SSC CHSL 2 Feb 2017 Morning Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/number from the given alternatives.
Frog : Amphibian : : Cobra : ?

A   Insect

B   Protozoa

C   Parasite

D   Reptiles

   Answer: D

Explanation:

A frog lives both on land and water and thus is an amphibian, similarly a cobra crawls, and thus is a *reptile*.

=> Ans - (D)

Question 2

Select the related word/letters/number from the given alternatives.
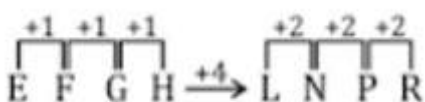**EFGH: LNPR : : ABCD : ?**

A   PQRS

B   HJLN

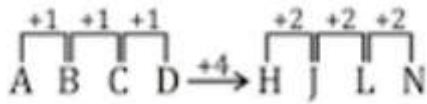**C**   HIJK

D   EFGH

   Answer: B

Explanation:

Expression = EFGH: LNPR : : ABCD : ?

The pattern followed is :

Similarly, for ABCD :

=> Ans - (B)

Question 3

Select the related word/letters/number from the given alternatives.
JS : QH : : VW : ?

A HM

B PQ

C JQ

D ED

Answer: D

Explanation:

Expression = JS : QH : : VW : ?

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

Similarly, VW : **ED**

=> Ans - (D)

Question 4

Select the related word/letters/number from the given alternatives.
25: 260 : : 30 : ?

A 320

B 310

C 340

D 300

Answer: B

Explanation:

Expression = 25: 260 : : 30 : ?

The pattern followed is = $x : 10(x + 1)$

Eg :- $25 : 10(25 + 1) = 25 : 260$

Similarly, $10 \times (30 + 1) = 10 \times 31 = 310$

=> Ans - (B)

Question 5

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

A Truck

B Car

C Motorcycle

D Airplane

   Answer: D

Explanation:
Truck, car and motorcycle are vehicles driven on the road, hence airplane is the odd one out.

=> Ans - (D)

Question 6

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

A FLR

B KQW

C PIB

D CIO

   Answer: C

Explanation:
(A) : F (+6 letters) = L (+6 letters) = R

(B) : K (+6 letters) = Q (+6 letters) = W

(C) : P (**-7** letters) = I (**-7** letters) = B

(D) : C (+6 letters) = I (+6 letters) = O

=> Ans - (C)

Question 7

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

A 6210

B 7020

C 1431

D 1280

    Answer: D

Explanation:

Except for 1280, sum of digits of all other numbers is 9, hence 1280 is the odd one out.

=> Ans - (D)

Question 8

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

A 86

B 68

C 136

D 102

    Answer: A

Explanation:

68, 136 and 102 are multiples of 17, hence 86 is the odd one out.

=> Ans - (A)

Question 9

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
RS, ZA, HI, ?

A LM

B KL

C PQ

D PR

    Answer: C

Explanation:

Expression : RS, ZA, HI, ?

The pattern followed in each letter of the terms is :

1st letter : R (+8 letters) = Z (+8 letters) = H (+8 letters) = P

2nd letter : S (+8 letters) = A (+8 letters) = I (+8 letters) = Q

Thus, missing term = **PQ**

=> Ans - (C)

Question 10

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
PON, LKJ, GFE, ?

A ABC

B EFG

C AZY

D DEA

    Answer: C

Explanation:

Expression : PON, LKJ, GFE, ?

The pattern followed in each letter of the terms is :

1st letter : P (-4 letters) = L (-5 letter) = G (-6 letters) = A

2nd letter : O (-4 letters) = K (-5 letter) = F (-6 letters) = Z

3rd letter : N (-4 letters) = J (-5 letter) = E (-6 letters) = Y

Thus, missing term = **AZY**

=> Ans - (C)

Question 11

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
250, 275, 301, ?

A 396

B 328

C 395

D 300

Answer: B

Explanation:
The pattern followed is :

250 + 25 = 275

275 + 26 = 301

301 + 27 = **328**

=> 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.
Statement:
(I) Children start writing with a pen in sixth standard.
(II) Ink pen is prescribed by most of the schools for school kids to write with as it maintains the handwriting and comfort of child.
Conclusions:
(I) Till fifth standard kids are unable to use pen on their own completely.
(II) Ink pen maintains a proper flow of ink on paper and takes less effort to put words on paper.

A Only conclusion II follows

B Conclusion I and II both follow

C Neither I nor II follow

D Only conclusion I follows

Answer: C

Question 13

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
Millimetre, Micrometre, Nanometre, ?

A Picometre

B Kilometre

C Metre

D Centimetre

Answer: A

Explanation:

The given units are in decreasing order :

Millimetre -> Micrometre -> Nanometre -> Picometre

=> Ans - (A)

Question 14

A, B, C,D and E are standing in a row. D is the immediate neighbour of A and E. B is at the right of E and C is in the extreme right. Who is fourth to the left of C?

A B

B E

C C

D A

Answer: D

Explanation:

It is given that C is in the extreme right.

D is the immediate neighbour of A and E. B is at the right of E.

=> D sits to the immediate left of E, and A sits second to the left of E.

Thus, Arrangement :

A	D	E	B	C

∴ **A** is fourth to the left of C.

=> Ans - (D)

Question 15

Arrange the given words in the sequence in which they occur in the dictionary.
i. Shortage
ii. Shore
iii. Shamelessly
iv. Shadiness
v. Shallow

A iii, iv, v, ii, i

B iv, iii, i, ii, v

C   iv, v, iii, ii, i

D   iii, iv, ii, i, v

Answer: C

Explanation:

As per the order of dictionary :

= Shadiness -> Shallow -> Shamelessly -> Shore -> Shortage

≡ iv, v, iii, ii, i

=> Ans - (C)

Question 16

In a certain code language, "SPARROW" is written as "1326654", and "RING" is written as "6978". How is "RAINS" written in that code language?

A   62971

B   62972

C   62917

D   62977

Answer: A

Explanation:

The code for each letter is given :

R -> 6
A -> 2
I -> 9
N -> 7
S -> 1

Thus, RAINS : **62971**

=> Ans - (A)

Question 17

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

36	44	32
72	88	64
54	66	?

A 44

B 48

C 50

D 64

   Answer: B

Explanation:
In each column, the number at the end is the average of other two.

Eg :- $\frac{(36+72)}{2} = \frac{108}{2} = 54$

$\frac{(44+88)}{2} = \frac{132}{2} = 66$

Similarly, $\frac{(32+64)}{2} = \frac{96}{2} = 48$

=> Ans - (B)

Question 18

Which of the following interchanges in signs will make the given equation correct?
17- 15 x 5 = 250

A = and x

B x and -

C = and -

D + and -

   Answer: B

Explanation:
Expression : 17- 15 x 5 = 250

(A) : = and x

$\equiv 17 - 15 = 5 \times 250$

L.H.S. $= 2 \neq 1250 =$ R.H.S.

(B) : x and -

$\equiv 17 \times 15 - 5 = 250$

L.H.S. $= 255 - 5 = 250 =$ 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?
_k_m_kl_jk_m

A jljlm

B jljml

C jllmj

D jllmm

Answer: B

Explanation:

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

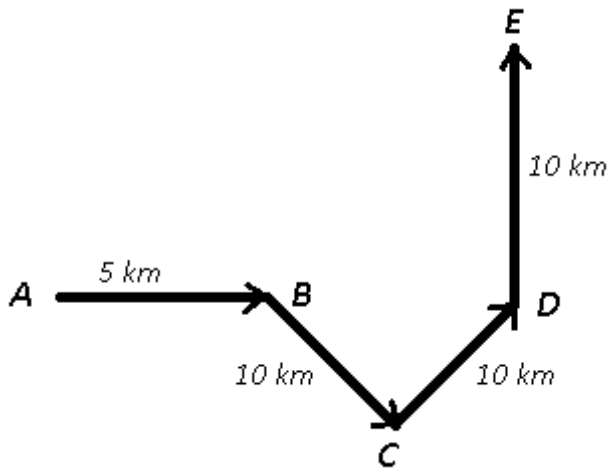= **jkl**m **jkl**m jklm

=> Ans - (B)

Question 20

Rahul leaves his home and walks 5 km towards east, turns in the south-east direction and walks for 10km, then he turns north-east and moves 10 km. Again, he moves towards the north for 10km. In which direction is he now from starting point?

A West

B East

C North-east

D North-west

Answer: C

Explanation:

E

10 km

5 km

A → B

10 km

D

10 km   10 km

C

Let Rahul starts from point A and walked 5 km towards east to reach B, then turned south-east and travelled for 10 km and from point C, he travelled another 10 km towards north-east. Finally he walked 10 km north to stop at point E.

Thus, he is in North-east direction from his 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 S to 9. A letter from these matrices can be represented first by its row and next by its column, for example, '1' can be represented by 20, 58 etc. and 'A' can be rep-resented by 12, 69 etc. Similarly, you have to Identify the set for the word 'ANIMAL'.

Matrix-I

	0	1	2	3	4
0	Y	L	U	A	L
1	K	S	A	O	L
2	J	L	N	L	T
3	V	L	E	F	U
4	D	K	D	U	A

Matrix-II

	5	6	7	8	9
5	Q	M	O	Y	S
6	F	O	D	Z	A
7	N	H	I	O	R
8	J	N	G	Q	O
9	O	R	T	H	I

A   69,22,99,56,23,03

B   69,22,99,56,03,23

C   69,22,98,56,03,23

D 69,22,99,65,03,23

Answer: B

Explanation:

(A) : 69,22,99,56,23,03 = ANIMLA

(B) : 69,22,99,56,03,23 = **ANIMAL**

(C) : 69,22,98,56,03,23 = ANHMAL

(D) : 69,22,99,65,03,23 = ANIFAL

=> Ans - (B)

Question 22

Introducing a boy, Ankit said," He is the son of daughter of my grandfather's son". How is that boy related to Ankit?

