

SSC CHSL 29 Jan 2017 Morning Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Iraq : Dinar :: Korea: ?

- A Pound
- B Yen
- C Dollar
- D Won

Answer: D

Explanation:

Expression = Iraq : Dinar :: Korea: ?

Dinar is the currency of Iraq, similarly Won is the currency of Korea.

=> Ans - (D)

Question 2

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

AOE : ? :: GMA : IUO

- A MXI
- B MWS
- C MWI
- D MXJ

Answer: C

Explanation:

Expression = GMA : IUO

The pattern followed is that if we reverse the word, we get = AMG and the code is :

A	M	G
(+8)	(+8)	(+8)
I	U	O

Similarly, reverse of AOE is :

E	O	A
(+8)	(+8)	(+8)
M	W	I

=> Ans - (C)

Question 3

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

deF : lhg :: wxY : ?

A bAZ

B Baz

C BaZ

D baz

Answer: B

Explanation:

Expression = deF : lhg :: wxY : ?

The pattern followed is that consecutive letters are written according to the English alphabetical order, with last three letters in reverse order. Also, the last letter of first term and first letter of second term is in capital.

Similarly, the letters which will follow wxY are (with first letter capital and in reverse) = **Baz**

=> Ans - (B)

Question 4

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

81 : 121 :: 49 : ?

A 81

B 62

C 52

D 100

Answer: A

Explanation:

Expression = $81 : 121 :: 49 : ?$

The pattern followed is = $(x)^2 : (x + 2)^2$

Eg :- $9^2 : (9 + 2)^2 = 81 : 121$

Similarly, $7^2 = 49$

$\Rightarrow (7 + 2)^2 = (9)^2 = 81$

\Rightarrow Ans - (A)

Question 5

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

A Car

B Helicopter

C Bus

D Train

Answer: B

Explanation:

Car, bus and train are means of transport operated on the ground, hence helicopter is the odd one out.

\Rightarrow Ans - (B)

Question 6

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

A BEH

B DGJ

C HKN

D MNO

Answer: D

Explanation:

(A) : B (+3 letters) = E (+3 letters) = H

(B) : D (+3 letters) = G (+3 letters) = J

(C) : H (+3 letters) = K (+3 letters) = N

(D) : M (+1 letter) = N (+1 letter) = O

=> Ans - (D)

Question 7

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

A 5210

B 8432

C 8648

D 7240

Answer: D

Explanation:

The product of first two digits of the numbers is equal to the last digits

$$5 \times 2 = 10, 8 \times 4 = 32, 8 \times 6 = 48$$

$$\text{But } 7 \times 2 = 14 \neq 40$$

=> Ans - (D)

Question 8

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

A 81

B 125

C 64

D 198

Answer: D

Explanation:

$81 = 9^2$, $125 = 5^3$ and $64 = 4^3 = 8^2$, but 198 is neither a perfect cube nor a perfect square number, hence 198 is the odd one out.

=> 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.

ijk, mno, lmn, pqr, opq,?

A stv

B suv

C stu

D stt

Answer: C

Explanation:

Expression : ijk, mno, lmn, pqr, opq,?

The pattern followed is that alternate terms are consecutive letters of English alphabetical series.

Eg :- ijk , lmn , opq

Similarly, after : mno , pqr , **stu**

=> Ans - (C)

Question 10

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

AZ, BY, CX,?

A CW

B DW

C DX

D DY

Answer: B

Explanation:

Expression : AZ, BY, CX,?

The pattern followed in each letter of the terms is :

1st letter : A (+1 letter) = B (+1 letter) = C (+1 letter) = D

2nd letter : Z (-1 letter) = Y (-1 letter) = X (-1 letter) = W

Thus, missing term = **DW**

=> Ans - (B)

Question 11

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

23, 32, 42, 53, 65, ?

A 78

B 88

C 58

D 98

Answer: A

Explanation:

Consecutive natural numbers are added.

$$23 + 9 = 32$$

$$32 + 10 = 42$$

$$42 + 11 = 53$$

$$53 + 12 = 65$$

$$65 + 13 = \mathbf{78}$$

=> Ans - (A)

Question 12

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.

Statement:

(I) Life is a journey with few known people, few partially known and mostly strangers.

(II) In a journey, the importance of destination is as equal as the pathway of reaching that destination.

Conclusions:

(I) Importance of people in life is considerable, as they are our journey mates.

(II) Life teaches us many lessons to face various known and unknown difficulties.

A Only conclusion II follows

B Conclusion I and II both follow

C Neither I nor II follow

D Only conclusion I follows

Answer: D

Question 13

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

Seed, Stem, leaf, ?

A Plant

B Tree

C Fruit

D Flower

Answer: D

Explanation:

The chronological order of a flower is :

= Seed -> Stem -> leaf -> Flower

=> Ans - (D)

Question 14

B is older than C but not as old as D. E is not as old as B. Who is the oldest of all?

A B

B E

C C

D D

Answer: D

Explanation:

B is older than C but not as old as D, => $D > B > C$.

E is not as old as B, => $B > E$

Thus, combining above equations, we get : $D > B > E, C$

Thus, D is the oldest of all.

=> Ans - (D)

Question 15

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

- i. Stable
- ii. Stranger
- iii. Stability
- iv. Struggle

A iii, ii, i, iv

B iii, i, ii, iv

C iii, iv, i, ii

D iv, i, ii, iii

Answer: B

Explanation:

As per the order of dictionary :

= Stability -> Stable -> Stranger -> Struggle

≡ iii, i, ii, iv

=> Ans - (B)

Question 16

In a certain code language "TITANIC" is written as "7371835" and "SEMATIC" is written as "6241735". How will "MAINTAIN" be written in that code language?

A 41387138

B 43187138

C 41837138

D 41783138

Answer: A

Explanation:

The codes for each letter is given :

M -> 4

A -> 1

I -> 3

N -> 8

T -> 7

A -> 1

I -> 3

N -> 8

Thus, MAINTAIN : 41387138

=> Ans - (A)

Question 17

Find the missing number from given Table

6	5	4
7	6	5
5	7	6
37	23	?

A 10

B 12

C 13

D 14

Answer: D

Explanation:

In each column the pattern followed is :

$$\text{Eg : } (6 \times 7) - 5 = 37$$

$$\text{and } (5 \times 6) - 7 = 23$$

$$\text{Similarly, } (4 \times 5) - 6 = 14$$

=> Ans - (D)

Question 18

After interchanging + & x and 12 &18, which of the following equations will hold true?

A $(9 + 12) \times 18 = 60$

B $(18 + 6) \times 12 = 90$

C $(12 + 18) \times 12 = 72$

D $(12 + 6) \times 18 = 36$

Answer: B

Explanation:

We need to interchange : + & x and 12 &18

$$(A) : (9 + 12) \times 18 = 60$$

$$\equiv (9 \times 18) + 12 = 60$$

$$\text{L.H.S.} = 162 + 12 = 174 \neq \text{R.H.S.}$$

$$(B) : (18 + 6) \times 12 = 90$$

$$\equiv (12 \times 6) + 18 = 90$$

$$\text{L.H.S.} = 72 + 18 = 90 = \text{R.H.S.}$$

=> Ans - (B)

Question 19

In the following Explanation: Question , which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

ab_bc_bb_ _abb_c

A babcb

B bbaaa

C aabbc

D abcbc

Answer: A

Explanation:

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

= abbbc abbbc abbbc

=> Ans - (A)

Question 20

I am facing north. I turn left and walk 30 m. Then I turn right and walk 20 m, then I turn left and walk 10 m and then turning right and walk 50 m. Then I turn left and walk 50 m. In which direction am I from the starting point?

A North

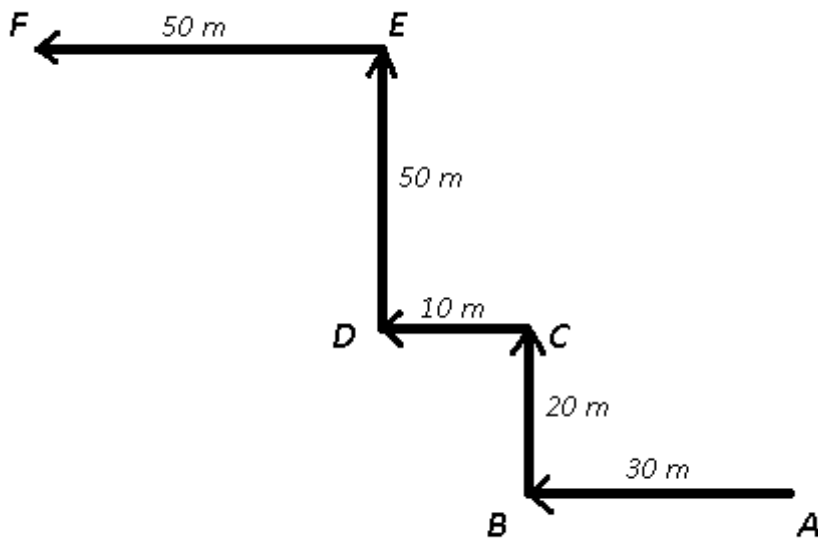
B South

C North-west

D North-east

Answer: C

Explanation:



If I am initially at point A and facing north and turn left, then I walk 30 m towards west. Then I turn right and walk 20 m northwards to reach C, then I turn left and walk 10 m west and then turning right from point D and walk 50 m. Finally, I turn left and walk westwards 50 m to stop at point F.

Thus, I am North-west from the starting point.

=> 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-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, 'M' can be represented by 10, 03 etc. and 'H' can be represented by 55,78 etc. Similarly, you have to identify the set for the word 'MATHS'.

Matrix 1:

	0	1	2	3	4
0	T	S	N	M	E
1	M	T	S	N	E
2	S	E	M	T	N
3	N	M	E	S	T
4	E	N	T	S	M

Matrix 2:

	5	6	7	8	9
5	H	G	I	P	A
6	G	H	A	I	P
7	A	I	G	H	I
8	I	P	H	A	G
9	P	A	P	G	H

A 03, 59, 11, 78, 43

B 10, 67, 22, 55, 01

C 22, 75, 00, 66, 21

D 44, 88, 23, 98, 20

Answer: A

Explanation:

(A) : 03, 59, 11, 78, 43 = **MATHS**

(B) : 10, 67, 22, 55, 01 = MAMHS

(C) : 22, 75, 00, 66, 21 = MATSE

(D) : 44, 88, 23, 98, 20 = MATGS

=> Ans - (A)

Question 22

Raju introduces Yash by saying, "He is the husband of the granddaughter of my grandmother's husband". How is Yash related to Raju?

A Nephew

B Father

C Brother

D Brother-in-law

Answer: D

Explanation:

Raju's grandmother's husband = Raju's grandfather

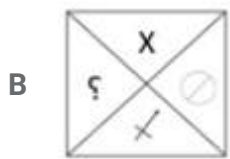
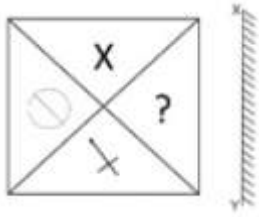
Now, granddaughter of Raju's grandfather = Raju's sister

Also, Yash is the husband of Raju's sister, => Yash is Raju's brother-in-law

=> Ans - (D)

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: B

Question 24

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

Kitchen, Utensils, Glass





Answer: B

Explanation:

Glass is a type of utensil and utensils belong in the kitchen. Hence these three will be concentric.

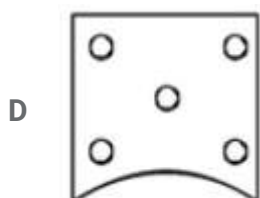
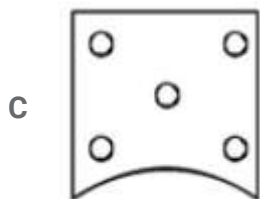
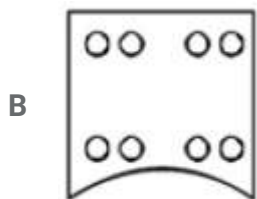
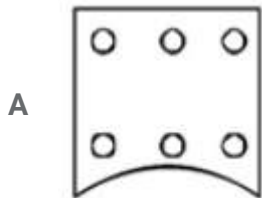
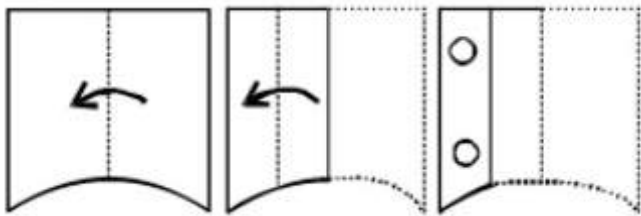
Thus, the venn diagram that best describes above relationship is :



=> Ans - (B)

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.



Answer: B

General Awareness

Instructions

For the following questions answer them individually

Question 26

The largest estuarine mangrove forest in the world is at?

- A** Sundarbans National Park
- B** Nanda Devi and Valley of Flowers National Parks
- C** Keoladeo National Park
- D** Manas Wildlife Sanctuary

Answer: A

Question 27

Amartya Sen won Nobel Prize for?

- A** Literature
- B** Physics
- C** Peace
- D** Economic Sciences

Answer: D

Question 28

The amount of blood filtered together by both the kidneys in a 70 kg adult male human in a minute is

- A** 1100 ml
- B** 100 ml
- C** 1500 ml

D 500 ml

Answer: A

Question 29

Which feature of a plant helps to distinguish a monocot from a dicot?

A pollination

B venation

C vernation

D aestivation

Answer: B

Question 30

The Mutation Theory was proposed by ____ .

A Charles Lyell

B William Smith

C Hugo De Vries

D Harrison Schmitt

Answer: C

Question 31

Which of the following elements has the lowest melting point?

A Helium

B Potassium

C Tungsten

D Sulphur

Answer: A

Question 32

Atomic number of which of the following elements is greater than that of Phosphorus?

- A Aluminium
- B Silicon
- C Chlorine
- D Magnesium

Answer: C

Question 33

The designers of the Internet Protocol defined an IP address as a ____-bit number.

- A 8
- B 16
- C 32
- D 64

Answer: C

Question 34

Which of the following is a wind based Indian musical instrument?

- A Taus
- B Swarmandal
- C Samvadini
- D Rabab

Answer: C

Question 35

Calculate the economic profit for a firm if its total revenues are Rs 180 crores, explicit costs are Rs 95 crores, and implicit costs are Rs 25 crores.

- A Rs 110 crores
- B Rs 300 crores
- C Rs 60 crores
- D Rs 250 crores

Answer: C

Question 36

Insure payment of minimum wages for tea leave pickers

- A will improve quality of tea.
- B will reduce unemployment of tea leave pickers.
- C decreases unemployment.
- D will increase picking cost for all tea companies.

