Rightarrow (x + 1)^2 - (x - 1)(x) = 19$

$$\Rightarrow (x^2 + 2x + 1) - (x^2 - x) = 19$$

$$\Rightarrow 3x + 1 = 19$$

$$\Rightarrow 3x = 19 - 1 = 18$$

$$\Rightarrow x = \frac{18}{3} = 6$$

$$\therefore \text{Smallest number} = (x - 1) = 6 - 1 = 5$$

\Rightarrow Ans - (A)

Question 96

Deepanshu lent Rs. 8400 to Jaipal for 15 years and Rs. 5100 to Kareem for 14 years on simple interest at the same rate of interest and received Rs. 17766 in all from both of them as interest. The rate of interest per annum is

A 9.5 percent

B 10 percent

C 10.5 percent

D 9 percent

Answer: D

Explanation:

rate of interest per annum = $r\%$

Sum lent to Jaipal = Rs. 8400 for 15 years and Rs. 5100 to Kareem for 14 years

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

$$\Rightarrow \text{Total interest} = \left(\frac{8400 \times r \times 15}{100} \right) + \left(\frac{5100 \times r \times 14}{100} \right) = 17766$$

$$\Rightarrow 1260r + 714r = 17766$$

$$\Rightarrow 1974r = 17766$$

$$\Rightarrow r = \frac{17766}{1974} = 9\%$$

\Rightarrow Ans - (D)

Question 97

Read the data and answer the questions

	Weight	Height in Meters
Amrita	53	1.7
Anagha	78	1.55
Anamika	52	1.63
Anandi	54	1.62

Whose has the least Weight to height ratio ?

A Amrita

B Anagha

C Anamika

D Anandi

Answer: A

Explanation:

Ratio of weight to height

$$\text{Amrita : } \frac{53}{1.7} = 31.1 \quad \text{[LEAST]}$$

$$\text{Anagha : } \frac{78}{1.55} = 50.3$$

$$\text{Anamika : } \frac{52}{1.63} = 31.9$$

$$\text{Anandi : } \frac{54}{1.62} = 33.3$$

=> Ans - (A)

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Question 98

Read the the table and answer the questions

Years	Company's Profit in %
2011	20
2012	10
2013	5
2014	10
2015	20

What was the Revenue of the company if its Expenditure was Rs 400 crore in the year when its % profit was the least?

A 460

B 440

C 420

D 400

Answer: C

Explanation:

Profit % was least in 2013 = 5%

Let revenue = Rs. x crore and expenditure = Rs. 400 crore

$$\Rightarrow \text{Profit \%} = \frac{x-400}{400} \times 100 = 5$$

$$\Rightarrow \frac{x-400}{400} = \frac{5}{100} = \frac{1}{20}$$

$$\Rightarrow x - 400 = \frac{400}{20} = 20$$

$$\Rightarrow x = 400 + 20 = 420 \text{ crore}$$

=> Ans - (C)

Question 99

Read the table and answer the questions

No of Children	No of Houses
0	6
1	15
2	14
3	7

What is the average number of children per house?

A 1.52

B 1.77

C 2.02

D 1.27

Answer: A

Explanation:

Total number of houses = $6 + 15 + 14 + 7 = 42$

Total children = $(0 \times 6) + (1 \times 15) + (2 \times 14) + (3 \times 7)$
 $= 15 + 28 + 21 = 64$

\therefore Average number of children per house = $\frac{64}{42} = 1.52$

=> Ans - (A)

Question 100

Read the table and answer the given questions

Partners	Present % Share
Anand	15
Basu	30
Chinmay	15
Dhiraj	30
Ejaz	10

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

A 180000 shares

B 210000 shares

C 165000 shares

D 195000 shares

Answer: D

Explanation:

Total shares = 6,00,000

Original shares with Dhiraj = $\frac{30}{100} \times 600000 = 1,80,000$

If Chinmay offers to sell 15,000 of his shares to Dhiraj,

=> Shares with Dhiraj = $1,80,000 + 15,000 = 1,95,000$

=> Ans - (D)

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