A Cousin

B Brother

C Father-in-law

D Nephew

Answer: D

Explanation:

Ankit's grandfather's son = Ankit's father

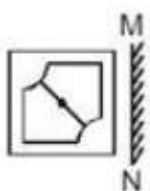Daughter of Ankit's father = Ankit's sister

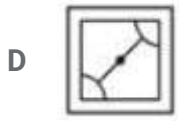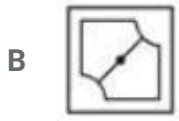Now, that boy is son of Ankit's sister, => Ankit is his uncle.

Thus, that boy is Ankit's nephew.

=> 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?
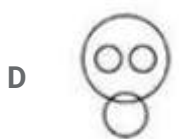
A

B

C

D

Answer: A

Question 24

Identify the diagram that best represents the relationship among the given classes.
Sweets, Sugar, Salt, Jaggery

A

B

C

D

Answer: C

Explanation:

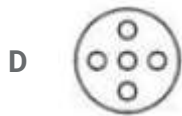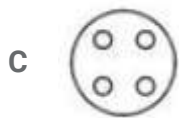Jaggery is a type of sugar and sweets are also made of sugar. Also salt is completely opposite of sugar.

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

=> Ans - (C)

Question 25

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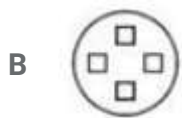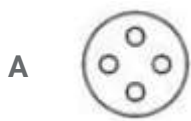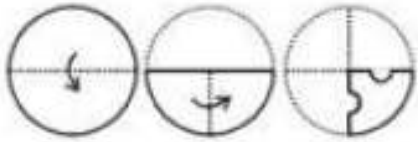
A

B

C

D

Answer: A

General Awareness

Instructions
For the following questions answer them individually

Question 26

is a drug or substance that makes you feel relaxed and makes your body work and react more slowly.

A   Antidote

B   Analgesic

C   Antihistamine

D Depressant

Answer: D

Question 27

Carica papaya is the scientific name of .

A Peepal

B Papaya

C Tamarind

D Drumstick

Answer: B

Question 28

Muscles get tired when there is shortfall of .

A Lactic acid

B Na+ ions

C ATP

D Sulphates

Answer: C

Question 29

The Chemical formula of Ammonium nitrate is .

A (NH

B 2NO3
b: NH4NO3

C NH4(NO3)2

D NH2NO3

Answer: B

Question 30

Which of the following elements has the lowest melting point?

A Xenon

B Iodine

C Barium

D Magnesium

   Answer: A

Question 31

Choose odd one out

A Cyberspace

B Internet

C HTML

D WWW

   Answer: C

Question 32

Which of these is not an Indian Musical Instrument?

A Sitar

B Bansuri

C Madal

D Tanpura

   Answer: C

Question 33

If price of an article decreases from Rs 240 to Rs 220, when quantity demanded increases from 200 units to 210 units. Find point elasticity of demand?

A 0.6

B -1.8

C -0.6

D 1.8

   Answer: C

Question 34

Match the characteristics with their market structure:
(a) Firm has control over quantity of output but it must take into account reactions of competitors. b) Firm will tend to set output so that it earns maximum profits.

A (a) Oligopoly, (b) Pure competition

B (a) Monopolistic competition, (b) Oligopoly

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

D (a) Oligopoly, (b) Pure Monopoly

   Answer: D

Question 35

People in all the following countries had to be resettled after the 1986 Chernobyl nuclear disaster, except

A Kazakhstan

B Belarus

C Russia

D Ukraine

   Answer: A

Question 36

The outermost layer of the earth's atmosphere is .

A stratosphere

B troposphere

C mesosphere

D exosphere

Answer: D

Question 37

is the first Indian company to list on NASDAQ.

A Industries Limited

B Infosys

C TCS

D Bharti Airtel

Answer: B

Question 38

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

A Bharuch

B Bhopal

C Nagpur

D Kota

Answer: A

Question 39

Which of these countries got Independence from United Kingdom?

A Uzbekistan

B Pakistan

C Venezuela

D   South Korea

Answer: B

Question 40

Aurangzeb, the Mughal Emperor died in?

A   1507

B   1607

C   1707

D   1807

Answer: C

Question 41

Who Invented Induction Coil?

A   Edwin Howard Armstrong

B   John Barber

C   Edwin Beard Budding

D   Nicholas Callan

Answer: D

Question 42

Find the power of a convex lens if the image formed is at a distance of 16 cm from the lens when the object is placed on the other side of the lens at 2 cm from the optical centre?

A   -3.75 diopters

B   -11.25 diopters

C   3.75 diopters

D   11.25 diopters

Answer: D

Question 43

What is the unit of the physical quantity "Inductance"?

A   weber

B   farad

C   henry

D   tesla

   Answer: C

Question 44

In which form of government priests rule in the name of God?

A   Fascism

B   Monarchy

C   Theocracy

D   Oligarchy

   Answer: C

Question 45

Who was the first temporary chairman of the Constituent Assembly?

A   B R Ambedkar

B   Jawahar Lal Nehru

C   Rajendra Prasad

D   Dr. Sachchidananda Sinha

   Answer: D

Question 46

Who won the first T-20 Cricket World Cup?

A   West Indies

B India

C Australia

D New Zealand

Answer: B

Question 47

Who is the author of "Chokher

A Rabindranath Tagore

B Jhumpa Lahiri

C Amish Tripathi

D Chetan Bhagat

Answer: A

Question 48

Shiva cave is located in .

A Ajanta Caves

B Ellora Caves

C Elephanta Caves

D Badami Caves

Answer: B

Question 49

Vikas Khanna is an award winning starred Indian chef.

A Apollo

B Michelin

C Goodyear

D Viking

Answer: B

Question 50

Triton is the moon of which planet?

A Neptune

B Uranus

C Saturn

D Venus

Answer: A

Mathematics

Instructions

For the following questions answer them individually

Question 51

Which of the following is correct?

A $(4x - 5y)^2 = 16x^2 - 20xy + 25y^2$

B $(4x - 5y)^2 = 16x^2 + 40xy - 25y^2$

C $(4x - 5y)^2 = 16x^2 - 40xy + 25y^2$

D $(4x - 5y)^2 = 16x^2 - 20xy - 25y^2$

Answer: C

Explanation:
Expression : $(4x - 5y)^2$

= $(4x)^2 + (-5y)^2 + (2 \times 4x \times -5y)$

= $16x^2 + 25y^2 - 40xy$

=> Ans - (C)

Question 52

If the radius of a circle is increased by 15% its area increases by .

A 30 percent

B 32.25 percent

C 15 percent

D 16.125 percent

Answer: B

Explanation:

Let radius = 10 cm

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

If radius is increased by 15%, => New radius = $10 + \frac{15}{100} \times 10 = 11.5$ cm

New area = $\pi(11.5)^2 = 132.25\pi$ sq. cm

=> % increase in area = $\frac{132.25-100}{100} \times 100$

= 32.25%

=> Ans - (B)

Question 53

Ticket for an adult is Rs 1600 and a child is Rs 600. 1 child goes free with two adults. If a group has 17 adults and 7 children what is the discount the group gets?

A 13.37 percent

B 26.02 percent

C 24.41 percent

D 32.2 percent

Answer: A

Explanation:

Cost price of adult ticket = Rs. 1600 and child ticket = Rs. 600

For 17 adults and 7 children, total cost = $(17 \times 1600) + (7 \times 600)$

= Rs. (27,200 + 4,200) = Rs. 31,400

If one child goes free with two adults, => 7 children will go with 14 adults, thus all the children will go for free.

Cost of 17 adults = $17 \times 1600 = Rs.27,200$

Discount % = $\frac{31400-27200}{31400} \times 100$

= $\frac{4200}{314} = 13.37\%$

=> Ans - (A)

Question 54

When 0.090909.....is converted into a fraction, then the result is

A   1/33

B   1/11

C   2/33

D   6/11

Answer: B

Explanation:

Let x = 0.090909.... ------------(i)

Multiplying both sides by 100

=> $100x$ = 9.090909.... -----------(ii)

Subtracting equation (i) from (ii)

=> $100x - x$ = (9.090909....) - (0.090909....)

=> $99x = 9$

=> $x = \frac{9}{99} = \frac{1}{11}$

So, 0.090909....written in the form p/q is 1/11

=> Ans - (B)

Question 55

The bus fare between two cities is increased in the ratio 5:11. Find the increase in the fare, if the original fare is Rs. 275.

A   Rs 605

B   Rs 121

C   Rs 330

D   Rs 242

Answer: C

Explanation:

Let original fare = Rs. $5x$

=> New fare = Rs. $11x$

Also, original fare = $275 = 5x$

=> $x = \frac{275}{5} = 55$

$\therefore$ Increase in fare = $11x - 5x = 6x$

= $6 \times 55 = Rs.330$

=> Ans - (C)

Question 56

The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 9% per annum is Rs 405. The sum is .

A Rs 50000

B Rs 100000

C Rs 200000

D Rs 150000

Answer: A

Explanation:
Let the given sum = Rs. $100x$

Rate of interest = 9% and time period = 2 years

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

= $100x[(1 + \frac{9}{100})^2 - 1]$

= $100x[(\frac{109}{100})^2 - 1] = 100x(\frac{11881-10000}{10000})$

= $\frac{1881x}{100}$

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

= $\frac{100x \times 9 \times 2}{100} = 18x$

=> Difference between simple and compound interests = $\frac{1881x}{100} - 18x = 405$

=> $\frac{1881x - 1800x}{100} = 405$

=> $81x = 405 \times 100$

=> $x = \frac{405 \times 100}{81} = 5 \times 100 = 500$

$\therefore$ Value of given sum = $100 \times 500 = Rs.50,000$

Question 57

Which of the following quadratic equations has real roots?