Answer: D

Question 37

Which type of pathogen causes the water-borne disease Hepatitis-A?

- A Parasitic
- B Viral
- C Protozoan
- D Bacterial

Answer: B

Question 38

_____ is a natural electrical phenomenon characterized by the appearance of streamers of reddish or greenish light in the sky, especially near the northern or southern magnetic pole.

- A Acaulis
- B Alatus

C Albopictus

D Aurora

Answer: D

Question 39

Sabrimala is a Hindu pilgrimage centre located in which Tiger Reserve area?

A Bandipur

B Kanha

C Periyar

D Panna

Answer: C

Question 40

Earth's crust mainly contains _____.

A bauxite

B manganese

C silica

D iron

Answer: C

Question 41

Seoul is the Capital City of _____ .

A United Arab Emirates

B Netherlands

C South Korea

D Italy

Answer: C

Question 42

Indus Valley Civilization was a _____ age civilization.

- A Silver
- B Tin
- C Gold
- D Bronze

Answer: D

Question 43

To whom did Akbar gave the title Mian?

- A Raja Todar Mal
- B Man Singh I
- C Birbal
- D Tansen

Answer: D

Question 44

Who Invented Laser?

- A William Friese-Greene
- B Arthur Fry
- C Gordon Gould
- D Otto von Guericke

Answer: C

Question 45

What is the SI unit of Torque?

- A newton/meter
- B newton meter
- C newton second
- D newton/meter squared

Answer: B

Question 46

What is the unit of the physical quantity, Illuminance?

- A siemens
- B tesla
- C lux
- D weber

Answer: C

Question 47

Article 21 of the Indian Constitution "Protection of life and personal liberty" deals with?

- A the Union Government
- B the fundamental rights of the Indian Citizen
- C the State Government
- D the directive principles of state policy

Answer: B

Question 48

Article 211 of the Indian Constitution "Restriction on discussion in the Legislature" deals with?

- A the directive principles of state policy
- B the Union Government
- C the fundamental rights of the Indian Citizen

D the State Government

Answer: D

Question 49

The colour of Australian cricket team's cap is

A Green

B Blue

C Red

D Yellow

Answer: A

Question 50

Who is the author of "The Secret Of The Nagas (Shiva Trilogy-b:"?

A Amish Tripathi

B Durjoy Datta

C Keshav Aneel

D Savi Sharma

Answer: A

English

Instructions

For the following questions answer them individually

Question 51

Improve the bracketed part of the sentence.

Practically (every) part of the coconut tree is used by man.

A each

B all

C most

D no improvement

Answer: A

Question 52

Rearrange the parts of the sentence in correct order.

Imagine what this can do

P-the news industry in our part of the world

Q-for trust in, and engagement

R-with, professional journalism and

A RQP

B QRP

C PRQ

D PQR

Answer: B

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'.

Tanish has(A)/changed a lot(B)/since then.(C)/No error(D)

A A

B B

C C

D D

Answer: D

Question 54

**Select the synonym of
deviance**

A accordance

B compliance

C alliance

D aberrance

Answer: D

Question 55

Rearrange the parts of the sentence in correct order

Truth was

P-to lead to a breach of peace as a false one

Q-no defence since

R-a true defamatory statement was as likely

A QPR

B RQP

C PQR

D PRQ

Answer: A

Question 56

Improve the bracketed part of the sentence.

I gave her the book that I (won) as a prize.

A will win

B had won

C am winning

D no improvement

Answer: B

Question 57

Select the synonym of

alleviate

A irritate

B aggravate

C allay

D agitate

Answer: C

Question 58

Select the word with the correct spelling.

A mixible

B dialects

C venerete

D pluing

Answer: B

Question 59

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

Unchecked industrial effluents discharging into the rivers has caused _____ damage to the environment.

A uncontrollable

B disproportionate

C infinite

D incalculable

Answer: D

Question 60

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 express my gratitudes(A)/to all those who(B)/have voted for me.(C)/No error(D)

A A

B B

C C

D D

Answer: A

Question 61

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

I am sorry I am late, I was _____ up in traffic.

- A** held
- B** delayed
- C** detained
- D** stucked

Answer: A

Question 62

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

whole nine yards

- A** love someone blindly
- B** euphemism for an Indian dress called sari
- C** a small area but sufficient
- D** everything possible

Answer: D

Question 63

Select the word with the correct spelling.

- A** erasable
- B** nuerones
- C** ignomminy
- D** trouncees

Answer: A

Question 64

**Select the antonym of
steadfast**

- A staunch
- B pliant
- C ardent
- D rigid

Answer: B

Question 65

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. Speak or write about in an abusively disparaging manner.

- A crucify
- B ignify
- C vilify
- D basify

Answer: C

Question 66

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

- A changing moods like weather
- B a situation changes so fast that it leaves one unprepared
- C slightly unwell
- D raining heavily

Answer: C

Question 67

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.

'Don't you know the way to the station?' father said to Anjali.

- A Father asked Anjali if she did not knew the way to the station.
- B Father asked Anjali that if she did not knew the way to the station.
- C Father asked Anjali whether she did not know the way to the station.
- D Father asked to Anjali if she did not know the way to the station.

Answer: C

Question 68

Select the antonym of sibilate

- A whiz
- B boo
- C exalt
- D rasp

Answer: C

Question 69

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 manager must look into this problem.

- A This problem shall be looked into by the manager.
- B Into this problem must take a look the manager.
- C This problem must be looked into by the manager.
- D This problem could be looked at by the manager.

Answer: C

Question 70

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

A feeling of unease or embarrassment; awkwardness.

- A slag
- B declivity
- C prolapse
- D discomfiture

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

All this does not bode _____(1)_____ for even the loosest definitions of cosmopolitanism. A city by definition is a space, as _____(2)_____ historians and sociologists have already told us, which ideally privileges and _____(3)_____ the unexpected encounter, and calls on its citizens to be able to respond humanely even to those _____(4)_____ are not linked to us in familial, ethnic, nationalist or caste _____(5)_____.

Question 71

All this does not bode _____ for even the loosest definitions of cosmopolitanism.

- A well
- B nice
- C good
- D fine

Answer: A

Question 72

A city by definition is a space, as _____ historians and sociologists have already told us

- A infinite
- B innumerable

C incalculable

D multiple

Answer: C

Question 73

which ideally privileges and _____ the unexpected encounter,

A nurtured

B nurturing

C nurtures

D nurture

Answer: C

Question 74

Respond humanely even to those _____ are not linked to us in familial

A who

B whom

C whose

D whoever

Answer: A

Question 75

Ethnic, nationalist or caste _____.

A partnerships

B alliances

C clans

D affiliations

Answer: D

Explanation:

End Group:

Mathematics

Instructions

For the following questions answer them individually

Question 76

Coefficient of x^2 in $4x^3 - 2x^2 + 2x - 3$ are

A 6

B -2

C 3

D -3

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

Expression : $4x^3 - 2x^2 + 2x - 3$

=> Coefficient of $x^2 = -2$

=> Ans - (B)

Question 77

If a merchant offers a discount of 40% on the list price, then he makes a loss of 10%. What % profit or % loss will he make if he sells at a discount of 20% of the list price?

A 4 percent loss

B 14 percent profit

C 5.5 percent loss

D 20 percent profit

Answer: D

Explanation:

Let list price = Rs. $100x$

After 40% discount, selling price = $\frac{100-40}{100} \times 100x = \text{Rs. } 60x$

Let Cost price = Rs. y

$$\Rightarrow \text{Loss \%} = \frac{y-60x}{y} \times 100 = 10$$

$$\Rightarrow \frac{y-60x}{y} = \frac{10}{100} = \frac{1}{10}$$

$$\Rightarrow 10y - 600x = y$$

$$\Rightarrow 10y - y = 600x$$

$$\Rightarrow y = \frac{600x}{9} = 66.67x$$

If discount = 20%, \Rightarrow Selling price = $\frac{100-20}{100} \times 100x = \text{Rs. } 80x$

$$\therefore \text{Profit \%} = \frac{80x-66.67x}{66.67x} \times 100$$

$$= 19.99 \approx 20\%$$

Question 78

The mean of marks secured by 60 students in division A of class X is 66, 45 students of division B is 62 and that of 75 students of division C is 60. Find the mean of marks of the students of three divisions of Class X.

A 61.8

B 62.5

C 61.1

D 63.9

Answer: B

Explanation:

Total marks secured by 60 students in division A = $60 \times 66 = 3960$

Total marks secured by 45 students in division B = $45 \times 62 = 2790$

Total marks secured by 75 students in division C = $75 \times 60 = 4500$

$$\Rightarrow \text{Mean of marks of the students of three divisions of Class X} = \frac{(3960+2790+4500)}{(60+45+75)}$$

$$= \frac{11250}{180} = 62.5$$

\Rightarrow Ans - (B)

Question 79

On dividing $221a^2b^2$ by $13b^2$, we get ____.

A $17a^2$

B $17b^2$

C $13a^2b^2$

D 13

Answer: A

Explanation:

Expression : $\frac{221a^2b^2}{13b^2}$

$$= \frac{221}{13} \times \frac{a^2b^2}{b^2}$$

$$= 17a^2$$

=> Ans - (A)

Question 80

$40.36 - (9.347 - x) - 29.02 = 3.68$. Find x.

A -56.353

B 1.687

C -17.007

D 82.407

Answer: B

Explanation:

Expression : $40.36 - (9.347 - x) - 29.02 = 3.68$

$$\Rightarrow 40.36 - 9.347 + x = 3.68 + 29.02$$

$$\Rightarrow 31.013 + x = 32.7$$

$$\Rightarrow x = 32.7 - 31.013$$

$$\Rightarrow x = 1.687$$

=> Ans - (B)

Question 81

If $x + 3 \leq 4x + 4$ and $5(4 - x) - 4 \geq 5x - 2$; then

A 2

B 3

C 1

D -1

Answer: C

Explanation:

Expression 1 : $x + 3 \leq 4x + 4$

$$\Rightarrow 4x - x \geq 3 - 4 \Rightarrow 3x \geq -1$$

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

Expression 2 : $5(4 - x) - 4 \geq 5x - 2$

$$\Rightarrow 20 - 5x - 4 \geq 5x - 2$$

$$\Rightarrow 10x \leq 18 \Rightarrow 5x \leq 9$$

$$\Rightarrow x \leq \frac{9}{5} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-1}{3} \leq x \leq \frac{9}{5}$

The possible value of $x = 0, 1$

\Rightarrow Ans - (C)

Question 82

A missile travels at 1116 km/h. How many metres does it travel in one second?

A 360 metres

B 368 metres

C 310 metres

D 348 metres

Answer: C

Explanation:

Speed of missile = 1116 km/hr

$$\Rightarrow \text{Speed in m/s} = 1116 \times \frac{5}{18}$$

$$= 5 \times 62 = 310 \text{ m/s}$$

\therefore In 1 second, it travels 310 metres

\Rightarrow Ans - (C)

Question 83

If the radius of a circle is increased by 31% its area increases by ____.

- A 62 percent
- B 31 percent
- C 35.805 percent
- D 71.61 percent

Answer: D

Explanation:

Let radius = 10 cm

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

$$\text{If radius is increased by 31\%,} \Rightarrow \text{New radius} = 10 + \frac{31}{100} \times 10 = 13.1 \text{ cm}$$

$$\text{New area} = \pi(13.1)^2 = 171.61\pi \text{ sq. cm}$$

$$\Rightarrow \% \text{ increase in area} = \frac{171.61 - 100}{100} \times 100$$

$$= 71.61 \%$$

$$\Rightarrow \text{Ans - (D)}$$

Question 84

A bank offers 20% compound interest per half year. A customer deposits Rs 6000 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 7680
- B Rs 3840
- C Rs 1860
- D Rs 960

Answer: C

Explanation:

Principal = Rs. 6,000 and Rate = 20%

$$\text{Amount on half yearly basis} = P \left(1 + \frac{R}{2 \times 100}\right)^{2 \times T}$$

$$= [6000 \left(1 + \frac{20}{2 \times 100}\right)^{2 \times 1}] + [6000 \left(1 + \frac{20}{2 \times 100}\right)^{2 \times \frac{1}{2}}]$$

$$= [6000 \times \left(\frac{11}{10}\right)^2] + [6000 \times \frac{11}{10}]$$

$$= [60 \times 121] + [600 \times 11]$$

$$= (60 \times 11) \times (11 + 10)$$

$$= 60 \times 11 \times 21 = \text{Rs.} 13,860$$

$$\therefore \text{Compound Interest} = \text{Rs.}(13,860 - 12,000) = \text{Rs.} 1,860$$

Question 85

The third proportional of two numbers 4 and 28 is _____.

- A 52
- B 56
- C 84
- D 196

Answer: D

Explanation:

Three numbers a,b,c are in proportion iff $b^2 = ac$

Here, a = 4 and b = 28

$$\Rightarrow (28)^2 = 4 \times c$$

$$\Rightarrow c = \frac{28 \times 28}{4} = 7 \times 28$$

$$\Rightarrow c = 196$$

\Rightarrow Ans - (D)

Question 86

Mummy can bake 75 cakes in 15 hours, Mummy and Sister together can bake 120 cakes in 20 hours. How many cakes Sister can bake in 30 hours?

- A 45
- B 30
- C 60
- D 10

Answer: B

Explanation:

$$\text{Cakes baked by Mummy in 1 hour} = \frac{75}{15} = 5$$

$$\text{Cakes baked by Mummy and Sister together in 1 hour} = \frac{120}{20} = 6$$

$$\Rightarrow \text{Cakes baked by Sister in 1 hour} = 6 - 5 = 1$$

$$\therefore \text{Cakes baked by Sister in 30 hours} = 30 \times 1 = 30$$

\Rightarrow Ans - (B)

Question 87

Between 200 and 400 how many numbers are divisible by 7?

A 28

B 29

C 30

D 31

Answer: B

Explanation:

Numbers which are divisible by 7 between 200 and 400 are : 203,210,217,.....,399

These numbers form an arithmetic progression with first term, $a = 203$ and last term, $l = 399$

Common difference, $d = 7$

Using, $l = a + [(n - 1) \times d]$

$$\Rightarrow 399 = 203 + (n - 1) \times 7$$

$$\Rightarrow (n - 1) = \frac{(399-203)}{7} = \frac{196}{7} = 28$$

$$\Rightarrow n = 28 + 1 = 29$$

\Rightarrow Ans - (B)

Question 88

The point P(a,b) is first reflected in origin to P1 and P1 is reflected in y-axis to (6,-5). The co-ordinates of point P are

A (-6,-5)

B (6,5)

C (-6,5)

D (6,-5)

Answer: B

Explanation:

P(a,b) after reflection at the origin = (-a,-b)

Reflection of point (-a,-b) in the y-axis is (a,-b)

According to ques,

$$\Rightarrow (a, -b) = (6, -5)$$

$$\Rightarrow a = 6 \text{ and } -b = -5$$

∴ Coordinates of Point P = (6,5)

⇒ Ans - (B)

Question 89

A rice trader buys 20 quintals of rice for Rs 8,580. However, 22% rice is lost in transportation. At what rate should he sell to earn 20% profit?