A $4x^2 - 7x + 5 = 0$

B $5x^2 - 11x + 7 = 0$

C $5x^2 - 11x + 8 = 0$

D $2x^2 - 7x + 5 = 0$

Answer: D

Explanation:

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

(A) : $4x^2 - 7x + 5 = 0$

=> D = $(-7)^2 - 4(4)(5) = 49 - 80 = -31$

(B) : $5x^2 - 11x + 7 = 0$

=> D = $(-11)^2 - 4(5)(7) = 121 - 140 = -19$

(C) : $5x^2 - 11x + 8 = 0$

=> D = $(-11)^2 - 4(5)(8) = 121 - 160 = -39$

(D) : $2x^2 - 7x + 5 = 0$

=> D = $(-7)^2 - 4(2)(5) = 49 - 40 = 9$

Thus, the equation : $2x^2 - 7x + 5 = 0$ has real roots.

Question 58

If 5x + 5 > 2 + 2x and 5x + 3 ≤ 4x + 5; then x can take which of the following values?

A 3

B -2

C -3

D 1

Answer: D

Explanation:

Expression 1 : 5x + 5 > 2 + 2x

=> $5x - 2x > 2 - 5$

=> $3x > -3$

=> $x > -1$ -----------(i)

Expression 2 : 5x + 3 ≤ 4x + 5

=> $5x - 4x \leq 5 - 3$

=> $x \leq 2$ -----------(ii)

Combining inequalities (i) and (ii), => $-1 < x \leq 2$

Thus, the values that x can take = 0 , **1** , 2

=> Ans - (D)

Question 59

The 4th term of an arithmetic progression is 15, 15th term is -29, find the 10th term?

A -5

B -13

C -17

D -9

   Answer: D

Explanation:
The nth 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.

4th term, $A_4 = a + (4-1)d = 15$

=> $a + 3d = 15$ ---------------(i)

Similarly, 15th term, $A_{15} = a + 14d = -29$ ----------------(ii)

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

=> $(14d - 3d) = -29 - 15$

=> $d = \frac{-44}{11} = -4$

Substituting it in equation (i), => $a - 12 = 15$

=> $a = 15 + 12 = 27$

$\therefore$ 10th term, $A_{10} = a + (10-1)d$

= $27 + (9 \times -4) = 27 - 36 = -9$

=> Ans - (D)

Question 60

In what ratio is the segment joining (-1,-12) and (3,4) divided by the x-axis?

A 1:3

B 3:2

C 3:1

D   2:3

Answer: C

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

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

Let the ratio in which the segment joining (-1,-12) and (3,4) divided by the x-axis = $k : 1$

Since, the line segment is divided by x-axis, thus y coordinate of the point will be zero, let the point of intersection = $(x, 0)$

Now, point P (x,0) divides (-1,-12) and (3,4) in ratio = k : 1

=> $0 = \frac{(4 \times k) + (-12 \times 1)}{k+1}$

=> $4k - 12 = 0$

=> $k = \frac{12}{4} = 3$

∴ Required ratio = 3 : 1

=> Ans - (C)

Question 61

A can do a work in 20 days and B in 50 days. If they work on it together for 5 days, then what fraction of work is left?

A   13/20

B   1/3

C   1/6

D   2/9

Answer: A

Explanation:
Let total work to be done = 100 units

A's efficiency = $\frac{100}{20} = 5$ units/day

B's efficiency = $\frac{100}{50} = 2$ units/day

(A + B)'s 1 day's work together = 5 + 2 = 7 units/day

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

=> Work left = 100 - 35 = 65 units

∴ Fraction of work that is left = $\frac{65}{100} = \frac{13}{20}$

=> Ans - (A)

Question 62

At what point does the line 4x - 3y = -6 intercept the y-axis?

A (0,2)

B (0,3/2)

C (2,0)

D (3/2,0)

Answer: A

Explanation:

When a line intercepts y-axis at a point, then x-coordinate of that point is 0.

Let the line intercepts y-axis at $(0, y)$

Equation of line = $4x - 3y = -6$

Putting $x = 0$ in above equation, we get :

=> $(4 \times 0) - 3y = -6$

=> $3y = 6$

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

∴ The line 4x - 3y = -6 will intercept the y-axis at = (0,2)

=> Ans - (A)

Question 63

In ΔDEF, G and H are points on side DE and DF respectively. GH is parallel to EF. If G divides DE in the ratio 1:3 and HF is 7.2 cm, find length of DF?

A 2.4 cm

B 4.8 cm

C 3.6 cm

D 9.6 cm

Answer: D

Explanation:
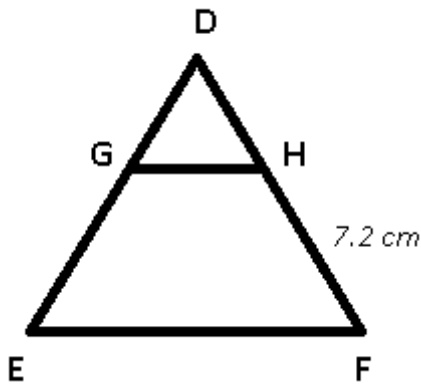
GH is parallel to EF and G divides DE in the ratio 1:3

Let DG = x cm and GE = $3x$ cm and HF = 7.2 cm

=> $\frac{DG}{GE} = \frac{DH}{HF}$

=> $\frac{x}{3x} = \frac{DH}{7.2}$

=> $DH = \frac{7.2}{3} = 2.4$ cm

$\therefore$ DF = DH + HF = 2.4 + 7.2 = 9.6 cm

=> Ans - (D)

Question 64

The mean of marks secured by 65 students in division A of class X is 54, 30 students of division B is 50 and that of 55 students of division C is 48. Find the mean of marks of the students of three divisions of Class X.

A 50.3

B 49.6

C 51

D 52.4

Answer: C

Explanation:

Total marks secured by 65 students in division A = 65 × 54 = 3510

Total marks secured by 30 students in division B = 30 × 50 = 1500

Total marks secured by 55 students in division C = 55 × 48 = 2640

=> Mean of marks of the students of three divisions of Class X = $\frac{(3510+1500+2640)}{(65+30+55)}$

= $\frac{7650}{150} = 51$

=> Ans - (C)

Question 65

In a triangle the length of the side opposite the right angle is 9√3 cm, what is the length of the side opposite to the angle which measures 30 degree?

A 9 cm

B 3√3 cm

C 6 cm

D (9√3)/2 cm

   Answer: D

Explanation:

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

In a 30-60-90 triangle, the hypotenuse is always twice as long as the side opposite the 30° angle and the side opposite the 60° angle is √3 times as long as the side opposite the 30° angle.

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

Length of the side opposite the 90° angle = $9\sqrt{3}$ cm

=> Length of side opposite the 30° angle = $\frac{9\sqrt{3}}{2}$ cm

=> Ans - (D)

Question 66

Two cars travel from city A to city B at a speed of 30 and 44 km/hr respectively. If one car takes 3.5 hours lesser time than the other car for the journey, then the distance between City A and City B is

A 330 km

B 396 km

C 495 km

D 264 km

   Answer: A

Explanation:

Let the distance between City A and City B = d km

Speed of first car = 30 km/hr and speed of second car = 44 km/hr

Let time taken by first car = t hrs and time taken by second car = $(t - 3.5)$ hrs

Using, speed = distance/time for first car :

=> $\frac{d}{t} = 30$

=> $d = 30t$ ------------(i)

For second car, => $\frac{d}{t-3.5} = 44$

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

=> $30t = 44t - 154$

=> $44t - 30t = 14t = 154$

=> $t = \frac{154}{14} = 11$ hrs

From equation (i), => $d = 30 \times 11 = 330$ km

=> Ans - (A)

Question 67

Rajeev sells a machine for Rs 55 lakhs at a loss. Had he sold it for Rs 67 lakh, his gain would have been 5 times the former loss. Find the cost price of the machine.

A Rs 65 lakhs

B Rs 57 lakhs

C Rs 78 lakhs

D Rs 49 lakhs

Answer: B

Explanation:
Let cost price of the machine = Rs. x lakhs

When selling price = Rs. 55 lakhs

=> Loss = Rs. $(x - 55)$ lakhs

If selling price = Rs. 67 lakhs

=> Profit = Rs. $(67 - x)$ lakhs

According to ques, Profit = 5 $\times$ loss

=> $(67 - x) = 5 \times (x - 55)$

=> $67 - x = 5x - 275$

=> $5x + x = 275 + 67 = 342$

=> $x = \frac{342}{6} =$ Rs. 57 lakhs

=> Ans - (B)

Question 68

Curved surface area of a cylinder is 528 sq cm. If circumference of its base is 44 cm, find the height of the cylinder?

A 12 cm

B 24 cm

C 36 cm

D 6 cm

   Answer: A

Explanation:

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

Circumference of base = $2\pi r = 44$

=> $2 \times \frac{22}{7} \times r = 44$

=> $r = 44 \times \frac{7}{44} = 7$ cm

Curved surface area of cylinder = $2\pi rh = 528$

=> $2 \times \frac{22}{7} \times 7 \times h = 528$

=> $h = \frac{528}{44} = 12$ cm

=> Ans - (A)

Question 69

What is the value of sin 5π/3?

A -√3/2

B 2/√3

C 1/√3

D -2/√3

   Answer: A

Explanation:

Expression : sin 5π/3

= $sin\left(2\pi - \frac{\pi}{3}\right)$

= $-sin\left(\frac{\pi}{3}\right)$

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

=> Ans - (A)

Question 70

cos3A is equal to

A $cos^3 A - 3sin^2 cos A$

B $cos^3 A + 4sin^2 cos A$

C $cos^3 A + 3sin^2 cos A$

D $cos^3 A - 4sin^2 cos A$

  Answer: A

Explanation:
Using triple angle formula, we know that : $cos(3A) = 4cos^3 A - 3cos A$

= $cos^3 A + (3cos^3 A - 3cos A)$

= $cos^3 A + 3cos A(cos^2 A - 1)$

= $cos^3 A - 3cos A(1 - cos^2 A)$

= $cos^3 A - 3sin^2 A cos A$

=> Ans - (A)

Question 71

2 sec^{2}A is equal to

A $(1 - tanA)^2 - (1 + tanA)^2$

B $\sqrt{[(1 - tanA)^2 + (1 + tanA)^2]}$

C $\sqrt{[(1 - tanA)^2 - (1 + tanA)^2]}$

D $(1 - tanA)^2 + (1 + tanA)^2$

  Answer: D

Explanation:
Expression : 2 sec^{2}A

= $sec^2 A + sec^2 A$

Using, $sec^2 A = 1 + tan^2 A$

= $(1 + tan^2 A) + (1 + tan^2 A)$

Adding and subtracting $2tanA$

= $(1 + tan^2 A - 2tanA) + (1 + tan^2 A + 2tanA)$

= $(1 - tanA)^2 + (1 + tanA)^2$

=> Ans - (D)

Question 72

Read the below data table and answer the following questions

	Weight	Height in meter
Anita	56	1.71
Anjali	64	1.52
Anjalika	51	1.72
Anjana	52	1.59

Who has the least weight to height ratio ?

A   Anita

B   Anjali

C   Anjalika

D   Anjana

Answer: C

Explanation:
Ratio of weight to height

Anita : $\frac{56}{1.71}$ = 32.7

Anjali : $\frac{64}{1.52}$ = 42.1

Anjalika : $\frac{51}{1.72}$ = 29.6   [LEAST]

Anjana : $\frac{52}{1.59}$ = 32.7

=> Ans - (C)

Question 73

Read the below data table and answer the following questions

Year	Company's % Profit
2011	5
2012	10
2013	20
2014	25
2015	15

What was the revenue of the company if its expenditure was Rs 450 crore in the year when its % profit was the least

A   472.5

B 495

C 517.5

D 450

Answer: A

Explanation:

Profit % was least in 2011 = 5%

Let revenue = Rs. x crore and expenditure = Rs. 450 crore

=> Profit % = $\frac{x-450}{450} \times 100 = 5$

=> $\frac{x-450}{450} = \frac{5}{100} = \frac{1}{20}$

=> $x - 450 = \frac{450}{20} = 22.5$

=> $x = 450 + 22.5 = 472.5$ crore

=> Ans - (A)

Question 74

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

Number of children	Number of houses
0	7
1	9
2	20
3	3

What is the average number of children per house

A 1.74

B 1.99

C 1.24

D 1.49

Answer: D

Explanation:

Total number of houses = 7 + 9 + 20 + 3 = 39

Total children = $(0 \times 7) + (1 \times 9) + (2 \times 20) + (3 \times 3)$

= 9 + 40 + 9 = 58

∴ Average number of children per house = $\frac{58}{39} = 1.49$

=> Ans - (D)

Question 75

Read the below data table and answer the following question

Partners	Present % share
Anand	5
Basu	10
Chinmay	30
Dhiraj	5
Ejaz	50

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

A 300000 shares

B 315000 shares

C 330000 shares

D 285000 shares

   Answer: B

Explanation:
Total shares = 6,00,000

Original shares with Ejaz = $\frac{50}{100} \times 600000 = 3,00,000$

If Babu offers to sell 15,000 of his shares to Ejaz,

=> Shares with Ejaz = 3,00,000 + 15,000 = 3,15,000

=> Ans - (B)

English

Instructions
For the following questions answer them individually

Question 76

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.
The recession is going to cause times for families who are already struggling to pay their bills.

A furious

B agitated

C turbulent

D wild

Answer: C

Question 77

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

A Mother told lie down Arjun.

B Mother told Arjun for lying down.

C Mother asked Arjun to lie down.

D Mother asked Arjun to be lied down.

Answer: C

Question 78

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

A a social revolution where negative aspects of a culture are removed

B to perform mass religious conversions

C the mass killing of members of one ethnic group

D removal of all signs of culture from a society

Answer: C

Question 79

Improve the bracketed part of the sentence. I don't want an award (for help to you).

A to have helped you

B for helping you

C for helping to you

D no improvement

Question 80

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
Very rude or coarse; vulgar.

A gross

B adipose

C porcine

D corpulent

Answer: A

Question 81

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
To stop doing something; cease or abstain.

A to endure

B to desist

C to persevere

D to dismay

Answer: B

Question 82

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 have sign over(A)/the cheque, you can(B)/collect it tomorrow.(C)/No error(D)

A A

B B

C C

D D

Question 83

In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.
every cloud has a silver lining

A   no bad situation is permanent

B   if one wants rain then one has to bear with dark clouds

C   every blessing comes with a hidden curse

D   every bad situation has some good aspects to it

Answer: D

Question 84

Rearrange the parts of the sentence in correct order.
It is a crisis which
P-unless policymakers
Q-exercise some intelligence
R-will get even worse

A   RPQ

B   RQP

C   PQR

D   QPR

Answer: A

Question 85

Improve the bracketed part of the sentence.
Shouts of the crowd cheering the home team now (stuff) the air.

A   fill

B   occupy

C   infest

D no improvement

Answer: A

Question 86

Select the word with the correct spelling.

A dementia

B quaterain

C necrosys

D frenetec

Answer: A

Question 87

Rearrange the parts of the sentence in correct order.
In Tamil nadu,
P-cows and bulls are worshipped and celebrated
Q-on Maattu Pongal,
R-and the finale is Jallikattu

A QRP

B QPR

C PRQ

D RPQ

Answer: B

Question 88

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 seawater eventually corroded the pillars of the bridge.

A Eventually the pillars of the bridge are being corroded by the seawater.

B Eventually the pillars of the bridge have been corroded by the seawater.

C The pillars of the bridge were eventually corroded by the seawater.

D The pillars of the bridge have been eventually corroded by the seawater.

Answer: C

Question 89

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.
On the trip, we needed a guide to the foreign language for us.

A describe

B illustrate

C mimic

D interpret

Answer: D

Question 90

Select the antonym of to remand

A to filibuster

B to tarry

C to expedite

D to adjourn

Answer: C

Question 91

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 told me the same(A)/story which he told(B)/you yesterday.(C)/No error(D)

A A

B B

C C

D D

Answer: B

Question 92

Select the synonym of proximal

A   frontier

B   obscure

C   remote

D   adjacent

Answer: D

Question 93

Select the antonym of eternity

A   perpetuity

B   yonder

C   aeon

D   ephemeral

Answer: D

Question 94

Select the synonym of to alight

A   to escalate

B   to clamber

C   to disembark

D   to astride

Answer: C

Question 95

Select the word with the correct spelling.

A   prophesey

B   nihilism

C   aesthet

D   avulusion

   Answer: B

Question 96

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.
The answer to the third question is ---------------- answered; State leaders---------------great willingness to play into the hands of the Central government, presumably for a price.---------------------the process, representatives have forgotten the history of their own societies. But they fail to------------------------------ that history cannot be disremembered, it constantly nudges us to recollect past struggles--------------------- --------------------------------------injustice in these States.
The answer to the third question is -------------------------answered

A   easily

B   easy to

C   easy for

D   so easy

   Answer: A

Question 97

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.
The answer to the third question is ---------------- answered; State leaders---------------great willingness to play into the hands of the Central government, presumably for a price.---------------------the process, representatives have forgotten the history of their own societies. But they fail to------------------------------ that history cannot be disremembered, it constantly nudges us to recollect past struggles--------------------- --------------------------------------injustice in these States.
State leaders---------------------great willingness to play into the hands of the Central government

A   is showing

B   have shown

C to show

D have showed

   Answer: B

Question 98

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.
The answer to the third question is ---------------- answered; State leaders--------------great willingness to play into the hands of the Central government, presumably for a price.--------------------the process, representatives have forgotten the history of their own societies. But they fail to--------------------------------that history cannot be disremembered, it constantly nudges us to recollect past struggles--injustice in these States.
----------------------- the process, representatives have forgotten the history of their own societies.

A As

B So

C Into

D In

   Answer: D

Question 99

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.
The answer to the third question is ---------------- answered; State leaders--------------great willingness to play into the hands of the Central government, presumably for a price.--------------------the process, representatives have forgotten the history of their own societies. But they fail to--------------------------------that history cannot be disremembered, it constantly nudges us to recollect past struggles--injustice in these States.
But they fail to -------------------------that history cannot be disremembered,

A forget

B memorize

C recall

D by heart

   Answer: C

Question 100

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.
The answer to the third question is ---------------- answered; State leaders---------------great willingness to play into the hands of the Central government, presumably for a price.---------------------the process, representatives have forgotten the history of their own societies. But they fail to--------------------------------that history cannot be disremembered, it constantly nudges us to recollect past struggles---------------------
--------------------------------------injustice in these States.
it constantly nudges us to recollect past struggles----------------------------injustice in these States.

A   against

B   for

C   to

D   from

   Answer: A

Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/number from the given alternatives. Cup : Coffee :: Bowl : ?

A Dish

B Spoon

C Soup

D Food

  Answer: C

Explanation:

Expression = Cup : Coffee :: Bowl : ?

A cup is used to drink coffee, similarly a bowl is used to drink *soup*.

=> Ans - (C)

Question 2

Select the related word/letters/number from the given alternatives. ZYX : ABC :: VUT : ?

A EFG

B FGH

C DEF

D CDE

  Answer: A

Explanation:

Expression = ZYX : ABC :: VUT : ?

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

```
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
↓ ↓ ...                                      ... ↓
Z Y X W V U T S R Q P O N M L K J I H G F E D C B A
```

Similarly, VUT : **EFG**

=> Ans - (A)

Question 3

Select the related word/letters/number from the given alternatives. ACE : HJL :: LNP : ?

A SUW

B MOQ

C IJK

D BDF

   Answer: A

Explanation:
Expression = ACE : HJL :: LNP : ?

The pattern followed is :

A	C	E
(+7)	(+7)	(+7)
H	J	L

Similarly, LNP : SUW

L	N	P
(+7)	(+7)	(+7)
S	U	W

=> Ans - (A)

Question 4

Select the related word/letters/number from the given alternatives.
96 : 32 :: 48 : ?

A 14

B 12

C 16

D 18

   Answer: C

Explanation:
Expression = 96 : 32 :: 48 : ?

The pattern followed is = $n : \frac{n}{3}$

Eg :- $96 : \frac{96}{3} = 96 : 32$

Similarly, $\frac{48}{3} = 16$

=> Ans - (C)

Question 5

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

A   Blend

B   Mingle

C   Jumble

D   Clash

   Answer: D

Explanation:

Blend, mingle and jumble are all related to 'mix', hence clash is the odd one out.