A Rs 278.8 per quintal

B Rs 514.8 per quintal

C Rs 660 per quintal

D Rs 654.2 per quintal

Answer: C

Explanation:

Cost price = Rs. 8580 for 20 quintals

$$\begin{aligned} \text{Quantity of rice with the trader after transportation lost} &= \frac{100-22}{100} \times 20 \\ &= \frac{78}{5} \times 3 = 15.6 \text{ quintals} \end{aligned}$$

$$\begin{aligned} \text{To have 20\% profit, total selling price of the trader should be} &= \frac{120}{100} \times 8580 \\ &= \text{Rs. } 10,296 \end{aligned}$$

$$\therefore \text{Selling price per quintal} = \frac{10296}{15.6} = \text{Rs. } 660$$

⇒ Ans - (C)

Question 90

What is the equation of the line which has $\frac{3}{2}$ and $-\frac{4}{7}$ as x and y intercept respectively?

A $8x - 21y = -12$

B $8x + 21y = 14$

C $8x - 21y = 12$

D $8x + 21y = -14$

Answer: C

Explanation:

A line with x-intercept $\frac{3}{2}$ will intercept x-axis at $(\frac{3}{2}, 0)$

A line with y-intercept $-\frac{4}{7}$ will intercept y-axis at $(0, \frac{-4}{7})$

$$\Rightarrow \text{Slope, } m = \frac{-4}{7} \div \frac{-3}{2} = \frac{8}{21}$$

Equation of line passing through points (x_1, y_1) and slope $m = (y - y_1) = m(x - x_1)$

$$\Rightarrow \text{Equation of line} = (y - 0) = \frac{8}{21}(x - \frac{3}{2})$$

$$\Rightarrow 21y = 8x - 12$$

$$\Rightarrow 8x - 21y = 12$$

\Rightarrow Ans - (C)

Question 91

A tetrahedron has 4 vertices. How many edges does it have?

A 8

B 12

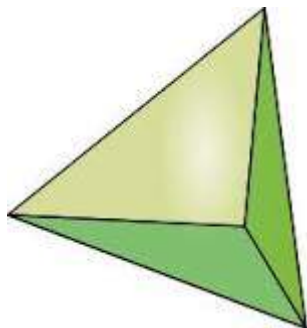
C 6

D 10

Answer: C

Explanation:

Tetrahedron :



Euler's formula : $V + F - E = 2$ where V is number of vertices , F is number of faces and E is number of edges.

Tetrahedron has 4 vertices and 4 faces.

$$\Rightarrow E = V + F - 2 = 4 + 4 - 2$$

$$\Rightarrow E = 8 - 2 = 6$$

\Rightarrow Ans - (C)

Question 92

The circumference of a circle is equal to the perimeter of an equilateral Δ . If the radius of the circle is 14 cm what is the length of the side of the equilateral Δ ?

- A 88 cm
- B $88/3$ cm
- C $88/\sqrt{3}$ cm
- D $88\sqrt{3}$ cm

Answer: B

Explanation:

Let the side of equilateral triangle = x cm and radius = 14 cm

Perimeter of equilateral triangle = Circumference of circle

$$\Rightarrow 3 \times x = 2\pi r$$

$$\Rightarrow 3x = 2 \times \frac{22}{7} \times 14$$

$$\Rightarrow 3x = 44 \times 2 = 88$$

$$\Rightarrow x = \frac{88}{3} \text{ cm}$$

\Rightarrow Ans - (B)

Question 93

If the curved surface area of a right circular cone is 10010 sq cm and its radius is 35 cm, find its volume?

- A 6930 cubic cm
- B 107800 cubic cm
- C 3465 cubic cm
- D 27720 cubic cm

Answer: B

Explanation:

Let slant height of cone = l cm and radius = 35 cm

Curved surface area of cone = $\pi r l = 10010$

$$\Rightarrow \frac{22}{7} \times 35 \times l = 10010$$

$$\Rightarrow 22 \times 5 \times l = 10010$$

$$\Rightarrow l = \frac{10010}{110} = 91$$

Let height of cone = h cm

$$\Rightarrow (h)^2 = (l)^2 - (r)^2$$

$$\Rightarrow (h)^2 = (91)^2 - (35)^2$$

$$\Rightarrow (h)^2 = 8281 - 1225 = 7056$$

$$\Rightarrow h = \sqrt{7056} = 84$$

$$\therefore \text{Volume of cone} = \frac{1}{3} \times \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times (35)^2 \times 84$$

$$= 22 \times (35)^2 \times 4 = 107800 \text{ cm}^3$$

Question 94

What is the value of cosec $5\pi/3$?

A $\sqrt{2}$

B $-2/\sqrt{3}$

C $-\sqrt{2}$

D $1/\sqrt{3}$

Answer: B

Explanation:

Expression : cosec $5\pi/3$

$$= \text{cosec}(2\pi - \frac{\pi}{3})$$

$$= -\text{cosec}(\frac{\pi}{3}) = -\frac{2}{\sqrt{3}}$$

\Rightarrow Ans - (B)

Question 95

$\sin(A+B) - \sin(A-B)$ is equal to

A $2\sin A \cos B$

B $2\cos A \cos B$

C $2\cos A \sin B$

D $2\sin A \sin B$

Answer: C

Explanation:

Expression : $\sin(A+B) - \sin(A-B)$

$$= (\sin A \cos B + \cos A \sin B) - (\sin A \cos B - \cos A \sin B)$$

$$= \cos A \sin B + \cos A \sin B = 2 \cos A \sin B$$

=> Ans - (C)

Question 96

$2 - (\cos A + \sin A)^2$ is equal to

A $(\operatorname{cosec} A - \sin A)^2$

B $\cos A - \sin A$

C $\operatorname{cosec} A - \sin A$

D $(\cos A - \sin A)^2$

Answer: D

Explanation:

Expression : $2 - (\cos A + \sin A)^2$

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

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

$$= 2 - (1 + 2 \sin A \cos A)$$

$$= 1 - 2 \sin A \cos A$$

Again using equation (i), we get :

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

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

=> Ans - (D)

Question 97

Refer the table and answer the given questions

	Quantity of Stock	Average Cost
Mobiles	25	15000
Camersa	80	16000
TVs	54	55000
Refrigerators	41	27000
Acs	64	24000

What is the total value of the stock in lakhs ?

A 726.8

B 137

C 72.68

D 264

Answer: C

Explanation:

Total cost of mobiles = $25 \times 15000 = \text{Rs. } 3,75,000$

Total cost of Cameras = $80 \times 16000 = \text{Rs. } 12,80,000$

Total cost of TVs = $54 \times 55000 = \text{Rs. } 29,70,000$

Total cost of Refrigerator = $41 \times 27000 = \text{Rs. } 11,07,000$

Total cost of AC = $64 \times 24000 = \text{Rs. } 15,36,000$

\therefore Total cost = $3,75,000 + 12,80,000 + 29,70,000 + 11,07,000 + 15,36,000 = \text{Rs. } 72,68,000$

Total cost in lakhs = Rs 72.68 lakhs

Question 98

Read the data and answer the given questions

Years	Ratio Import/Export
2011	0.8
2012	0.9
2013	1
2014	1.5
2015	1.3

If the imports in 2012 was Rs. 700 crores and the total exports in the years 2012 and 2013 together was Rs. 4000 crores, then the imports in 2013 was?

A 3888

B 3222

C 778

D 2500

Answer: B

Explanation:

Let exports in 2012 = Rs. x crores

Imports in 2012 = Rs. 700 crores

Ratio of imports and exports in 2012 = $\frac{700}{x} = 0.9$

$\Rightarrow x = \frac{700}{0.9} \approx 778$

Total exports In the years 2012 and 2013 together = Rs. 4000 crores

=> Exports in 2013 = Rs. (4000 - 778) crores = Rs. 3222 crores

Ratio of imports and exports in 2013 = 1

=> Imports in 2013 = Exports in 2013 = Rs. 3222 crores

=> Ans - (D)

Question 99

Read the table and answer the given questions

Measured On Birthday	Hieght of Children in CMs
4	100
5	110
6	115
7	125
8	130
9	135
10	140
11	145
12	150
13	155
14	160
15	170
16	175

What is the increase in the height of child from 7th birthday to 16th birthday ?

A 55 cms

B 60 cms

C 45 cms

D 50 cms

Answer: D

Explanation:

Height on 7th birthday = 125 cm

Height on 16th birthday = 175 cm

Increase in height = $175 - 125 = 50$ cm

=> Ans - (D)

Question 100

Read the data and answer the Questions

Deep Sleep	5
Dreaming	30
Light Sleep	5
Exreamly Sleep	20
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 3.6 hours
- B 3.1 hours
- C 2.1 hours
- D 4.1 hours

Answer: A

Explanation:

Total time between 10 pm to 6 am = 8 hours

% time spent on deep sleep and on awake = $5 + 40 = 45\%$

=> Time spent on deep sleep or on awake = $\frac{45}{100} \times 8$

= $\frac{18}{5} = 3.6$ hours

=> Ans - (A)

SSC CHSL 29 Jan 2017 Afternoon Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/number from the given alternatives. Eccrinology : Secretions :: Cardiology : ?

A Insects

B Soil

C Algae

D Heart

Answer: D

Explanation:

Eccrinology is the branch of medical science concerned with secretions of the eccrine glands, similarly Cardiology is the branch of medicine that deals with diseases and abnormalities of the *heart*.

=> Ans - (D)

Question 2

Select the related word/letters/number from the given alternatives. CFI : XUR :: GJM : ?

A TRO

B TQN

C WQT

D QWT

Answer: B

Explanation:

Expression = CFI : XUR :: GJM : ?

The pattern followed is that letters which are at the corresponding opposite end with each other 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, for GJM : TQN

=> Ans - (B)

Question 3

Select the related word/letters/number from the given alternatives. BFJ : KOS :: KOS : ?

A TXC

B SXB

C TXB

D SXC

Answer: C

Explanation:

Expression = BFJ : KOS :: KOS : ?

The pattern followed is that :

B	F	J
(+9)	(+9)	(+9)
K	O	S

Similarly, for KOS :

K	O	S
(+9)	(+9)	(+9)
T	X	B

=> Ans - (C)

Question 4

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

24 : 36 :: 52 : ?

A 19

B 70

C 49

D 78

Answer: D

Explanation:

Expression = 24 : 36 :: 52 : ?

The pattern followed is = $x : 1.5x$

Eg :- 24 : $24 \times 1.5 = 36$

Similarly, $52 \times 1.5 = 78$

=> Ans - (D)

Question 5

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

A Body

B Nose

C Eyes

D Lips

Answer: A

Explanation:

Nose, eyes and lips are all parts of the body, hence body is the odd one out.

=> Ans - (A)

Question 6

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

A BYCX

B DWEV

C GUHS

D IRJQ

Answer: C

Explanation:

Each pair of letters (1st,2nd and 3rd,4th) in the words are at the same position from the end.

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

B -> Y and C -> X

D -> W and E -> V

I -> R and J -> Q

But, G -> T and H -> S

=> Ans - (C)

Question 7

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

A 13

B 17

C 19

D 21

Answer: D

Explanation:

13, 17 and 19 are prime numbers, hence 21 is the odd one out.

=> Ans - (D)

Question 8

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

A 25673

B 34664

C 42763

D 25556

Answer: C

Explanation:

Except for 42763, sum of digits of other numbers is 23, hence 42763 is the odd one out.

=> Ans - (C)

Question 9

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. DJO, EKP, FLQ, GMR, ?

A HOS

B HNS

C INS

D DEF

Answer: B

Explanation:

Expression : DJO, EKP, FLQ, GMR, ?

The pattern followed in each letter of the terms is :

1st letter : D (+1 letter) = E (+1 letter) = F (+1 letter) = G (+1 letter) = H

2nd letter : J (+1 letter) = K (+1 letter) = L (+1 letter) = M (+1 letter) = N

3rd letter : O (+1 letter) = P (+1 letter) = Q (+1 letter) = R (+1 letter) = S

Thus, missing term = **HNS**

=> Ans - (B)

Question 10

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. DEF, ? , OPQ , VWX

A HIJ

B GHI

C IJK

D IPV

Answer: C

Explanation:

Expression : DEF, ? , OPQ , VWX

The pattern followed in each letter of the terms is :

1st letter : D (+5 letters) = I (+6 letters) = O (+7 letters) = V

2nd letter : E (+5 letters) = J (+6 letters) = P (+7 letters) = W

3rd letter : F (+5 letters) = K (+6 letters) = Q (+7 letters) = X

Thus, missing term = **IJK**

=> Ans - (C)

Question 11

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

4, 18, 48, ?, 180

A 80

B 100

C 105

D 125

Answer: B

Explanation:

The pattern followed is $= n(n + 1)^2$

$$1 \times 2^2 = 4$$

$$2 \times 3^2 = 18$$

$$3 \times 4^2 = 48$$

$$4 \times 5^2 = \mathbf{100}$$

$$5 \times 6^2 = 180$$

=> Ans - (B)

Question 12

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) Corruption has complete establishment in each sector of our country.

(II) Corruption has gone into their deep roots of every process and system.

Conclusion:

(I) People think about corruption in a routine way and not especially.

(II) The eradication of corruption depends upon every individual. No government can enforce rules or regulation on people.

A Only conclusion II follows

B Conclusion I and II both follow

C Neither I nor II follow

D Only conclusion I follows

Answer: D

Question 13

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. Tuesday, Thursday, Saturday, ?

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

Answer: A

Explanation:

Alternate days of a week are given :

Tuesday -> Thursday -> Saturday -> Monday

=> Ans - (A)

Question 14

Ramesh, Kamal, Mohit, Amit and Rohit are standing in a row in the order of their heights. Ramesh is shorter than Kamal but taller than Rohit. Mohit is the tallest. Amit is a little shorter than Kamal but little taller than Ramesh. Who is the shortest?

- A Amit
- B Mohit
- C Rohit
- D Kamal

Answer: C

Explanation:

Ramesh is shorter than Kamal but taller than Rohit, => Kamal > Ramesh > Rohit

Also, Mohit is the tallest.

Amit is a little shorter than Kamal but little taller than Ramesh, => Kamal > Amit > Ramesh

Combining above statements, we get : **Mohit > Kamal > Amit > Ramesh > Rohit**

∴ Rohit is the shortest.