=> Ans - (D)

Question 6

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

A   ACE

B   ONE

C   EON

D   RED

   Answer: D

Explanation:

Except for Red, other words contain 2 vowels, hence RED is the odd one out.

=> Ans - (D)

Question 7

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

A   1716

B   2730

C 3360

D 4096

Answer: D

Explanation:

$4096 = (16)^3$, other numbers are not perfect cubes, hence 4096 is the odd one out.

=> Ans - (D)

Question 8

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

A 211

B 287

C 283

D 277

Answer: B

Explanation:

Apart from 287, all other numbers are prime numbers, hence $287 = 7 \times 41$ is the odd one out.

=> Ans - (B)

Question 9

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. Narendra Modi, Manmohan Singh, Atal Bihari Vajpayee, ?

A V.P. Singh

B P.V. Narasimha Rao

C Chandra Shekhar

D Jawaharlal Nehru

Answer: B

Explanation:

The given list is of India's Prime Ministers in reverse order.

= Narendra Modi -> Manmohan Singh -> Atal Bihari Vajpayee -> P.V. Narasimha Rao

=> Ans - (B)

Question 10

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. FU, LO, RI, ?

A PK

B XC

C UF

D RI

   Answer: B

Explanation:
Expression : FU, LO, RI, ?

The pattern followed in each letter of the terms is :

1st letter : F (+6 letters) = L (+6 letters) = R (+6 letters) = X

2nd letter : U (-6 letters) = O (-6 letters) = I (-6 letters) = C

Thus, missing term = **XC**

=> Ans - (B)

Question 11

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series. DE, GI, KN, ?

A PS

B PR

C PT

D TP

   Answer: C

Explanation:
Expression : DE, GI, KN, ?

The pattern followed in each letter of the terms is :

1st letter : D (+3 letters) = G (+4 letters) = K (+5 letters) = P

2nd letter : E (+4 letters) = I (+5 letters) = N (+6 letters) = T

Thus, missing term = **PT**

=> Ans - (C)

Question 12

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
2, 7, 16, ? , 46, 67

A 26

B 27

C 29

D 31

Answer: C

Explanation:
Numbers with difference of 4 are added.

2 + 5 = 7

7 + 9 = 9

16 + 13 = **29**

29 + 17 = 46

46 + 21 = 67

=> Ans - (C)

Question 13

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.
Statement :
(I) Determination is the key to success. If a person determines to achieve a certain goal in his or her life, no one can stop him/her from achieving it. (II) Prioritizing various determined goals is another important aspect of decision making.
Conclusions :
(I) If I determine to achieve three goals in near future, my energy will get divided into three parts and I can never succeed. (II) Making a prior plan for achieving those three things I can get near to all my goals.

A Only conclusion II follows

B Conclusion I and II both follow

C Neither I nor II follow

D Only conclusion I follows

Answer: A

Question 14

Five boys are sitting facing towards South. Raj is between Rohit and Vishal. Vishal is to the immediate right of Manoj and Manoj is to the immediate right of Shekhar. Who is sitting in the middle?

A Vishal

B Manoj

C Raj

D Shekhar

Answer: A

Explanation:

Raj is between Rohit and Vishal. Vishal is to the immediate right of Manoj.

=> Raj is to the immediate right of Vishal and Rohit is second to the right of Vishal.

Also, Manoj is to the immediate right of Shekhar.

=> Shekhar sits at extreme left end.

Thus, arrangement :

Shekhar	Manoj	Vishal	Raj	Rohit

∴ **Vishal** is sitting in the middle.

=> Ans - (A)

Question 15

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

i. Application
ii. Approve
iii. Appeal
iv. Astonishing

A ii, iii, iv,i

B iii, ii,i, iv

C iii, i, ii, iv

D i, ii, iii, iv

Answer: C

Explanation:

As per the order of dictionary :

= Appeal -> Application -> Approve -> Astonishing

≡ iii, i, ii, iv

=> Ans - (C)

Question 16

If in a certain code language, "STUBBORN" is written as "TUVCANQM". How is "TRAINING" written in that code language?

A USBJMHFM

B USBJMHMF

C JBSUFMHM

D USBJMHME

Answer: B

Explanation:

"STUBBORN" is written as "TUVCANQM"

The pattern followed is :

S	T	U	B	B	O	R	N
(+1)	(+1)	(+1)	(+1)	(-1)	(-1)	(-1)	(-1)
T	U	V	C	A	N	Q	M

Similarly, for TRAINING :

T	R	A	I	N	I	N	G
(+1)	(+1)	(+1)	(+1)	(-1)	(-1)	(-1)	(-1)
U	S	B	J	M	H	M	F

=> Ans - (B)

Question 17

If "+" means "minus", "x" means "divided by", "÷" means "plus" and "-" means "multiplied by", then 300 x 10 - 5 + 36 ÷ 57 = ?

A 150

B 171

C 230

D 234

Answer: B

Explanation:

Expression : 300 x 10 - 5 + 36 ÷ 57 = ?

$$\equiv 300 \div 10 \times 5 - 36 + 57$$

$$= (30 \times 5) + 21$$

$$= 150 + 21 = 171$$

=> Ans - (B)

Question 18

Which of the following interchanges in signs and numbers will make the given equation correct?
7 x 9 + 5 = 68

A + and =, 5 and 6

B x and +, 5 and 7

C + and =, 7 and 9

D x and +, 7 and 9

Answer: B

Explanation:

Equation : 7 x 9 + 5 = 68

(A) : + and =, 5 and 6

$$\equiv 7 \times 9 = 6 + 58$$

=> L.H.S. $= 63 \neq 64 =$ R.H.S.

(B) : x and +, 5 and 7

$$\equiv 5 + 9 \times 7 = 68$$

=> L.H.S. $= 5 + 63 = 68 =$ R.H.S.

=> Ans - (B)

Question 19

If "+" means "minus", "x" means "divided by", "÷" means "plus" and "-" means "multiplied by", then
76 x 4 + 4 - 12 ÷ 37 = ?

A 9

B 7

C 8

D 3

Answer: C

Explanation:
Expression : 76 x 4 + 4 - 12 ÷ 37 = ?

$$\equiv 76 \div 4 - 4 \times 12 + 37$$

$$= (19) + (-48) + 37$$

$$= 56 - 48 = 8$$

=> Ans - (C)

Question 20

A man walks 20 m towards north, then he turns right and walks 3 m, then turns left and walks 4 m and from there he walks 4 m towards east. How far and in which direction is he from his initial position?
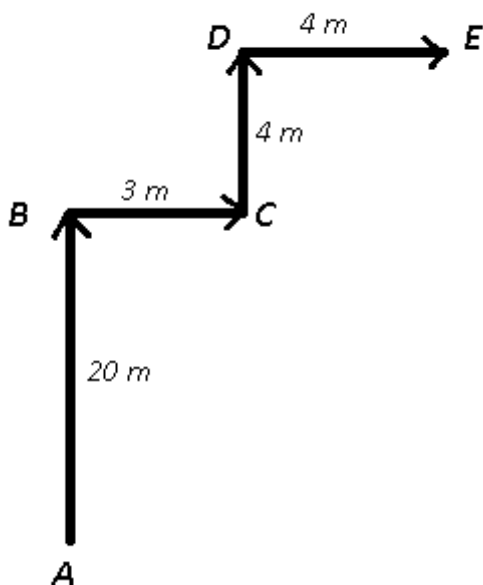
A   25 m east

B   25 m north-east

C   20 m north

D   24 m north

Answer: B

Explanation:

Let the man starts from point A and walked 20 m north to reach point B, then he turned right towards east and walked for 3 m, from point C he turned left to reach D after walking 4 m and finally stopped at point E.

Thus, AE = $\sqrt{(20 + 4)^2 + (4 + 3)^2}$

=> $AE = \sqrt{576 + 49} = \sqrt{625}$

=> $AE = 25$ m

Thus, he is 25 m north-east of his original position.

=> Ans - (B)

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, 'Cr can be represented by 22, 33 etc. and 'G' can be represented by 86, 89 etc. Similarly, you have to identify the set for the word 'CREED'.

Matrix - I

0	1	2	3	4	5
1	Q	D	S	P	Y
2	C	Q	D	S	P
3	P	C	Q	D	S
4	P	A	C	Q	D
5	P	R	A	C	A

Matrix - II

	5	6	7	8	9
5	D	E	I	R	I
6	E	D	R	H	H
7	J	R	D	E	N
8	R	G	G	N	G
9	F	F	N	F	D

A   32, 76, 65, 56, 77

B   54, 67, 78, 56, 79

C   43,32, 65, 56, 77

D   32, 85, 56, 65, 78

Answer: A

Explanation:
(A) : 32, 76, 65, 56, 77 = **CREED**

(B) : 54, 67, 78, 56, 79 = CREEN

(C) : 43,32, 65, 56, 77 = CCEED

(D) : 32, 85, 56, 65, 78 = CREEE

=> Ans - (A)

Question 22

While posing for a family photo, the father is standing to the right of the son and left of the grandmother. The mother is sitting to the left of her daughter and right of the grandmother. Who is seated in the middle?

A   Grandmother

B   Son

C   Father

D   Mother

Answer: A

Explanation:
Let the grandmother, father, mother, son and daughter are represented respectively by G, F, M, S, D and all are facing north.

The father is standing to the right of the son and left of the grandmother, => S F G.

The mother is sitting to the left of her daughter and right of the grandmother, => G M D.
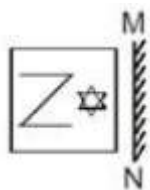
Combining above equations, we get : **S F G M D**

Thus, grandmother is sitting in the middle.