=> Ans - (C)

Question 15

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

- i. Pitiful
- ii. Plague
- iii. Pitiless
- iv. Plaque
- v. Plankton

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

Answer: D

Explanation:

As per the order of dictionary :

= Pitiful -> Pitiless -> Plague -> Plankton -> Plaque

≡ i, iii, ii, v, iv

=> Ans - (D)

Question 16

In a certain code language, "DISORDER" is written as "OSIDREDR". How is "PRACTICE" written in that code language?

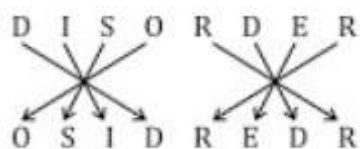
- A CARPECIT
- B CAREPCIT
- C CARTICE
- D CARECEIT

Answer: A

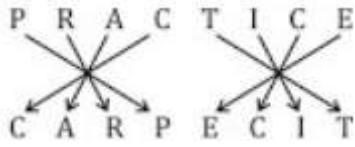
Explanation:

"DISORDER" is written as "OSIDREDR"

The pattern followed is :



Similarly, for PRACTICE :



=> Ans - (A)

Question 17

Find the missing number as per given Series in the table

6	42	7
8	32	4
9	?	5

A 35

B 45

C 25

D 50

Answer: B

Explanation:

The pattern followed is that in each row, the number at the middle is obtained by multiplying the other two.

Eg :- $6 \times 7 = 42$

$8 \times 4 = 32$

Similarly, $9 \times 5 = 45$

=> Ans - (B)

Question 18

Identify the correct combination of mathematical signs to replace "*" sign in the given equation and balance the equation.

$14 * 6 * 3 * 5 * 4 * 20$

A $\div, +, \times, -, =$

B $+, \div, \times, -, =$

C $\times, \div, +, =, -$

D $=, \times, \div, +, -$

Answer: B

Explanation:

Expression : $14 \div 6 + 3 \times 5 - 4 = 20$

(A) : $\div, +, \times, -, =$

$$\equiv 14 \div 6 + 3 \times 5 - 4 = 20$$

$$\text{L.H.S.} = 2.33 + 15 - 4 = 13.33 \neq \text{R.H.S.}$$

(B) : $+, \div, \times, -, =$

$$\equiv 14 + 6 \div 3 \times 5 - 4 = 20$$

$$\text{L.H.S.} = 14 + 10 - 4 = 20 = \text{R.H.S.}$$

=> Ans - (B)

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?

ab_ _abbc_aa_bbb

A cacb

B cacc

C cabc

D caca

Answer: D

Explanation:

The pattern followed is that the term 'abc' is written in increasing order :

= abc aabbcc aaabbb

=> Ans - (D)

Question 20

Vijendra walks to his southeast side for 10 km. From there he turns 90 degree anticlockwise and walks 10km and then he again turns 90 degree clockwise and travels 10 km. In which direction is he from his original position?

A South

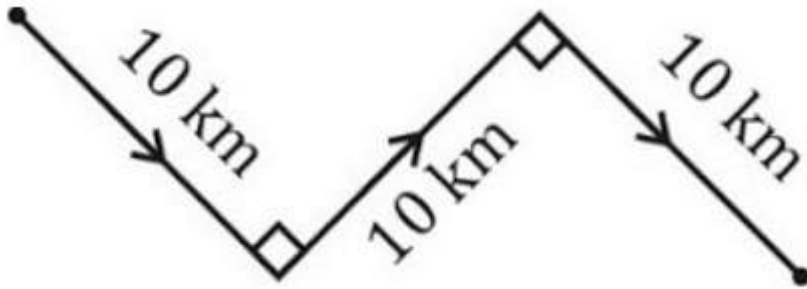
B North

C East

D South-east

Answer: D

Explanation:



Vijendra walks to his south-east side for 10 km. From there he turns 90 degree anti-clockwise and walks 10 km towards north-east and then he again turns 90 degree clockwise and travels 10 km.

Thus, he is south-east of his original position.

=> Ans - (D)

Question 21

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of 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, 'C' can be represented by 21, 43, etc., and 'U' can be represented by 75,98,etc. Similarly, you have to identify the set for the word 'LUNCH'.

Matrix 1:

	0	1	2	3	4
0	H	L	M	O	C
1	C	M	O	L	H
2	M	C	L	H	M
3	O	H	C	M	O
4	L	O	H	C	L

Matrix 2:

	5	6	7	8	9
5	B	U	S	G	N
6	S	B	U	N	G
7	U	S	N	B	G
8	G	N	B	S	U
9	N	S	G	U	B

A 40, 56, 68, 21, 31

B 01, 67, 95, 11, 23

C 22, 75, 86, 03, 24

D 32, 98, 77, 43, 14

Answer: A

Explanation:

(A) : 40, 56, 68, 21, 31 = **LUNCH**

(B) : 01, 67, 95, 11, 23 = LUNMH

(C) : 22, 75, 86, 03, 24 = LUNOM

(D) : 32, 98, 77, 43, 14 = CUNCH

=> Ans - (A)

Question 22

Pointing towards a lady in a photograph, Sushma says, "She is the mother of my grandfather's son". How is Sushma related to the lady in the picture?

A Grand daughter

B Motherinlaw

C Sister

D Mother

Answer: A

Explanation:

Sushma's grandfather's son = Sushma's father

Now, the lady is Sushma's father's mother, => Sushma's grandmother

Thus, Sushma is the granddaughter of the lady.

=> Ans - (A)

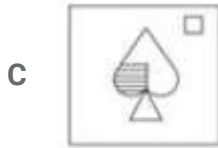
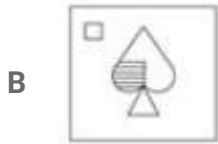
Question 23

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



A

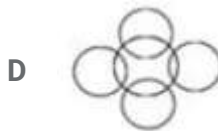
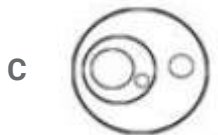




Answer: B

Question 24

Identify the diagram that best represents the relationship among the given classes. Keyboard, Mouse, Input Device, Output Device, Computer



Answer: C

Explanation:

Keyboard and mouse are both input device (but do not overlap each other) and also output devices are different from input device.

Now, a computer consists of output and input device.

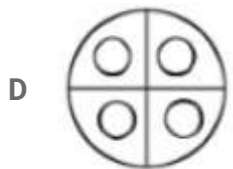
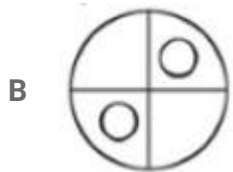
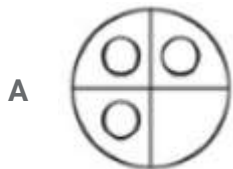
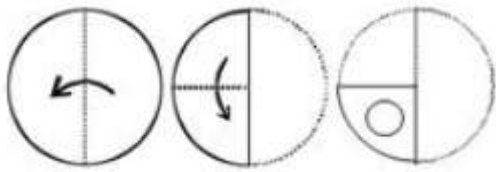
Thus, the venn diagram that best describes above relationship is :



=> 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.



Answer: D

General Awareness

Instructions

For the following questions answer them individually

Question 26

Churches and Convents of Goa were built by?

- A British
- B Dutch
- C Portuguese

D Mughals

Answer: C

Question 27

Resul Pookutty won Oscars for the movie "Slumdog Millionaire" in the category of

A Best Sound Mixing

B Best Original Score

C Best Original Song

D Best Foreign Language Film

Answer: A

Question 28

How many chromosomes does a human cell contain?

A 6

B 26

C 46

D 66

Answer: C

Question 29

In a Punnett Square with the cross $AaBb \times Aabb$, how many $AaBb$ genotypes would be created?

A 4

B 1

C 7

D 6

Answer: A

Question 30

Arboreal Ateles is the scientific name of

- A Squirrel
- B Sparrow
- C Lizard
- D Spider monkey

Answer: D

Question 31

The chemical formula of Ammonia is

- A NH
- B NH1
- C NH2
- D NH3

Answer: D

Question 32

Who discovered Fullerene (an allotrope of carbon)?

- A K Scheele
- B Richard Smalley
- C Faraday
- D Heisenberg

Answer: B

Question 33

.....perform Internet Protocol blocking to protect networks from unauthorized access.

- A Firewalls
- B Proxy Servers
- C Routers
- D VoIP

Answer: A

Question 34

Gugga Naumi is a religious festival in connection with snakeworship. This festival is of which state?

- A Haryana
- B West Bengal
- C Gujarat
- D Maharashtra

Answer: A

Question 35

If quantity of a good demanded increases from 200 to 250 then the average income of the population increases from Rs 20,000 to Rs 30,000, find Arc Income elasticity of demand?

- A 1.45
- B 0.55
- C 2
- D 1.25

Answer: B

Question 36

Match the characteristics with their market structure:

(a) demand will tend to be inelastic

(b) Firm has control over quantity of output but it must take into account reactions of competitors

- A (a) Pure Monopoly, (b) Oligopoly

- B** (a) Pure Monopoly, (b) Monopolistic Competition
- C** (a) Pure Competition, (b) Oligopoly
- D** (a) Monopolistic Competition, (b) Pure Competition

Answer: A

Question 37

Which type of pathogen causes the waterborne disease Salmonellosis?

- A** Algal
- B** Parasitic
- C** Bacterial
- D** Viral

Answer: C

Question 38

Which of the following is not a Halon gas ?

- A** methane
- B** Carbon tetra chloride
- C** iodomethane
- D** bromomethane

Answer: A

Question 39

Dnyaneshwar was a 13th century Marathi saint who wrote the Dnyaneshwari, which is a commentary on the

- A** Ramayana
- B** Bhagavad Gita
- C** Vedas
- D** Upanishads

Answer: B

Question 40

Earth is theplanet from the Sun.

- A** First
- B** Third
- C** Fifth
- D** Seventh

Answer: B

Question 41

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

- A** Badrinath
- B** Nashik
- C** Mathura
- D** Lucknow

Answer: B

Question 42

Ghatotkacha (who ruled in the years 290-305 B.C.) was a king from which dynasty?

- A** Gupta Dynasty
- B** Kanva Dynasty
- C** Shunga Dynasty
- D** Maurya Dynasty

Answer: A

Question 43

Who are credited to a large extent for ending the Mughal rule in India?

- A Mauryas
- B Cholas
- C Guptas
- D Marathas

Answer: D

Question 44

Who Invented postage stamp?

- A Ruth Handler
- B John Harington
- C Rowland Hill
- D Felix Hoffmann

Answer: C

Question 45

If a body moves with a uniform speed in a circular motion, then.....

- A its acceleration is increasing
- B its acceleration is zero
- C its velocity is changing
- D its velocity is uniform

Answer: C

Question 46

.....is the fourth state of matter.

- A Plasma
- B Steam
- C Gas

D Matteroid

Answer: A

Question 47

The original constitution of India was published in?

A Delhi

B Srinagar

C Ajmer

D Dehradun

Answer: D

Question 48

Article 228 of the Indian Constitution "Transfer of certain cases to High Court" deals with?

A the directive principles of state policy

B the State Government

C the Union Government

D the fundamental rights of the Indian Citizen

Answer: B

Question 49

Who won the 2016 National Snooker Championship?

A Mohit Saraswat

B Aditya Mehta

C Arjun Pandit

D Varun Shakya

Answer: B

Question 50

Who is the author of "I Too Had a Love Story"?

- A Preeti Shenoy
- B Ravinder Singh
- C Keshav Aneel
- D Durjoy Datta

Answer: B

English

Instructions

For the following questions answer them individually

Question 51

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 speed with which she typed the draft demonstrated that she is asecretary.

- A savvy
- B adapted
- C nimble
- D competent

Answer: D

Question 52

Select the antonym of magnate

- A mogul
- B tycoon
- C aristocrat

D nonentity

Answer: D

Question 53

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 currentin global negotiations over climate change has stalled progress on the issue.

A intransigence

B fallacy

C stalemate

D rigidity

Answer: C

Question 54

Rearrange the parts of the sentence in correct order.

India should not be in a hurry

Pto ratify the Agreement

Quntil there is clarity

Ron the U.S. position

A QRP

B PQR

C RQP

D QPR

Answer: B

Question 55

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

Birds of a feather flock together

A even a small similarity is enough to become friends and stay together

B there is always more safety in a crowd

C people with the same tastes and interests will be found together

D people with bad intentions always form a gang

Answer: C

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.

The management committee is required to publish a report every year.

A A report would be published by the management committee every year.

B A report would have been published by the management committee every year.

C A report requires to be published by the management committee every year.

D Every year the report would be published by the management committee.

Answer: C

Question 57

Improve the bracketed part of the sentence.

Ramesh says, he has already repaid me but I can't recall, so I'll have (to take his word).

A to take his word as true

B to take him at his word

C to take his for word for it

D no improvement

Answer: B

Question 58

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'.

No students is(A)/as intelligent(B)/as Priya.(C)/No error(D)

A A

B B

C C

D D

Answer: A

Question 59

Improve the bracketed part of the sentence.

The manager was highly upset because of (the inordinate delaying).

- A the inordinate delay
- B the inordinately delay
- C the inordinately delaying
- D no improvement

Answer: A

Question 60

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.

"Is anyone there?" Reema asked.

- A Reema asked if someone were there.
- B Reema asked whether anyone was being there.
- C Reema asked if anyone was there.
- D Reema asked if anyone was here.

Answer: C

Question 61

Select the synonym of to cite

- A to conceal
- B to ignore
- C to indicate
- D to deny

Answer: C

Question 62

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'.

Rehana had everything(A)/beauties, a good figure,(B)/and a sweet personality.(C)/No issue(D)

A A

B B

C C

D D

Answer: B

Question 63

Select the word with the correct spelling.

A vacuoles

B skulcking

C squodron

D absenses

Answer: A

Question 64

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

a small mistake in an agreement or law that gives someone the chance to avoid having to do something

A loophole

B ruse

C ploy

D gambit

Answer: A

Question 65

Select the word with the correct spelling.

- A etarnity
- B monition
- C advisary
- D gigantec

Answer: B

Question 66

Select the antonym of to abnegate

- A to eject
- B to evict
- C to admit
- D to bounce

Answer: C

Question 67

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

having or showing an interest in learning things; curious.

- A probe
- B inquisitive
- C speculative
- D snoop

Answer: B

Question 68

Select the synonym of poise

- A tizzy
- B turmoil
- C agitate
- D elegance

Answer: D

Question 69

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

Beggars can't be choosers

- A those who have nothing have no hope
- B all your options close when you are going through a bad time
- C a poor person is forced to kill all his desires
- D people with no other options must be content with what is offered

Answer: D

Question 70

Rearrange the parts of the sentence in correct order

The party has not just

Pvacated space for other

Qbeing steadily hollowed out ideologically

Rpolitical parties, but it is also

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

Answer: A

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.