=> Ans - (A)

Question 23

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

A

B

C

D

Answer: A

Question 24

Identify the diagram that best represents the relationship among the given classes. Country, State, City
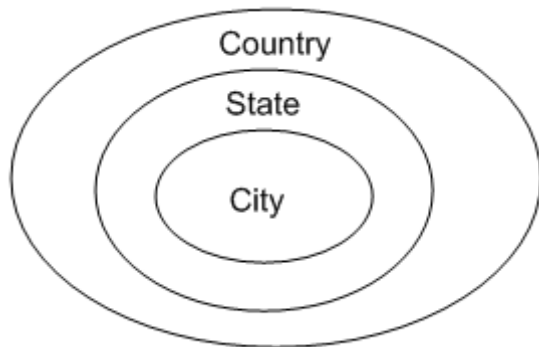
A

B

C

D

Answer: D

Explanation:

A city is completely part of state and a state of a country. Hence these three will be concentric.

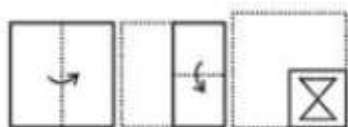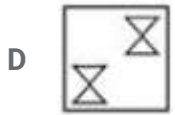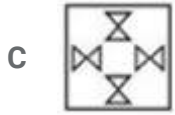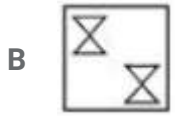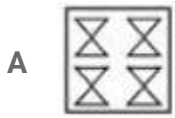Thus, the venn diagram that best describes above relationship is :

=> Ans - (D)

Question 25

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

A

B

C

D

Answer: A

General Awareness

Instructions

For the following questions answer them individually

Question 26

Rock Shelters of Bhimbetka is in .------------

A   Maharashtra

B   Himachal Pradesh

C   Karnataka

D   Madhya Pradesh

Answer: D

Question 27

Highest Civilian Honour received by Anupam Kher is .----------

A   Padma Shri

B   Padma Bhushan

C   Padma Vibhushan

D   Bharat Ratna

   Answer: B

Question 28

is a b drug that doctors give to people to make them calm or help them sleep.

A   Barbiturate

B   Antidepressant

C   Antihistamine

D   Beta-Blocker

   Answer: A

Question 29

Artocarpus integra is the scientific name of .-------------

A   Guava

B   Pineapple

C   Silver Oak

D   Jack fruit

   Answer: D

Question 30

Which organ stores fat soluble vitamins?

A   Blood

B   Skin

C   Liver

D   Pancreas

   Answer: C

Question 31

Fe has 26 protons in its nucleus. What are the number of electrons in Fe2+ (II) ion?

A   24

B   26

C   28

D   13

Answer: A

Question 32

Which of the following elements has the lowest melting point?

A   Titanium

B   Sulphur

C   Argon

D   Zinc

Answer: C

Question 33

ALU is a part of a computer is .---------------

A   Application

B   ROM

C   RAM

D   Processor

Answer: D

Question 34

English is the official language of .------------

A   Chandigarh

B   Dadra and Nagar Haveli

C   Daman and Diu

D   Delhi

   Answer: A

Question 35

If demand curve for roller skates is D = 23000 - 19P and supply curve is S = 18000 + 6P, find the equilibrium Price?

A   Rs 100

B   Rs 400

C   Rs 50

D   Rs 200

   Answer: D

Question 36

Match the characteristics with their market structure (a) Expand out put until MC = MR
(b) Elasticity of demand depends on pricing policies of rivals

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

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

C   (a) Pure competition, (b) Oligopoly

D   (a) Monopolistic competition, (b) Oligopoly

   Answer: D

Question 37

Panna National Park is in which state?

A   Rajasthan

B   Maharashtra

C   Gujarat

D   Madhya Pradesh

Answer: D

Question 38

BSE SENSEX Constitutes --------------- number of companies.

A   30

B   40

C   50

D   60

Answer: A

Question 39

International Date line passes through middle of -------------------Ocean.

A   Arctic

B   Indian

C   Atlantic

D   Pacific

Answer: D

Question 40

What is the capital of Turkey?

A   Jerusalem

B   Canberra

C   Wellington

D   Ankara

Answer: D

Question 41

Before its Independence, Bangladesh was part of .--------------

A   India

B   China

C   Pakistan

D   United Kingdom

   Answer: C

Question 42

Humayun was born in the year .--------------------

A   1508

B   1608

C   1708

D   1808

   Answer: A

Question 43

Who Invented the 3-D printer?

A   Nick Holonyak

B   Elias Howe

C   Chuck Hull

D   Christiaan Huygens

   Answer: C

Question 44

Alpha particles are .---------------

A   twice the mass of beta particles

B negatively charged

C just like helium nuclei

D lower in ionizing power as compared to gamma rays

Answer: C

Question 45

Unit of impedance is .--------------

A ohm

B henry

C tesla

D hertz

Answer: A

Question 46

Who has served maximum time as the Prime Minister of India?

A Jawaharlal Nehru

B Indira Gandhi

C Manmohan Singh

D Lal Bahadur Shastri

Answer: A

Question 47

What is the maximum number of Members in Lok Sabha?

A 512

B 542

C 552

D 532

Answer: C

Question 48

In 2012 London Olympics, Saina Nehwal won the .--------------

A   Gold Medal

B   Silver Medal

C   Bronze Medal

D   Didn't win any Medal

   Answer: C

Question 49

Who is the author of "Go Clown #AccheDin for Comedy"?

A   Preeti Shenoy

B   Nikita Singh

C   Shatrugna Vadwlas

D   Ashwin Sanghi

   Answer: C

Question 50

Periyar Tiger Reserve is in which state?

A   Telangana

B   Tamil Nadu

C   Kerala

D   Uttarakhand

   Answer: C

Mathematics

Question 51

A trader had 6 quintals of wheat. He sold a part of it at 7% profit and the rest at 17% profit, so that he made a total profit of 11%. How much wheat did he sell at 17% profit?

A 360 kg

B 240 kg

C 120 kg

D 480 kg

  Answer: B

Explanation:
1 quintal = 100 kg => 6 quintals = 600 kg

Let the part he sold at 17% profit = x kg

=> Part he sold at 7% profit = $(600 - x)$ kg

Total profit made by the trader = 11%

=> $17x + 7(600 - x) = 11 \times 600$

=> $17x + (7 \times 600) - 7x = 11 \times 600$

=> $10x = 600 \times (11 - 7)$

=> $x = 60 \times 4 = 240$ kg

=> Ans - (B)

Question 52

Badki can bake 45 cakes in 9 hours, Badki and Chutki together can bake 80 cakes in 10 hours. How many cakes Chutki can bake in 40 hours?

A 125

B 10

C 120

D 20

  Answer: C

Explanation:

Cakes baked by Badki in 1 hour = $\frac{45}{9} = 5$

Cakes baked by Badki and Chutki together in 1 hour = $\frac{80}{10} = 8$

=> Cakes baked by Chutki in 1 hour = 8 - 5 = 3

$\therefore$ Cakes baked by Chutki in 40 hours = $40 \times 3 = 120$

=> Ans - (C)

Question 53

Of the 5 numbers whose average is 72, the first is 1/8 times the sum of other 4. The first number is .---------------

A 60

B 26

C 40

D 80

   Answer: C

Explanation:

Let the first number be x and sum of other four numbers be y

=> Average of five numbers = $\frac{x+y}{5} = 72$

=> $x + y = 72 \times 5 = 360$ ----------(i)

According to ques, => $x = \frac{1}{8} \times y$

=> $y = 8x$

Substituting value of y in equation (i), we get :

=> $x + 8x = 360$

=> $x = \frac{360}{9} = 40$

=> Ans - (C)

Question 54

If 6/7th of 8/5th of a number is 192, then 3/4th of that number is .-----------

A 105

B 77

C 36

D   80

Answer: A

Explanation:

Let the number be x

According to ques,

=> $\frac{6}{7} \times \frac{8}{5} \times x = 192$

=> $\frac{48}{35}x = 192$

=> $x = \frac{192}{48} \times 35$

=> $x = 4 \times 35 = 140$

$\therefore \left(\frac{3}{4}\right)^{th}$ of the number = $\frac{3}{4} \times 140$

= $3 \times 35 = 105$

=> Ans - (A)

Question 55

The value of x for which the expressions 5x + 17 and 17x - 5 become equal is .--------------

A   11/6

B   -11/6

C   6/11

D   -6/11

Answer: A

Explanation:

Expressions : 5x + 17 and 17x - 5

According to ques, => $5x + 17 = 17x - 5$

=> $17x - 5x = 17 + 5$

=> $12x = 22$

=> $x = \frac{22}{12} = \frac{11}{6}$

=> Ans - (A)

Question 56

On dividing $111a^2b^2c^2$ by $37a^2$, we get .---------------

A $2c^2$

B $2b^2$

C 3

D $3b^2c^2$

Answer: D

Explanation:

Expression : $\frac{111a^2b^2c^2}{37a^2}$

= $\frac{111}{37} \times \frac{a^2b^2c^2}{a^2}$

= $3b^2c^2$

=> Ans - (D)

Question 57

If a merchant offers a discount of 30% on the list price, then he makes a loss of 16%. What % profit or % loss will he make if he sells at a discount of 20% of the list price?

A 14 percent profit

B 4 percent loss

C 26 percent profit

D 8 percent profit

Answer: B

Explanation:

Let list price = Rs. $100x$

After 30% discount, selling price = $\frac{100-30}{100} \times 100x$ = Rs. $70x$

Let Cost price = Rs. y

=> Loss % = $\frac{y-70x}{y} \times 100 = 16$

=> $\frac{y-70x}{y} = \frac{16}{100} = \frac{4}{25}$

=> $25y - 1750x = 4y$

=> $25y - 4y = 1750x$

=> $y = \frac{1750x}{21} = 83.33x$

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

∴ **Loss %** = $\frac{83.33x-80x}{83.33x} \times 100$

= 3.99 ≈ 4%

=> Ans - (B)

Question 58

If 5x - 4 ≤ 2 - x and 4x + 5 > 2x - 5, then x can take which of the following values?