Widespread liberalization of the economic(1).....regime was long overdue in 1991, and has played a positive role since, but its impact has(2)..... its course and the policy has recognizable(3)..... Liberalization cannot address all aspects of the manmade environment and now climate change(4).....to change everything forever. We do not have another quarter century to deal(5).....these imperatives.

Question 71

Widespread liberalization of the economicregime

- A manifesto
- B statement
- C plan
- D policy

Answer: D

Question 72

but its impact hasits course

- A run
- B ran
- C been running
- D had ran

Answer: A

Question 73

The policy has recognizable

- A limits
- B constraint
- C considerations

D fault

Answer: A

Question 74

Now climate changeto change everything forever.

A were threatening

B threatens

C threatened

D are threatening

Answer: B

Question 75

We do not have another quarter century to dealthese imperatives.

A about

B for

C with

D of

Answer: C

Explanation:

End Group:

Mathematics

Instructions

For the following questions answer them individually

Question 76

Which of the following is correct?

A $(3x + 4y)(4x - 3y) = 12x^2 + 7xy - 12y^2$

B $(3x + 4y)(4x - 3y) = 12x^2 + 251xy - 12y^2$

C $(3x + 4y)(4x - 3y) = 12x^2 - 7xy + 12y^2$

D $(3x + 4y)(4x - 3y) = 12x^2 - 251xy + 12y^2$

Answer: A

Explanation:

Expression : $(3x + 4y)(4x - 3y) = 12x^2 + 7xy - 12y^2$

\Rightarrow L.H.S. = $(3x + 4y)(4x - 3y)$

= $12x^2(-9xy + 16xy) - 12y^2$

= $12x^2 + 7xy - 12y^2$

\Rightarrow Ans - (A)

Question 77

What is the value of $(81 + 82 + 83 + \dots + 130)$?

A 5275

B 10550

C 15825

D 21100

Answer: A

Explanation:

Expression : $(81 + 82 + 83 + \dots + 130)$

This is an arithmetic progression with first term, $a = 81$, last term, $l = 130$ and common difference, $d = 1$

Let number of terms = n

Last term in an A.P. = $a + (n - 1)d = 130$

$\Rightarrow 81 + (n - 1)(1) = 130$

$\Rightarrow n - 1 = 130 - 81 = 49$

$\Rightarrow n = 49 + 1 = 50$

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

= $\frac{50}{2}(81 + 130)$

= $25 \times 211 = 5275$

Question 78

The sum of the ages of husband and wife at present is 100. Ten years ago the ratio of their ages was 9:7. What is the age of the husband?

- A 45 years
- B 55 years
- C 65 years
- D 40 years

Answer: B

Explanation:

Let husband's age = x years

=> Wife's age = $(100 - x)$ years

According to ques,

$$\Rightarrow \frac{x-10}{100-x-10} = \frac{9}{7}$$

$$\Rightarrow \frac{x-10}{90-x} = \frac{9}{7}$$

$$\Rightarrow 7x - 70 = 810 - 9x$$

$$\Rightarrow 9x + 7x = 810 + 70 = 880$$

$$\Rightarrow x = \frac{880}{16} = 55 \text{ years}$$

=> Ans - (B)

Question 79

If $3x - 1 < 5x + 2$ and $3x + 5 < 6 - 4x$; then x can take which of the following values?

- A -1
- B 1
- C -2
- D 2

Answer: A

Explanation:

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

$$\Rightarrow 5x - 3x > -1 - 2$$

$$\Rightarrow 2x > -3$$

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

Expression 2 : $3x + 5 < 6 - 4x$

$$\Rightarrow 3x + 4x < 6 - 5$$

$$\Rightarrow 7x < 1$$

$$\Rightarrow x < \frac{1}{7} \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-3}{2} < x < \frac{1}{7}$

The only value that x can take among the given options = -1

\Rightarrow Ans - (A)

Question 80

In an arithmetic progression if 13 is the 3rd term, 47 is the 13th term, then 30 is which term?

A 9

B 10

C 7

D 8

Answer: D

Explanation:

The n^{th} term of an A.P. = $a + (n - 1)d$, where 'a' is the first term, 'n' is the number of terms and 'd' is the common difference.

$$\text{3rd term, } A_3 = a + (3 - 1)d = 13$$

$$\Rightarrow a + 2d = 13 \text{ -----(i)}$$

$$\text{Similarly, 13th term, } A_{13} = a + 12d = 47 \text{ -----(ii)}$$

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

$$\Rightarrow (12d - 2d) = 47 - 13 = 34$$

$$\Rightarrow d = \frac{34}{10} = 3.4$$

$$\text{Substituting it in equation (i), } \Rightarrow a + 2 \times 3.4 = 13$$

$$\Rightarrow a = 13 - 6.8 = 6.2$$

Let n^{th} term = 30

$$\Rightarrow a + (n - 1)d = 30$$

$$\Rightarrow 6.2 + (n - 1)(3.4) = 30$$

$$\Rightarrow (n - 1)(3.4) = 30 - 6.2 = 23.8$$

$$\Rightarrow (n - 1) = \frac{23.8}{3.4} = 7$$

$$\Rightarrow n = 7 + 1 = 8$$

Question 81

Among three numbers, the first is twice the second and thrice the third. If the average of three numbers is 506, then what is the difference between the first and the third number?

A 759

B 585

C 755

D 552

Answer: D

Explanation:

Let the first number = $6x$

\Rightarrow Second number = $3x$ and third number = $2x$

Average of the three numbers = $\frac{6x+3x+2x}{3} = 506$

$\Rightarrow 11x = 506 \times 3 = 1518$

$\Rightarrow x = \frac{1518}{11} = 138$

\therefore Difference between first and third number = $6x - 2x = 4x$

$= 4 \times 138 = 552$

\Rightarrow Ans - (D)

Question 82

What is the distance between the points (4,8) and (-2,0)?

A 100 units

B 5 units

C 25 units

D 10 units

Answer: D

Explanation:

Distance between two points (x_1, y_1) and $(x_2, y_2) = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$

Now, distance between points (-2,0) and (4,8)

$= \sqrt{(8 - 0)^2 + (4 + 2)^2} = \sqrt{(8)^2 + (6)^2}$

$= \sqrt{64 + 36} = \sqrt{100}$

= 10 units

=> Ans - (D)

Question 83

For triangle PQR, find equation of altitude PS if coordinates of P, Q and R are (6,2), (0,3) and (4,5) respectively?

A $2x - y = 14$

B $2x + y = 10$

C $2x - y = 10$

D $2x + y = 14$

Answer: D

Explanation:

Coordinates of P(6,2), Q(0,3) and R(4,5). PS is perpendicular to QR

$$\text{Slope of line QR} = \frac{5-3}{4-0} = \frac{1}{2}$$

Product of slopes of two perpendicular lines = -1

Let slope of line PS = m

$$\Rightarrow m \times \frac{1}{2} = -1$$

$$\Rightarrow m = -2$$

Now, equation of line having slope m and passing through (x_1, y_1) is $(y - y_1) = m(x - x_1)$

$$\Rightarrow (y - 2) = -2(x - 6)$$

$$\Rightarrow y - 2 = -2x + 12$$

$$\Rightarrow 2x + y = 12 + 2 = 14$$

=> Ans - (D)

Question 84

In ΔPQR , S and T are points on side PQ and PR respectively. ST is parallel to QR. If S divides PQ in the ratio 4:3 and length of QR is 4.9 cm, find ST?

A 5.6 cm

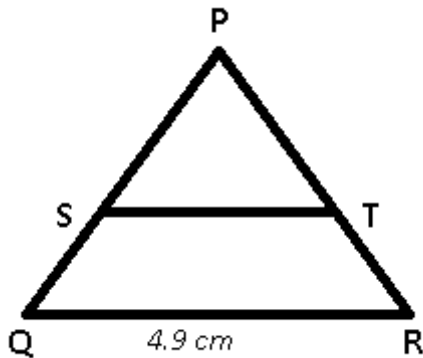
B 7.2 cm

C 2.8 cm

D 3.6 cm

Answer: C

Explanation:



ST is parallel to QR and $PS : SQ = 4 : 3$

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

$$\Rightarrow \frac{4}{4+3} = \frac{ST}{4.9}$$

$$\Rightarrow \frac{4}{7} = \frac{ST}{4.9}$$

$$\Rightarrow BC = 4 \times 0.7 = 2.8 \text{ cm}$$

=> Ans - (C)

Question 85

Makarand works 2 times as fast as Samarjit. If Samarjit can complete a job alone in 27 days, then in how many days can they together finish the job?

A 6 days

B 7 days

C 5 days

D 9 days

Answer: D

Explanation:

Let total work to be done be 27 units.

$$\text{Samarjit's efficiency} = \frac{27}{27} = 1 \text{ units/day}$$

$$\text{Makarand's efficiency} = 2 \times 1 = 2 \text{ units/day}$$

$$\Rightarrow \text{Samarjit's and Makarand's 1 day's work together} = 1 + 2 = 3 \text{ units/day}$$

$$\therefore \text{Time taken by them together} = \frac{27}{3} = 9 \text{ days}$$

=> Ans - (D)

Question 86

The ratio of present ages of Ramya and Saurabh is 8:7. After 10 years the ratio of their ages will be 12:11. What is Ramya's present age?

- A 20
- B 14
- C 63
- D 45

Answer: A

Explanation:

Let Ramya's present age = $8x$ years and Saurabh's present age = $7x$ years

According to ques, $\Rightarrow \frac{8x+10}{7x+10} = \frac{12}{11}$

$$\Rightarrow 88x + 110 = 84x + 120$$

$$\Rightarrow 88x - 84x = 120 - 110 = 10$$

$$\Rightarrow x = \frac{10}{4} = 2.5$$

\therefore Ramya's age = $8 \times 2.5 = 20$ years

\Rightarrow Ans - (A)

Question 87

Simple interest on a certain sum of money for 3 years at 16% per annum is half the compound interest on Rs. 12000 for 2 years at 10% per annum. The sum placed on simple interest is

- A Rs 5250
- B Rs 1325
- C Rs 2100
- D Rs 2625

Answer: D

Explanation:

Sum for compound interest = Rs. 12000

Rate of interest = 10% and time period = 2 years

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

$$= 12000\left[\left(1 + \frac{10}{100}\right)^2 - 1\right]$$

$$= 12000\left[\left(\frac{11}{10}\right)^2 - 1\right] = 12000\left(\frac{121-100}{100}\right)$$

$$= 120 \times 21 = \text{Rs. } 2520$$

$$\Rightarrow \text{Simple interest} = \frac{2520}{2} = \text{Rs. } 1260$$

Let sum under simple interest = $\text{Rs. } x$

Rate of interest = 16% and time period = 3 years

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

$$= \frac{x \times 16 \times 3}{100} = 1260$$

$$\Rightarrow x = \frac{1260 \times 25}{12} = 105 \times 25 = \text{Rs. } 2625$$

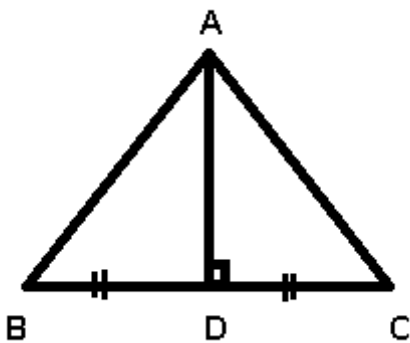
Question 88

What is the altitude of an equilateral triangle whose side is $12\sqrt{3}$ cm?

- A 12 cm
- B $(15\sqrt{2})$ cm
- C $9/\sqrt{2}$ cm
- D 18 cm

Answer: D

Explanation:



$\triangle ABC$ is equilateral triangle with $AB = AC = BC = 12\sqrt{3}$ cm

AD is altitude of the triangle and also, in an equilateral triangle altitude and median coincides. Thus, AD is the median

$$\Rightarrow CD = \frac{12\sqrt{3}}{2} = 6\sqrt{3} \text{ cm}$$

$$\text{In } \triangle ACD, \Rightarrow (AD)^2 = (AC)^2 - (CD)^2$$

$$\Rightarrow (AD)^2 = (12\sqrt{3})^2 - (6\sqrt{3})^2$$

$$\Rightarrow (AD)^2 = 432 - 108 = 324$$

$$\Rightarrow AD = \sqrt{324} = 18 \text{ cm}$$

=> Ans - (D)

Question 89

An engineering student has to secure 25% marks to pass. He gets 56 and fails by 34 marks. Find the maximum marks.

- A 385 marks
- B 360 marks
- C 410 marks
- D 435 marks

Answer: B

Explanation:

Let maximum marks = $100x$

$$\Rightarrow \text{Passing marks} = \frac{25}{100} \times 100x = 25x$$

According to ques,

$$\Rightarrow 25x - 34 = 56$$

$$\Rightarrow 25x = 56 + 34 = 90$$

$$\Rightarrow x = \frac{90}{25} = 3.6$$

$$\therefore \text{Maximum marks} = 100 \times 3.6 = 360$$

Question 90

30% discount is offered on an item. By applying a promo code the customer wins 20% cash back. What is the effective discount?

- A 44 percent
- B 52.8 percent
- C 50 percent
- D 26 percent

Answer: A

Explanation:

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

$$\text{Amount after 30 \% discount} = 100x - \frac{30}{100} \times 100x$$

$$= 100x - 30x = Rs.70x$$

$$\text{Selling price after 20 \% cashback} = 70x - \frac{20}{100} \times 70x$$

$$= 70x - 14x = Rs.56x$$

$$\Rightarrow \text{Total discounted amount} = 100x - 56x = Rs.44x$$

$$\therefore \text{Effective discount} = \frac{44x}{100x} \times 100 = 44\%$$

Question 91

If curved surface area of a cylinder is 1320 sq cm and height is 10 cm, find its radius?

A 21 cm

B 42 cm

C 63 cm

D 10.5 cm

Answer: A

Explanation:

Let radius of cylinder = r cm and height = 10 cm

Curved surface area of cylinder = $2\pi rh = 1320$

$$\Rightarrow 2 \times \frac{22}{7} \times r \times 10 = 1320$$

$$\Rightarrow \frac{44}{7} \times r = \frac{1320}{10} = 132$$

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

$$\Rightarrow r = 3 \times 7 = 21 \text{ cm}$$

Question 92

A wholesaler sells a watch to a retailer at a gain of 35% and the retailer sells it to a customer at a loss of 25%. If the customer pays Rs 2379.375, what had it cost the wholesaler?

A Rs 2350

B Rs 2409

C Rs 2928

D Rs 2291

Answer: A

Explanation:

For the wholesaler,

Let the cost price = Rs. $100x$

With profit of 35%, Selling price = $\frac{135}{100} \times 100x = Rs.135x$

For the retailer,

Cost price = Rs. $135x$

With a loss of 25%, Selling price = $\frac{75}{100} \times 135x = Rs.101.25x$

For the customer,

Cost price = $101.25x = 2379.375$

$$\Rightarrow x = \frac{2379.375}{101.25} = 23.5$$

\therefore Cost price for retailer = $100 \times 23.5 = Rs2350$

Question 93

What is the value of $\tan 7\pi/4$?

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

Answer: D

Explanation:

Expression : $\tan 7\pi/4$

$$= \tan\left(2\pi - \frac{\pi}{4}\right)$$

$$= -\tan\left(\frac{\pi}{4}\right) = -1$$

\Rightarrow Ans - (D)

Question 94

A man travels 401 kilometres in, partly by rail and partly by steamer. He spends 6 hours more time on steamer. If the velocity of the steamer is 21 km/hr and the velocity of rail is 56 km/hr, how much distance does he cover by steamer?

- A 241 km
- B 302 km
- C 201 km

D 362 km

Answer: C

Explanation:

Let distance covered by steamer = d km

=> Distance covered by rail = $(401 - d)$ km

Let time taken on rail = t hours and time taken on steamer = $(t + 6)$ hours

Speed of rail = 56 km/hr and speed of steamer = 21 km/hr

Using, speed = distance/time

For steamer, $\frac{d}{t+6} = 21$

=> $d = 21t + 126$ -----(i)

For rail, $\frac{401-d}{t} = 56$

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

=> $401 - (21t + 126) = 56t$

=> $401 - 126 = 56t + 21t = 77t$

=> $t = \frac{275}{77} = \frac{25}{7}$ hours

Substituting value of t in equation (i), => $d = (21 \times \frac{25}{7}) + 126$

= $(3 \times 25) + 126 = 75 + 126 = 201$ km

Question 95

$2\sin[(C+D)/2].\cos[(C-D)/2]$ is equal to

A $\sin C - \sin D$

B $\cos C + \cos D$

C $\cos C - \cos D$

D $\sin C + \sin D$

Answer: D

Explanation:

We know that, $\sin(x + y) = \sin x \cos y + \cos x \sin y$ -----(i)

and $\sin(x - y) = \sin x \cos y - \cos x \sin y$ -----(ii)

Adding equations (i) and (ii), we get :

$\sin(x + y) + \sin(x - y) = 2\sin x \cos y$ -----(iii)

Let $x + y = C$ and $x - y = D$

$$\Rightarrow x = \frac{C+D}{2}$$

$$\text{and } y = \frac{C-D}{2}$$

Substituting above values in equation (iii)

$$\Rightarrow \sin C + \sin D = 2\sin\left(\frac{C+D}{2}\right)\cos\left(\frac{C-D}{2}\right)$$

\Rightarrow Ans - (D)

Question 96

$\tan A \operatorname{cosec} 2A$ is equal to $\tan A \operatorname{cosec} 2A$?

A $(1 + \tan 2A)\cot A$

B $(1 - \tan 2A)\cot A$

C $\sqrt{(1 + \tan 2A)\cot A}$

D $\sqrt{(1 - \tan 2A)\cot A}$

Answer: A

Question 97

Read the table and answer the given questions

	Quantity of cost	Average cost
MOBILES	100	18000
CAMERAS	87	6000
TVs	80	56000
REFRIGERATOR	38	28000
AC	93	25000

What is the total cost in lakhs ?

A 101.91

B 1019.1

C 133

D 398

Answer: A

Explanation:

Total cost of mobiles = $100 \times 18000 = \text{Rs. } 18,00,000$

Total cost of Cameras = $87 \times 6000 = \text{Rs. } 5,22,000$

Total cost of TVs = $80 \times 56000 = \text{Rs. } 44,80,000$

Total cost of Refrigerator = $38 \times 28000 = \text{Rs. } 10,64,000$

Total cost of AC = $93 \times 25000 = \text{Rs. } 23,25,000$

\therefore Total cost = $18,00,000 + 5,22,000 + 44,80,000 + 10,64,000 + 23,25,000 = \text{Rs. } 1,01,91,000$

Total cost in lakhs = Rs 101.91 lakhs

Question 98

Read the given data and answer the questions

Years	Ratio Import/Export
2011	1.5
2012	1
2013	1.5
2014	1
2015	1.5

If the imports in 2012 was Rs. 600 crores and the total exports in the years 2012 and 2013 together was Rs. 4000 crores, then the imports in 2013 was?

- A 600
- B 3400
- C 5100
- D 2267

Answer: C

Explanation:

Ratio of imports and exports in 2012 = 1

\Rightarrow Imports in 2012 = Exports in 2012 = Rs. 600 crores

Total exports in the years 2012 and 2013 together = Rs. 4000 crores

\Rightarrow Exports in 2013 = Rs. $(4000 - 600)$ crores = Rs. 3400 crores

Let imports in 2013 = Rs. x crores

Ratio of imports and exports in 2013 = $\frac{x}{3400} = 1.5$

$\Rightarrow x = 3400 \times 1.5 = 5100$

\therefore Imports in 2013 was Rs. 5100 crores

Question 99

Read the table and answer the given questions?

Measured On Birthday	Hieght of Children in CMs
4	100
5	110
6	120
7	130
8	135
9	145
10	150
11	155
12	160
13	165
14	175
15	185
16	190

What was the increase in the height of the child from the 5th Birthday to the 16th Birthday?

- A 85 cms
- B 90 cms
- C 75 cms
- D 80 cms

Answer: D

Explanation:

Height on 5th birthday = 110 cm

Height on 16th birthday = 190 cm

Increase in height = $190 - 110 = 80$ cm

=> Ans - (D)

Question 100

Read the table and answer the given questions?

Deep Sleep	5
Dreaming	30
Light Sleep	20
Exreamly Sleep	10
Awake	35

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

A 5.2 hours

B 4.7 hours

C 3.7 hours

D 5.7 hours

Answer: A

Explanation:

Total time between 10 pm to 6 am = 8 hours

% time spent on dreaming and on awake = 30 + 35 = 65%

=> Time spent on dreaming or on awake = $\frac{65}{100} \times 8$

= $\frac{26}{5} = 5.2$ hours

=> Ans - (A)

SSC CHSL 29 Jan 2017 Evening Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Car : Garage :: Curio : ?

- A Aviary
- B Cellar
- C Museum
- D Granary

Answer: C

Explanation:

Expression = Car : Garage :: Curio : ?

A car is kept in a garage, similarly curio, i.e. a rare, unusual, or intriguing object is kept in a *museum*.

=> Ans - (C)

Question 2

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

ABCD : HYXE :: MNOP : ?

- A TKJQ
- B TLJQ
- C TKQJ
- D TLQJ

Answer: A

Explanation:

Expression = ABCD : HYXE :: MNOP : ?

The pattern followed is :

A	B	C	D
(+7)	(-3)	(-5)	(+1)
H	Y	X	E

Similarly, MNOP : TKJQ

M	N	O	P
(+7)	(-3)	(-5)	(+1)
T	K	J	Q

=> Ans - (A)

Question 3

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

IKMO : PRTV :: RTVX : ?

A YACE

B YAEC

C XACE

D XCAE

Answer: A

Explanation:

Expression = IKMO : PRTV :: RTVX : ?

The pattern followed is :

I	K	M	O
(+7)	(+7)	(+7)	(+7)
P	R	T	V

Similarly, RTVX : YACE

R	T	V	X
(+7)	(+7)	(+7)	(+7)
Y	A	C	E

=> Ans - (A)

Question 4

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

5243 : 14 :: 4312 : ?

A 10

B 9

C 7

D 6

Answer: A

Explanation:

Expression = 5243 : 14 :: 4312 : ?

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

Eg :- $5 + 2 + 4 + 3 = 14$

Similarly, $4 + 3 + 1 + 2 = 10$

=> Ans - (A)

Question 5

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

A Dehradun

B Ranchi

C Lucknow

D Roorkee

Answer: D

Explanation:

Dehradun is the capital of Uttarakhand, Ranchi is the capital of Jharkhand and Lucknow is the capital of Uttar Pradesh, while Roorkee is not a capital city, hence it is the odd one out.

=> Ans - (D)

Question 6

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

A CEHJ

B HJMO

C RTWY

D PQTV

Answer: D

Explanation:

(A) : C (+2 letters) = E (+3 letters) = H (+2 letters) = J

(B) : H (+2 letters) = J (+3 letters) = M (+2 letters) = O

(C) : R (+2 letters) = T (+3 letters) = W (+2 letters) = Y

(D) : P (+1 letter) = Q (+3 letters) = T (+2 letters) = V

=> Ans - (D)

Question 7

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

A 583

B 275

C 286

D 427

Answer: D

Explanation:

The sum of first and third digit is equal to the middle digit, but $4 + 7 \neq 2$, hence 427 is the odd one out.

=> Ans - (D)

Question 8

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

A 242

B 431

C 260

D 531

Answer: D

Explanation:

Except for 531, the sum of digits of all numbers is 8, hence 531 is the odd one out.

=> 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.

ACE, BDF, CEG, ?

- A DEF
- B DFH
- C DEH
- D DFE

Answer: B

Explanation:

Expression : ACE, BDF, CEG, ?

The pattern followed in each letter of the terms is :

1st letter : A (+1 letter) = B (+1 letter) = C (+1 letter) = D

2nd letter : C (+1 letter) = D (+1 letter) = E (+1 letter) = F

3rd letter : E (+1 letter) = F (+1 letter) = G (+1 letter) = H

Thus, missing term = **DFH**

=> Ans - (B)

Question 10

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

ABC, PQR, DEF, STU, ?

- A VWX
- B GHI
- C IJK
- D GKL

Answer: B

Explanation:

Expression : ABC, PQR, DEF, STU, ?

The pattern followed is that every alternate term is a combination of successive alphabets in English alphabetical series.

Eg :- PQR, STU

Similarly, after ABC -> DEF, which is followed by = **GHI**

=> Ans - (B)

Question 11

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

130, 450, 970, 1690, ?

A 6210

B 2601

C 2600

D 2610

Answer: D

Explanation:

The pattern followed is :

$$130 + 320 = 450$$

$$450 + 520 = 970$$

$$970 + 720 = 1690$$

$$1690 + 920 = \mathbf{2610}$$

=> Ans - (D)

Question 12

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.

Statement:

(I) Wages are determined by minimum wage legislation in each country.

(II) Increase in wage rate is the sign of growth in an economy.

Conclusions:

(I) Average wage rate signifies the wealth of a country.

(II) Minimum wage legislation does not account wage imbalances.

A Only conclusion II follows

B Conclusion I and II both follow

C Neither I nor II follow

D Only conclusion I follows

Answer: D

Question 13

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

January, March, May, ?

A June

B April

C August

D July

Answer: D

Explanation:

Months which have 31 days in chronological order are given.

= January -> March -> May -> July

=> Ans - (D)

Question 14

Five planes, A, B, P, Q and R were saluting on Independence Day in such a way that R was second to the left of Q but to the immediate right of A. There was one plane between B and P. B was not at any of the ends. P and Q were neighbours. Who was at the left end?

A A

B B

C R

D Q

Answer: A

Explanation:

R was second to the left of Q but to the immediate right of A, => A R _ Q

There was one plane between B and P, => the last plane must be to the immediate right of Q.

Also, B was not at any of the ends, => B was between R and Q.

Arrangement :

A	R	B	Q	P
---	---	---	---	---

∴ A was at the left end.

=> Ans - (A)

Question 15

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

- i. Prandial
- ii. Preach
- iii. Priam
- iv. Price
- v. Pseudo

A iii, iv, v, i, ii

B i, v, iv, ii, iii

C i, ii, iii, iv, v

D v, iii, iv, i, ii

Answer: C

Explanation:

As per the order of dictionary :

= Prandial -> Preach -> Priam -> Price -> Pseudo

≡ i, ii, iii, iv, v

=> Ans - (C)

Question 16

In a certain code language, "DURING" is written as "GRUFQD". How is "PICKED" written in that code language?

A SAFFIIA

B TGFHHA

C SFFHHA

D SFHFHA

Answer: C

Explanation:

"DURING" is written as "GRUFQD"

The pattern followed is :

D	U	R	I	N	G
(+3)	(-3)	(+3)	(-3)	(+3)	(-3)
G	R	U	F	Q	D

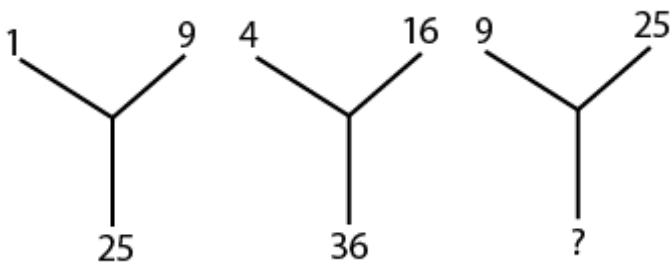
Similarly, for PICKED :

P	I	C	K	E	D
(+3)	(-3)	(+3)	(-3)	(+3)	(-3)
S	F	F	H	H	A

=> Ans - (C)

Question 17

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



A 47

B 49

C 50

D 57

Answer: B

Explanation:

The pattern followed is that the numbers at the corresponding edges are squares of consecutive natural numbers.

Eg :- Top left : $(1)^2 = 1, (2)^2 = 4, (3)^2 = 9$

Top right : $(2)^2 = 4, (3)^2 = 9, (4)^2 = 16$

Similarly, $(5)^2 = 25, (6)^2 = 36, (7)^2 = 49$

Thus, missing term = **49**

=> Ans - (B)

Question 18

If "x" stands for addition, "<" stands for subtraction, "+" stands for division, ">" stands for multiplication, "-" stands for equals to, "÷" stands for greater than and "=" stands for less than, which of the following holds true?

A $18 + 9 = 128 > 2$

B $16 + 9 \times 8 < 2 - 14$

C $8 \times 12 + 3 - 14 \times 2$

D $182 + 6 > 4 \div 1218$

Answer: A

Explanation:

(A) : $18 + 9 = 128 > 2$

$\equiv 18 \div 9 < 128 - 2$

L.H.S. = $9 < 126 =$ R.H.S. which is true.

=> Ans - (A)

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?

_n_p_no_m_ _p

A mmoopp

B mommpo

C mompon

D mompno

Answer: D

Explanation:

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

= **mnop mnop mnop**

=> Ans - (D)

Question 20

A man travels 10 km towards west, then he takes a turn towards northeast and travels 20 km in the direction. He again takes a turn towards southeast and covers 5 km. Taking starting point as the origin, in which direction is he now?