A 3

B 6

C -7

D -1

Answer: D

Explanation:

Expression 1 : 5x - 4 ≤ 2 - x

=> $5x + x \leq 2 + 4$ => $6x \leq 6$

=> $x \leq 1$ --------(i)

Expression 2 : 4x + 5 > 2x - 5

=> $4x - 2x > -5 - 5$ => $2x > -10$

=> $x > -5$ ---------(ii)

Combining inequalities (i) and (ii), we get : $-5 < x \leq 1$

Thus, x can take values = -4 , -3 , -2 , **-1** , 0 , 1

=> Ans - (D)

Question 59

A bank offers 15% compound interest per half year. A customer deposits Rs 8800 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 8315

B Rs 2029.5

C Rs 4158

D Rs 1039.5

Answer: B

Explanation:

Principal = Rs. 8800 and Rate = 15%

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

$= [8800(1 + \frac{15}{2 \times 100})^{2 \times 1}] + [8800(1 + \frac{15}{2 \times 100})^{2 \times \frac{1}{2}}]$

$= [8800 \times (\frac{43}{40})^2] + [8800 \times \frac{43}{40}]$

$= [8800 \times \frac{43}{40}] \times [\frac{43}{40} + 1]$

$= (220 \times 43) \times (\frac{83}{40})$

$= \frac{11}{2} \times 3569 =$ Rs.19629.5

$\therefore$ Compound Interest = Rs.(19629.5 - 17600) = Rs. 2029.5

Question 60

If 4x - 5y = -37 and 7x + y = -16, then x - y =

A -8

B 8

C 2

D -2

Answer: A

Explanation:
Equation 1 : $4x - 5y = -37$

Equation 2 : $7x + y = -16$

Multiplying equation (2) by 5, we get : $35x + 5y = -80$

Adding above equation to equation (1)

=> $(4x + 35x) + (-5y + 5y) = -37 - 80$

=> $39x = -117$

=> $x = \frac{-117}{39} = -3$

Substituting value of x in equation (2)

=> $y = -16 - 7(-3) = 21 - 16 = 5$

$\therefore (x - y) = -3 - 5 = -8$

=> Ans - (A)

Question 61

The co-ordinates of the centroid of a triangle ABC are (3,2). What are the co-ordinates of vertex C if co-ordinates of A and B are (-2,5) and (6,2) respectively?

A (-5,-1)

B (5,-1)

C (5,1)

D (-5,1)

   Answer: B

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

Let coordinates of vertex C = (x, y)

Vertex A(-2,5) and Vertex B(6,2) and Centroid = (3,2)

=> $3 = \frac{-2+6+x}{3}$

=> $x + 4 = 3 \times 3 = 9$

=> $x = 9 - 4 = 5$

Similarly, => $2 = \frac{5+2+y}{3}$

=> $y + 7 = 2 \times 3 = 6$

=> $y = 6 - 7 = -1$

$\therefore$ Coordinates of vertex C = (5,-1)

=> Ans - (B)

Question 62

The slope of the line passing through the points (-5,1) and (x,-4) is -5/8. Find x.

A 4

B 3

C 2

D -1

   Answer: B

Explanation:
Slope of line passing through (x_1, y_1) and (x_2, y_2) is $\frac{y_2-y_1}{x_2-x_1}$

=> Slope of the line passing through the points (-5,1) and (x,-4)

$= \frac{-4-1}{x+5} = \frac{-5}{8}$

=> $\frac{-5}{x+5} = \frac{-5}{8}$

=> $x + 5 = 8$

=> $x = 8 - 5 = 3$

=> Ans - (B)

Question 63

A triangular prism has 9 edges. How many vertices does it have?

A   8

B   6

C   12

D   10

   Answer: B

Explanation:
Triangular prism :

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

Triangular Prism has 9 edges and 5 faces.

=> $V = 2 + E - F = 2 + 9 - 5$

=> $V = 11 - 5 = 6$

=> Ans - (B)

Question 64

The diagonal of a square equals the side of an equilateral triangle. If the area of the square is 12 sq cm, what is the area of the equilateral triangle?

A   12√3 sq cm

B   6√3 sq cm

C   12√2 sq cm

D   24 sq cm

   Answer: B

Explanation:
Let the side of square = s cm and diagonal = d cm

=> Area of square = $(s)^2 = 12$ ---------(i)

In right triangle of the square, => $(s)^2 + (s)^2 = (d)^2$

Substituting value of s^2 from equation (i)

=> $(d)^2 = 12 + 12 = 24$ ---------(ii)

Side of equilateral triangle = Diagonal of square = d cm

∴ Area of equilateral triangle = $\frac{\sqrt{3}}{4}d^2$

Substituting value of d^2 from (ii), we get :

= $\frac{\sqrt{3}}{4} \times 24 = 6\sqrt{3} cm^2$

=> Ans - (B)

Question 65

The ratio of present ages of Ranjini and Shahid is 5:4. After 13 years the ratio of their ages will be 6:5. What is Ranjini's present age?

A   52

B   65

C   60

D   32

   Answer: B

Explanation:
Let Ranjini's present age = $5x$ years and Shahid's present age = $4x$ years

According to ques, => $\frac{5x+13}{4x+13} = \frac{6}{5}$

=> $25x + 65 = 24x + 78$

=> $25x - 24x = 78 - 65$

=> $x = 13$

∴ Ranjini's age = $5 \times 13 = 65$ years

=> Ans - (B)

Question 66

If the curved surface area of a right circular cone is 10010 sq cm and its slant height is 91 cm, find its total surface area.

A   27720 sq cm

B   4620 sq cm

C   6930 sq cm

D   13860 sq cm

    Answer: D

Explanation:

Let radius of cone = r cm and slant height = 91 cm

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

=> $\frac{22}{7} \times r \times 91 = 10010$

=> $22 \times 13 \times r = 10010$

=> $r = \frac{10010}{22 \times 13} = 35$

$\therefore$ Total surface area of cone = $\pi r (l + r)$

= $\left(\frac{22}{7} \times 35\right)(91 + 35)$

= $22 \times 5 \times 126 = 13860 cm^2$

=> Ans - (D)

Question 67

If sin - 4π/3 = x, then the value of x is

A   -2

B   -2/√3

C   √3/2

D   √2

    Answer: C

Explanation:

Expression : sin - 4π/3 = x

= $-sin\left(\frac{4\pi}{3}\right)$

$= -sin(\pi + \frac{\pi}{3})$

$= -[-sin(\frac{\pi}{3})] = \frac{\sqrt{3}}{2}$

=> Ans - (C)

Question 68

When a number is increased by 28, it becomes 107% of itself. What is the number?

A 336

B 420

C 400

D 252

Answer: C

Explanation:

Let the number be $100x$

According to ques, => $100x + 28 = \frac{107}{100} \times 100x$

=> $100x + 28 = 107x$

=> $107x - 100x = 28$

=> $x = \frac{28}{7} = 4$

$\therefore$ Number = $100 \times 4 = 400$

=> Ans - (C)

Question 69

If cos(A-B) - cos(A+B) = x, then the value of x is

A 2sinAsinB

B 2cosAcosB

C 2cosAsinB

D 2sinAcosB

Answer: A

Explanation:

Expression : cos(A-B) - cos(A+B) = x

$= (cosAcosB + sinAsinB) - (cosAcosB - sinAsinB)$

$= sinAsinB + sinAsinB = 2sinAsinB$

=> Ans - (A)

Question 70

A car travels a certain distance at 24 km/h and comes back at 36 km/h. Find the average speed for total journey.

A 28.8 km/hr

B 30 km/hr

C 27.6 km/hr

D 31.2 km/hr

Answer: A

Explanation:

Average speed of the journey is the harmonic mean of the speeds 24 and 36 km/hr

Harmonic mean of two numbers 'x' and 'y' = $\frac{2}{\frac{1}{x}+\frac{1}{y}}$

Average speed = $\frac{2}{\frac{1}{24}+\frac{1}{36}}$

= $2 \div \frac{36+24}{36\times24} = \frac{2\times36\times24}{60}$

= $\frac{144}{5} = 28.8$ km/hr

=> Ans - (A)

Question 71

If secA - tanA = x, then the value of x is

A $1/(sec^2 A - tan^2 A)$

B $1/(sec^2 A + tan^2 A)$

C $1/\sqrt{[(sec)^2 A - tan^2 A)]}$

D $1/(secA + tanA)$

Answer: D

Explanation:

Expression : secA - tanA = x

Multiplying and dividing by $(secA + tanA)$

= $(secA - tanA) \times \frac{secA+tanA}{secA+tanA}$

$$= \frac{sec^2 A - tan^2 A}{secA + tanA}$$

Using, $sec^2 A - tan^2 A = 1$

$$= \frac{1}{secA + tanA}$$

=> Ans - (D)

Question 72

Refer the below data and table answer the following questions

	Boys	Girls
Medical	40	75
Engineering	100	25

What percent students who choose Engineering are girls ?

A 20

B 10.42

C 50

D 25

Answer: A

Explanation:
Number of girls who chose engineering = 25

Total number of engineers = 100 + 25 = 125

=> Percent of the girls who choose engineering = $\frac{25}{125} \times 100$

= $\frac{100}{5} = 20\%$

=> Ans - (A)

Question 73

Refer the below data and table answer the following questions

	Cumulative production
January	200
February	850
March	1450
April	1950
May	2320
June	2600

How many car were manufactured in the month of April and May ?

A 650

B 1100

C 4270

D 870

Answer: D

Explanation:
Number of cars produced in :

January = 200

February = 850 - 200 = 650

March = 1450 - 850 = 600

April = 1950 - 1450 = 500

May = 2320 - 1950 = 370

June = 2600 - 2320 = 280

=> Number of cars that were manufactured in the month of the April and may = 500 + 370 = 870

=> Ans - (D)

Question 74

Refer the below data table and answer the following question

Day of the week	Distance joined (in km)
Monday	3.5
Tuesday	2
Wednesday	3
Thursday	0.5
Friday	3.5
Saturday	2.5
Sunday	3.5

If 400 calories are burned by jogging 5km how many calories were burnt in the given week ?