A Northeast

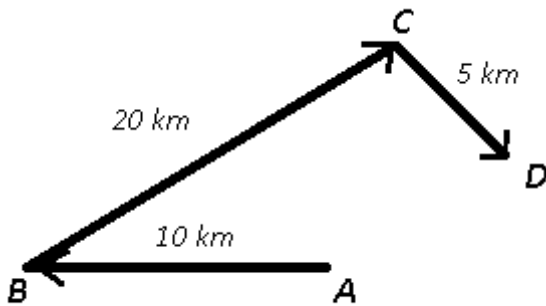
B Southeast

C South

D East

Answer: A

Explanation:



Let the man starts from point A and travels 10 km towards west to reach B, then he takes a turn towards north-east and travels 20 km to reach C. He again takes a turn towards south-east and covers 5 km to finally stop at point D.

Thus, he is north-east of his original position.

=> 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, 'V' can be represented by 21, 33 etc. and 'I' can be represented by 75,97 etc. Similarly, you have to identify the set for the word 'WHALE'.

Matrix 1:

	0	1	2	3	4
0	W	M	V	A	L
1	A	U	W	L	V
2	L	V	U	W	A
3	U	A	L	V	W
4	W	U	V	A	L

Matrix 2:

	5	6	7	8	9
5	E	H	U	I	V
6	V	U	H	E	I
7	I	E	U	H	V
8	U	I	E	V	H
9	H	V	I	U	E

A 23, 56, 10, 43, 68

B 34, 67, 24, 04, 55

C 40, 76, 03, 44, 99

D 01, 78, 31, 34, 76

Answer: B

Explanation:

(A) : 23, 56, 10, 43, 68 = WHAAE

(B) : 34, 67, 24, 04, 55 = **WHALE**

(C) : 40, 76, 03, 44, 99 = WEALE

(D) : 01, 78, 31, 34, 76 = MVAWE

=> Ans - (B)

Question 22

Pointing to a lady, Anju says, "She is the sister of my brother's mother". How is the lady related to Anju?

A Motherinlaw

B Niece

C Aunt

D Sister

Answer: C

Explanation:

Anju's brother's mother = Anju's mother

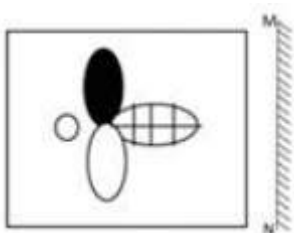
Now, that lady is Anju's mother's sister,

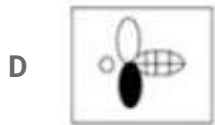
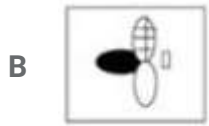
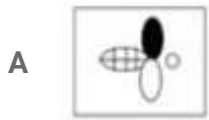
=> That lady is Anju's aunt.

=> Ans - (C)

Question 23

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





Answer: A

Question 24

Identify the diagram that best represents the relationship among the given classes.
Prime Minister, Chief Minister, Governor, State

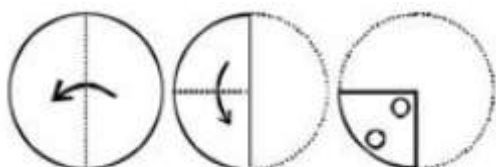
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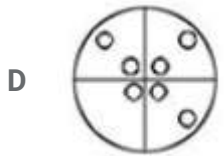
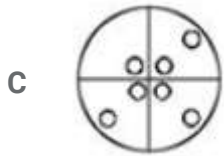
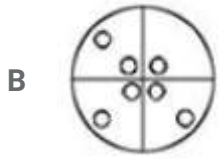
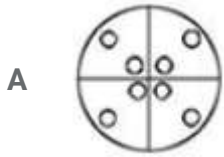


Answer: A

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.





Answer: A

General Awareness

Instructions

For the following questions answer them individually

Question 26

Ajanta Caves is in

- A Maharashtra
- B Himachal Pradesh
- C Karnataka
- D Madhya Pradesh

Answer: A

Question 27

.....is a condition in which there is a deficiency of red cells or of haemoglobin in the blood.

- A Albinism
- B Propyria
- C Anaemia
- D Keloid disorder

Answer: C

Question 28

Ananas comosus is the scientific name of

- A Custard Apple
- B Pineapple
- C Bamboo
- D Pomegranate

Answer: B

Question 29

Which organ produces insulin?

- A Liver
- B Thyroid gland
- C Spleen
- D Pancreas

Answer: D

Question 30

Which of the following elements has the lowest melting point?

- A Tin
- B Hydrogen
- C Carbon

D Sodium

Answer: B

Question 31

If demand curve for an electric tooth brush is $D = 25000 - 7P$ and supply curve is $S = 10000 + 8P$, find the equilibrium Price?

A Rs 150

B Rs 1000

C Rs 400

D Rs 50

Answer: B

Question 32

Match the characteristics with their market structure:

(a) $MR = MP$

(b) Elasticity of demand depends on pricing policies of rivals

A (a) Pure Monopoly, (b) Monopolistic competition

B (a) Pure competition, (b) Oligopoly

C (a) Pure competition, (b) Pure Monopoly

D (a) Pure Monopoly, (b) Oligopoly

Answer: B

Question 33

.....is located in the Alwar district of Rajasthan.

A Dandeli Wildlife Sanctuary

B Sariska National Park

C Chinnar Wildlife Sanctuary

D Dudhwa National Park

Answer: B

Question 34

Which of the following disease is not caused by water pollution?

- A Cholera
- B Typhoid
- C Asthma
- D Diarrhoea

Answer: C

Question 35

BRICS is the acronym for an association of five major emerging national economies: Brazil, Russia, India, China and

- A Saudi Arabia
- B South Africa
- C Singapore
- D Sri Lanka

Answer: B

Question 36

June 21 marks the winter solstice in theHemisphere.

- A Northern
- B Eastern
- C Western
- D Southern

Answer: D

Question 37

Nuclear bombs were dropped on Hiroshima and Nagasaki during the.....

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

Answer: D

Question 38

Who invented "Coca Cola"?

- A Floyd Paxton
- B Les Paul
- C John Pemberton
- D Forrest Parry

Answer: C

Question 39

An example of longitudinal waves (in gas as a medium) is

- A heat waves
- B radio waves
- C electromagnetic waves
- D sound waves

Answer: D

Question 40

In projectile motion, the total flight time is

- A equal to the time required to reach the maximum height
- B thrice the time required to reach the maximum height
- C four times the time required to reach the maximum height

D twice the time required to reach the maximum height

Answer: C

Question 41

fundamental rights are recognized by the Indian constitution.

A Five

B Six

C Seven

D Eight

Answer: C

Question 42

Lok Sabha is theHouse of the Parliament of India.

A Lower

B Upper

C Left

D Right

Answer: A

Question 43

In which of the following games the term "deuce" is used?

A Kabaddi

B Football

C Cricket

D Badminton

Answer: D

Question 44

Who wrote the book "As you like it"?

- A Stephen Hawkings
- B William Shakespeare
- C Vikram Seth
- D Vimal Kumar

Answer: B

Question 45

Bhopal is the Capital City of

- A Himachal Pradesh
- B Goa
- C Gujarat
- D Madhya Pradesh

Answer: D

Question 46

In 1617 the British East India Company was given permission byto trade in India.

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

Answer: D

Question 47

Highest Civilian Honour received by Shri Shri Ravi Shankar is

- A Padma Shri

- B** Padma Bhushan
- C** Padma Vibhushan
- D** Bharat Ratna

Answer: C

Question 48

What chemical is injected into a person's body when an ant bites?

- A** Formic Acid
- B** Acetic Acid
- C** Tartaric Acid
- D** Citric Acid

Answer: A

Question 49

.....is a form of computer data storage which stores frequently used program instructions to increase the general speed of a system.

- A** Arithmetic Logic Unit
- B** Integrated Circuit
- C** Random Access Memory
- D** Portable Document Format

Answer: C

Question 50

Malayalam is the official language of

- A** Puducherry
- B** Lakshadweep
- C** Daman and Diu
- D** Delhi

Answer: B

English

Instructions

For the following questions answer them individually

Question 51

Rearrange the parts of the sentence in correct order.

If per capita income is taken

As the measure then we are

Qaway from 'great power' status

Rstill some distance

A PRQ

B PQR

C QPR

D RPQ

Answer: A

Question 52

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.

My sister will bake a dozen cakes for the fair.

A For the fair, a dozen cakes would be baked by my sister.

B For the fair, a dozen cakes would have been baked by my sister.

C For the fair, a dozen cakes will be baked by my sister.

D For the fair, a dozen cakes will have been baked by my sister.

Answer: C

Question 53

Improve the bracketed part of the sentence. The naughty boy made (many a mischief).

- A much mischief
- B many mischief
- C many a mischiefs
- D no improvement

Answer: A

Question 54

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.

My mother likes tome by showing everyone my baby pictures.

- A stun
- B annoy
- C shame
- D embarrass

Answer: D

Question 55

Select the antonym of agonising

- A vehement
- B fierce
- C excruciating
- D cordial

Answer: D

Question 56

Select the word with the correct spelling.

- A motlyiest

B plummet

C disgorg

D bangalow

Answer: B

Question 57

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'.

He woke on, rising(A)/to a sitting position(B)/and rubbed his eyes briskly.(C)/No error(D)

A A

B B

C C

D D

Answer: A

Question 58

Select the synonym of
to jeopardise

A to chaperone

B to picket

C to imperil

D to escort

Answer: C

Question 59

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

To increase rapidly in number; multiply.

A to proliferate

B to procreate

C to propagate

D to escalate

Answer: A

Question 60

Improve the bracketed part of the sentence. Grandfather has said so out of affection, do not take (to) heart.

A into

B it to

C it by

D no improvement

Answer: B

Question 61

Rearrange the parts of the sentence in correct order.

India has already made
Psubstantial concessions
Qto enable a consensus
Rfor the Paris pact

A QRP

B PQR

C RPQ

D QPR

Answer: B

Question 62

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.

I was takenby the server's rude comment about my hair.

A away

B from

C aback

D off

Answer: C

Question 63

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.

Manish said, "Where is she going?".

A Manish asked that where she was going.

B Manish asked that where she is going.

C Manish asked where she was going.

D Manish asked that where she has been going.

Answer: C

Question 64

Select the synonym of
evicted

A congenial

B sympathetic

C cordial

D ousted

Answer: D

Question 65

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

to easily bent; flexible.

A putty

B pliable

C rigid

D ductile

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'.

I wonder if they(A)/could treat me nicely(B)/if I went there again.(C)/No error(D)

A A

B B

C C

D D

Answer: B

Question 67

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

to chew someone out

A to bore someone by talking ceaselessly

B to discourage someone who is going to start a new venture

C reprimand someone severely

D to save someone

Answer: C

Question 68

Select the antonym of
discrepant

A contrary

B dissonant

C harmonious

D variance

Answer: C

Question 69

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

to chip on his shoulder

- A** to have huge responsibilities on one's shoulders
- B** uniform decorated with stars and medals
- C** wearing your battle scars like medals
- D** holding a grudge or grievance that readily provokes a fight

Answer: D

Question 70

Select the word with the correct spelling.

- A** flooring
- B** altituede
- C** purveyour
- D** snobish

Answer: A

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.

That is why publicly invoking these symbols has to be an act of responsible citizenship and not self.....
(1)..... demagoguery, but the difference can be hard to(2)..... The problem with emotive symbols is that(3).....they can multiply the force of arguments, they cannot replace the arguments.....(4)..... All persuasion harnesses symbols but principled persuasion must also provide arguments that can be
(5)..... debated.

Question 71

An act of responsible citizenship and not self.....demagoguery

- A efficacy
- B serving
- C esteem
- D reference

Answer: B

Question 72

But the difference can be hard to

- A tell
- B say
- C speak
- D mention

Answer: A

Question 73

The problem with emotive symbols is thatthey can multiply the force of arguments

- A tough
- B though
- C through
- D Thorough

Answer: B

Question 74

They cannot replace the arguments.....

- A yourselves
- B yourself
- C by themselves

D themselves

Answer: D

Question 75

principled persuasion must also provide arguments that can bedebated.

A absurdly

B carefully

C rationally

D friendly

Answer: C

Mathematics

Instructions

For the following questions answer them individually

Question 76

20% discount is offered on an item. By applying a promo code the customer wins 15% cash back. What is the effective discount?

A 30.8 percent

B 30 percent

C 12 percent

D 32 percent

Answer: D

Explanation:

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

$$\text{Amount after 20 \% discount} = 100x - \frac{20}{100} \times 100x$$

$$= 100x - 20x = \text{Rs.}80x$$

$$\text{Selling price after 15 \% cashback} = 80x - \frac{15}{100} \times 80x$$

$$= 80x - 12x = \text{Rs.}68x$$

$$\Rightarrow \text{Total discounted amount} = 100x - 68x = \text{Rs.}32x$$

$$\therefore \text{Effective discount} = \frac{32x}{100x} \times 100 = 32\%$$

Question 77

What is the HCF (highest common factor) of 57 and 513?

- A 10
- B 57
- C 3
- D 27

Answer: B

Explanation:

Factors of 57 = 1, 3, 19, 57

Factors of 513 = 1, 3, 9, 19, 27, 57, 171, 513

The common factors are = 1, 3, 19, 57

=> Highest common factor = 57

=> Ans - (B)

Question 78

Murad can do a piece of work in 33 hours. If he is joined by Joel who is 100% more efficient, in what time will they together finish the work?

- A 4 hours
- B 6 hours
- C 2 hours
- D 11 hours

Answer: D

Explanation:

Let total work to be done be 33 units.

Murad's efficiency = $\frac{33}{33} = 1$ units/hour

Joel's efficiency = $1 + \frac{100}{100} \times 1 = 2$ units/hour

=> Murad's and Joel's 1 day's work together = $1 + 2 = 3$ units/hour

\therefore Time taken by them together = $\frac{33}{3} = 11$ hours

=> Ans - (D)

Question 79

Simplify $\frac{437bxaz}{23ab}$.

A $17xzb$

B $9xz$

C $19xz$

D $19ab$

Answer: C

Explanation:

Expression : $\frac{437bxaz}{23ab}$

$$= \frac{437}{23} \times \frac{abxz}{ab}$$

$$= 19xz$$

=> Ans - (C)

Question 80

Which of the following quadratic equations has equal roots?

A $x^2 + 14x - 49 = 0$

B $x^2 + 7x + 49 = 0$

C $x^2 - 7x - 49 = 0$

D $x^2 + 14x + 49 = 0$

Answer: D

Explanation:

A quadratic equation : $ax^2 + bx + c = 0$ has equal roots iff Discriminant, $D = b^2 - 4ac = 0$

(A) : $x^2 + 14x - 49 = 0$

$$\Rightarrow D = (14)^2 - 4(1)(-49) = 196 + 196 = 392 \neq 0$$

(B) : $x^2 + 7x + 49 = 0$

$$\Rightarrow D = (7)^2 - 4(1)(49) = 49 - 196 = -147 \neq 0$$

(C) : $x^2 - 7x - 49 = 0$

$$\Rightarrow D = (-7)^2 - 4(1)(-49) = 49 + 196 = 245 \neq 0$$

$$(D) : x^2 + 14x + 49 = 0$$

$$\Rightarrow D = (14)^2 - 4(1)(49) = 196 - 196 = 0$$

Thus, the equation : $x^2 + 14x + 49 = 0$ has equal roots.

Question 81

If $4 + 3x \leq 6 + x$ and $3x + 5 > 2 + 2x$; then x can take which of the following values?

A 2

B -2

C 4

D -4

Answer: B

Explanation:

Expression 1 : $4 + 3x \leq 6 + x$

$$\Rightarrow 3x - x \leq 6 - 4 \Rightarrow 2x \leq 2$$

$$\Rightarrow x \leq \frac{2}{2} \Rightarrow x \leq 1 \text{ -----(i)}$$

Expression 2 : $3x + 5 > 2 + 2x$

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

$$\Rightarrow x > -3 \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $-3 < x \leq 1$

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

\Rightarrow Ans - (B)

Question 82

The first and last terms of an arithmetic progression are 37 and -18. If the sum of the series is 114, then it has how many terms?

A 13

B 12

C 14

D 15

Answer: B

Explanation:

In an arithmetic progression with first term, $a = 37$, last term, $l = -18$

Let number of terms = n

$$\therefore \text{Sum of A.P.} = \frac{n}{2}(a + l) = 114$$

$$\Rightarrow \frac{n}{2}(37 - 18) = 114$$

$$\Rightarrow 19n = 114 \times 2 = 228$$

$$\Rightarrow n = \frac{228}{19} = 12$$

\Rightarrow Ans - (B)

Question 83

ΔABC is similar to ΔDEF . Length of AB is 12 cm and length of the corresponding side DE is 8 cm. What is the ratio of Perimeter of ΔABC : Perimeter of ΔDEF ?

A 9:4

B 4:9

C 3:2

D 2:3

Answer: C

Explanation:

It is given that $\Delta ABC \sim \Delta DEF$

Also, length of AB = 12 cm and length of the corresponding side DE = 8 cm

\Rightarrow Ratio of Perimeter of ΔABC : Perimeter of ΔDEF = Ratio of corresponding sides = AB : DE

$$= \frac{12}{8} = \frac{3}{2}$$

\therefore The required ratio is 3 : 2

\Rightarrow Ans - (C)

Question 84

What is the slope of the line perpendicular to the line passing through the points (4,5) and (3,2)?

A 2

B 3/7

C -3/7

D -1/3

Answer: D

Explanation:

Slope of line passing through points (x_1, y_1) and $(x_2, y_2) = \frac{(y_2 - y_1)}{(x_2 - x_1)}$

Points = A (3,2) and B (4,5)

$$\Rightarrow \text{Slope of AB} = \frac{5-2}{4-3} = 3$$

Product of slopes of two perpendicular lines = -1

Let slope of line perpendicular to AB = m

$$\Rightarrow m \times 3 = -1$$

$$\Rightarrow m = \frac{-1}{3}$$

Question 85

Find two numbers such that their mean proportion is 12 and third proportion is 768.

A 3 and 24

B 3 and 48

C 6 and 48

D 6 and 24

Answer: B

Explanation:

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

Mean proportion of two numbers x and $y = 12$

$$\Rightarrow xy = (12)^2 = 144 \text{ -----(i)}$$

Third proportion = 768

$$\Rightarrow y^2 = x \times 768 \text{ -----(ii)}$$

Substituting value of x from equation(i) in equation(ii), we get :

$$\Rightarrow y^2 = \frac{144}{y} \times 768$$

$$\Rightarrow y^3 = (12)^2 \times (4)^3 = (12 \times 4)^3$$

$$\Rightarrow y = 12 \times 4 = 48$$

$$\text{Substituting it in equation(i), } \Rightarrow x = \frac{144}{48} = 3$$

Question 86

In the first 43 overs of a cricket match, the run rate was 5 runs/over. Calculate the required run rate in the remaining 7 overs to reach the target of 285 runs?

- A 10.6
- B 11.2
- C 10
- D 9.4

Answer: C

Explanation:

Run rate in 43 overs = 5 runs/over

$$\Rightarrow \text{Runs scored in 43 overs} = 43 \times 5 = 215$$

$$\text{Runs needed to score in 7 overs} = 285 - 215 = 70$$

$$\Rightarrow \text{Run rate required} = \frac{70}{7} = 10$$

\Rightarrow Ans - (C)

Question 87

Find the sum of interior angles of a decagon?

- A 1620°
- B 2520°
- C 1800°
- D 1440°

Answer: D

Explanation:

$$\text{Sum of interior angles of a polygon with } n \text{ sides} = (n - 2) \times 180^\circ$$

$$\text{Number of sides in a decagon, } n = 10$$

$$\Rightarrow \text{Sum of interior angles} = (10 - 2) \times 180^\circ$$

$$= 8 \times 180 = 1440^\circ$$

\Rightarrow Ans - (D)

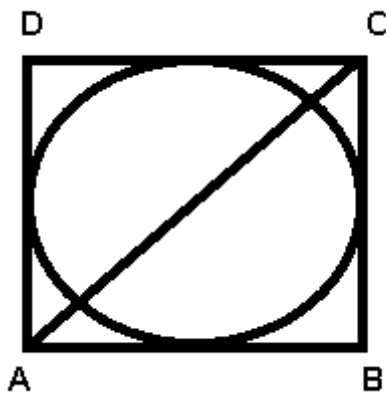
Question 88

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

- A 308 sq cm
- B 462 sq cm
- C 154 sq cm
- D 616 sq cm

Answer: C

Explanation:



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

Let side of square = x cm = Diameter of circle

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

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

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

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

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

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

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

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

Question 89

The total surface area of a hemisphere is 41.58 sq cm, find its radius.

- A 4.2 cm
- B 0.7 cm
- C 1.05 cm

D 2.1 cm

Answer: D

Explanation:

Let radius of hemisphere = r cm

Total surface area of hemisphere = $3\pi r^2 = 41.58$

$$\Rightarrow r^2 = \frac{41.58}{3\pi}$$

$$\Rightarrow r^2 = 13.86 \times \frac{7}{22}$$

$$\Rightarrow r^2 = 0.63 \times 7 = 4.41$$

$$\Rightarrow r = \sqrt{4.41} = 2.1 \text{ cm}$$

\Rightarrow Ans - (D)

Question 90

A man travels 800 km in partly by rail and partly by steamer. He spends 7 hours more time on steamer. If the velocity of the steamer is 20 km/hr and the velocity of rail is 55 km/hr, how much distance does he cover by steamer?

A 316 km

B 379 km

C 474 km

D 569 km

Answer: A

Explanation:

Let distance covered by steamer = d km

\Rightarrow Distance covered by rail = $(800 - d)$ km

Let time taken on rail = t hours and time taken on steamer = $(t + 7)$ hours

Speed of rail = 55 km/hr and speed of steamer = 20 km/hr

Using, speed = distance/time

For steamer, $\frac{d}{t+7} = 20$

$$\Rightarrow d = 20t + 140 \text{ -----(i)}$$

For rail, $\frac{800-d}{t} = 55$

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

$$\Rightarrow 800 - (20t + 140) = 55t$$

$$\Rightarrow 800 - 140 = 55t + 20t = 75t$$

$$\Rightarrow t = \frac{660}{75} = 8.8 \text{ hours}$$

Substituting value of t in equation (i), $\Rightarrow d = (20 \times 8.8) + 140$
 $= 176 + 140 = 316$ km

Question 91

If $\cot 4\pi/3 = x$, then the value of x is

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

Answer: B

Explanation:

Expression : $\cot 4\pi/3 = x$

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

$$= \cot\left(\frac{\pi}{3}\right) = \frac{1}{\sqrt{3}}$$

\Rightarrow Ans - (B)

Question 92

If the amount received at the end of 2nd and 3rd year at Compound Interest on a certain Principal is Rs 28090, and Rs 29775.4 respectively, what is the rate of interest?

- A 6 percent
- B 3 percent
- C 12 percent
- D 10 percent

Answer: A

Explanation:

Compound interest at the end of 2nd year = Rs. 28,090

Compound interest at the end of 3rd year = Rs. 29,775.4

\Rightarrow Difference = $29775.4 - 28090 =$ Rs. 1685.4

This is the interest obtained on the amount of 2nd year.

$$\therefore \text{Rate of interest, } r = \frac{1685.4}{28090} \times 100 = 6\%$$

=> Ans - (A)

Question 93

If $\tan \frac{A}{2} = x$, then the value of x is

A $\sqrt{\left[\frac{(1+\cos A)}{(1-\cos A)}\right]}$

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

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

D $\sqrt{\left[\frac{(1-\cos A)}{(1+\cos A)}\right]}$

Answer: D

Explanation:

Given : $\tan\left(\frac{A}{2}\right) = x$

Using double angle formula, $\tan(A) = \frac{2x}{1-x^2}$

=> $\tan^2(A) = \frac{4x^2}{1-2x^2+x^4}$

Also, $\sec^2(A) = 1 + \tan^2(A)$

=> $\sec^2(A) = 1 + \left(\frac{4x^2}{1-2x^2+x^4}\right)$

=> $\sec^2(A) = \frac{(1-2x^2+x^4)+(4x^2)}{1-2x^2+x^4}$

=> $\sec^2(A) = \frac{1+2x^2+x^4}{1-2x^2+x^4}$

=> $\sec^2(A) = \left(\frac{1+x^2}{1-x^2}\right)^2$

=> $\sec(A) = \frac{1+x^2}{1-x^2}$

=> $\cos(A) = \frac{1-x^2}{1+x^2}$

=> $\cos(A) + x^2 \cos(A) = 1 - x^2$

=> $x^2 [1 + \cos(A)] = 1 - \cos(A)$

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

=> Ans - (D)

Question 94

If $\tan^2 A / (\sec A - 1)^2 = x$, then the value of x is

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

B $(1+\cos A)(1-\cos A)$

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

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

Answer: C

Explanation:

Expression : $\tan^2 A / (\sec A - 1)^2 = x$

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

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

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

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

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

=> Ans - (C)

Question 95

The total cost of a washing machine with a toaster was Rs 10500. The toaster was sold at a profit of 22% and the washing machine at a loss of 12%. If the sale price was the same in both the items, then the cost price of the cheaper item was

A Rs 4100

B Rs 3250

C Rs 7100

D Rs 4400

Answer: D

Explanation:

Let cost price of washing machine = Rs. $100x$

=> Cost price of toaster = Rs. $(10,500 - 100x)$

Selling price of toaster (22% profit) = Selling price of washing machine (12% loss)

$$\Rightarrow \frac{122}{100} \times (10,500 - 100x) = \frac{88}{100} \times 100x$$

$$\Rightarrow 12810 - 122x = 88x$$

$$\Rightarrow 12810 = 88x + 122x = 210x$$

$$\Rightarrow x = \frac{12810}{210} = 61$$

=> Cost price of washing machine = $100 \times 61 = \text{Rs.}6100$

=> Cost price of toaster = $10,500 - 6,100 = Rs.4400$

∴ Toaster is cheaper with cost price = Rs. 4,400

Question 96

The price of an article is cut by 24%, to restore to its original value, the new price must be increased by

- A 24 percent
- B 19.35 percent
- C 30 percent
- D 31.58 percent

Answer: D

Explanation:

Let the original price of the article = Rs. 100

If the price is cut by 24%, => New price = $\frac{100-24}{100} \times 100 = Rs.76$

To restore to its original value the new price must be increased by = $\frac{100-76}{76} \times 100$

= $\frac{2400}{76} \approx 31.58\%$

=> Ans - (D)

Question 97

Read the given data and answer the given data ?

	No of Employees	Annual salary in lakhs	Bonus Percent of salary
Manager	2	48	50%
Executive	12	8	30%
Trainee	1	4	10%

What is total bonus in rupees ?

- A 7720005
- B 200000
- C 514667
- D 268000

Answer: C

Explanation:

Total bonus of managers (in lakh) = $2 \times 48 \times \frac{50}{100} = 48$ lakhs

Total bonus of executive (in lakh) = $12 \times 8 \times \frac{30}{100} = 28.8$ lakhs

Total bonus of trainee (in lakh) = $1 \times 4 \times \frac{10}{100} = 0.4$ lakhs

=> Average bonus in rupees = $\frac{(48+28.8+0.4)}{(2+12+1)}$

= $\frac{77.2}{15} = 5.14667$ lakhs = 5,14,667

=> Ans - (C)

Question 98

Read the following data and answer the questions

	2011	2012	2013	2014	2015
Company A	1000	2000	4000	4000	5000
Company B	4000	4000	1000	2000	1000
Company C	3000	3000	1000	2000	1000

For which of the following pairs of years the total exports from the three Companies together are equal?
(Note: Figures given are in lath rupees)

- A 2011 & 2013
- B 2013 & 2015
- C 2011 & 2012
- D 2014 & 2011

Answer: D

Explanation:

Total exports from the three companies together in :

2011 = 1000 + 4000 + 3000 = 8000

2012 = 2000 + 4000 + 3000 = 10000

2013 = 4000 + 1000 + 1000 = 6000

2014 = 4000 + 2000 + 2000 = 8000

2015 = 5000 + 1000 + 1000 = 7000

Clearly, total exports in 2011 and 2014 are equal to 8000

=> Ans - (D)

Question 99

Read the data and answer the questions

Years	Profit or (-loss)in crores
2011	5
2012	15
2013	25
2014	-5
2015	25

What is the total loss or the profit of the company in last 5 years?

- A Loss of Rs 55 crores
- B Profit of Rs 65 crores
- C Profit of Rs 55 crores
- D Loss of Rs 65 crores

Answer: B

Explanation:

Total profit or loss in Rs. crore in last 5 years

$$= 5 + 15 + 25 - 5 + 25$$

$$= \text{Rs. } 65 \text{ crore}$$

Since, it is positive, thus profit of Rs. 65 crore

=> Ans - (B)

Question 100

Read the data and answer the given questions

India's Exports in 2015	Value in Million US \$
Jewellery	750
Softyware	950
Cotton	775
Steel	525
Electronics	700

Cotton was the what percent of the total exports

- A 23.45 percent
- B 20.95 percent
- C 25.95 percent
- D 18.45 percent

Answer: B

Explanation:

Value in millions of cotton = 775

Total exports = 750 + 950 + 775 + 525 + 700 = 3700

=> % of cotton in total exports = $\frac{775}{3700} \times 100$

= $\frac{775}{37} = 20.95\%$

=> Ans - (B)