A 1480 calories

B 1530 calories

C 1430 calories

D 1380 calories

Answer: A

Explanation:

Total distance jogged in entire week

= 3.5 + 2 + 3 + 0.5 + 3.5 + 2.5 + 3.5 = 18.5 km

Calories burned after jogging 5 km = 400 calories

=> Calories burned after jogging 18.5 km = $\frac{400}{5} \times 18.5$

= $80 \times 18.5 = 1480$ calories

=> Ans - (A)

Question 75

Refer the below data table and answer the following question

Items	Yearly Expense in Rs
Raw Materials	12
Labour	6
Rent	6
Interest	4
Taxes	4

Labour and Interest are what percent of total expenses ?

A 31.25 percent

B 24 percent

C 16.75 percent

D 38.5 percent

Answer: A

Explanation:
Yearly experience in Labour and Interest (in Rs) = 6 + 4 = 10

Total expenses (in Rs) = 12 + 6 + 6 + 4 + 4 = 32

=> Required % = $\frac{10}{32} \times 100$

= $\frac{125}{4} = 31.25\%$

=> Ans - (A)

English

Instructions
For the following questions answer them individually

Question 76

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.
Brijesh said that he has no ------------------- of stepping down, although he is under a lot of pressure to do so.

A   intuition

B   intention

C   point

D   object

   Answer: B

Question 77

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.
Lakhs of tourists view the Taj Mahal every year.

A   The Taj Mahal is being viewed by lakhs of tourists every year.

B   Every year the Taj Mahal is being viewed by lakhs of tourists.

C   Every year the Taj Mahal was being viewed by lakhs of tourists.

D   The Taj Mahal is viewed by lakhs of tourists every year.

   Answer: D

Question 78

Rearrange the parts of the sentence in correct order.
They have now
P-by a paternalistic state
Q-of goods mandated
R-been turned into consumers

A   QRP

B   QPR

C   PRQ

D RQP

Answer: D

Question 79

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
Causing a burning sensation like that of hot liquid on the skin

A piping

B igneous

C sizzling

D scalding

Answer: D

Question 80

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

A a competition whose outcome is already decided (by unfair means)

B a candidate fraudulently substituted for another in a competition

C a person who was in a situation to warn others is now missing

D a warning which comes too late, after the damage is done

Answer: B

Question 81

Select the antonym of
pervert

A virtuous

B libertine

C deviant

D debauchee

Question 82

In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.
The Directors are(A)/now inquiring(B)/in the cause of the fire.(C)/No error(D)

A A

B B

C C

D D

Answer: C

Question 83

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.
As the judge enters the courtroom,----------------------calls upon all occupants in the room to stand.

A formality

B pattern

C culture

D habit

Answer: A

Question 84

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

A a candidate about whom little is known but who unexpectedly wins

B a good person who has been unfairly maligned

C a person despised by everybody wins

D a very unpredictable contestant, sometimes wins sometimes loses

Answer: A

Question 85

Select the synonym of parlance

A   definitive

B   lingo

C   canonical

D   classic

   Answer: B

Question 86

Select the word with the correct spelling.

A   bordeux

B   ambienc

C   macakues

D   culinary

   Answer: D

Question 87

Select the synonym of obstreperous

A   boisterous

B   bashful

C   reticent

D   taciturn

   Answer: A

Question 88

Select the word with the correct spelling.

A   metaled

B   lonsome

C   piquancy

D   shufled

   Answer: C

Question 89

Improve the bracketed part of the sentence.
We were still waiting in the queue for tickets when the show (had begun).

A   was beginning

B   begins

C   began

D   no improvement

   Answer: C

Question 90

Select the antonym of
frazzle

A   prostration

B   vigour

C   enervation

D   lassitude

   Answer: B

Question 91

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
An organization set up to provide help and raise money for those in need.

A   conglomerate

B   donation

C   charity

D   dole

Answer: C

Question 92

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'.
She was an(A)/only child who(B)/had been very welcome.(C)/No error(D)

A   A

B   B

C   C

D   D

Answer: D

Question 93

Rearrange the parts of the sentence in correct order.
Elections globally
P-dominated by numbers, percentages
Q-and tallies
R-can be dry affairs

A   RQP

B   PQR

C   RPQ

D   QRP

Question 94

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.
"Alas! I have broken my grandfather's watch" said Amit.

A   Amit was sorrowful that he broke his grandfather's watch.

B   Amit exclaimed sorrowfully that he has broken his grandfather's watch.

C   Amit was sorrowful that he had broken his grandfather's watch.

D   Amit exclaimed sorrowfully that he had broken his grandfather's watch.

Answer: D

Question 95

Improve the bracketed part of the sentence.
It was so hot during the concert that some spectators passed (out).

A   away

B   by

C   over

D   no improvement

Answer: D

Question 96

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.
------------------- various signs of economic slowdown such as languishing industrial production and adverse --------------------of the drought on rural livelihoods and demand, the government is apparently unable--------------------- unwilling to increase public spending to --------------people's material distress or to kick-start economic-------------- to increase employment.
various signs of economic slowdown such as languishing industrial production

A   As

B   Despite

C So

D Because

   Answer: B

Question 97

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.
------------------ various signs of economic slowdown such as languishing industrial production and adverse --------------------of the drought on rural livelihoods and demand, the government is apparently unable-------------------- unwilling to increase public spending to --------------people's material distress or to kick-start economic-------------- to increase employment.
adverse of the drought on rural livelihoods and demand

A effects

B effect

C affects

D affect

   Answer: A

Question 98

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.
------------------ various signs of economic slowdown such as languishing industrial production and adverse --------------------of the drought on rural livelihoods and demand, the government is apparently unable-------------------- unwilling to increase public spending to --------------people's material distress or to kick-start economic-------------- to increase employment.
the government is apparently unable

A hence

B but

C or

D nor

   Answer: C

Question 99

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.
------------------ various signs of economic slowdown such as languishing industrial production and adverse --------------------of the drought on rural livelihoods and demand, the government is apparently unable------------------- unwilling to increase public spending to --------------people's material distress or to kick-start economic-------------- to increase employment.
spending to people's material distress

A   cool off

B   cut

C   less

D   mitigate

Answer: D

Question 100

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.
------------------ various signs of economic slowdown such as languishing industrial production and adverse --------------------of the drought on rural livelihoods and demand, the government is apparently unable------------------- unwilling to increase public spending to --------------people's material distress or to kick-start economic-------------- to increase employment.
distress or to kick-start economic to increase employment.

A   activity

B   happening

C   performance

D   acts

Answer: A

SSC CHSL 2 Feb 2017 Evening Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

Choose the related word/letters/number from the given alternatives. Nest : Bird : : Den : ?

A Owl

B Lion

C Rat

D Goat

Answer: B

Explanation:

Expression = Nest : Bird : : Den : ?

A bird lives in a nest, similarly a *lion* lives in a den.

=> Ans - (B)

Question 2

Choose the related word/letters/number from the given alternatives. NPR : GHI : : TVX : ?
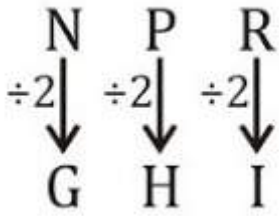
A JKL

B KLM

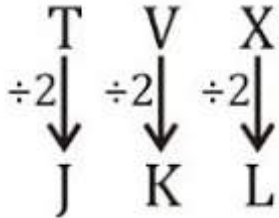**C** IJK

D IKL

Answer: A

Explanation:

Expression = NPR : GHI : : TVX : ?

The pattern followed is that the numerical values of the alphabets in the first set of letters is double of that of the second.

Eg :- N = 14 and G = 7

$$\begin{array}{ccc} \text{N} & \text{P} & \text{R} \\ \div 2 \downarrow & \div 2 \downarrow & \div 2 \downarrow \\ \text{G} & \text{H} & \text{I} \end{array}$$

Similarly, for TVX, we have T = 20, V = 22 and X = 24 => Half of these are 10 = J, 11 = K and 12 = L

$$\begin{array}{ccc} \text{T} & \text{V} & \text{X} \\ \div 2 \downarrow & \div 2 \downarrow & \div 2 \downarrow \\ \text{J} & \text{K} & \text{L} \end{array}$$

=> Ans - (A)

Question 3

Choose the related word/letters/number from the given alternatives. AF : BE : : ? : DH

A CH

B CG

C DG

D CI

Answer: D

Explanation:
Expression = AF : BE : : ? : DH

The pattern followed is :

$$\begin{array}{cc} \text{A} & \text{F} \\ +1 \downarrow & +1 \uparrow \\ \text{B} & \text{E} \end{array}$$

Similarly, for DH :

$$\begin{array}{cc} \text{C} & \text{I} \\ +1 \downarrow & +1 \uparrow \\ \text{D} & \text{H} \end{array}$$
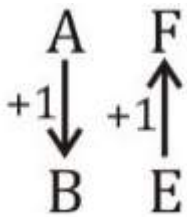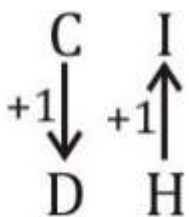
=> Ans - (D)

Question 4

Choose the related word/letters/number from the given alternatives.
36 : 6 : : 441 : ?

A 11

B 21

C 25

D 32

    Answer: B

Explanation:

Expression = 36 : 6 : : 441 : ?

The pattern followed is = $x : \sqrt{x}$

Eg :- $36 : \sqrt{36} = 36 : 6$

Similarly, $\sqrt{441} = 21$

=> Ans - (B)

Question 5

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

A Violet

B Blue

C Indigo

D White

    Answer: D

Explanation:

Violet, Indigo and Blue are the colours of a rainbow, hence white is the odd one out.

=> Ans - (D)

Question 6

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

A MPS

B WZC

C FHJ

D ADG

Answer: C

Explanation:

(A) : M (+3 letters) = P (+3 letters) = S

(B) : W (+3 letters) = Z (+3 letters) = C

(C) : F (**+2** letters) = H (**+2** letters) = J

(D) : A (+3 letters) = D (+3 letters) = G

=> Ans - (C)

Question 7

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

A 512

B 841

C 576

D 289

Answer: A

Explanation:

$512 = (8)^3$

$841 = (29)^2$

$576 = (24)^2$

$289 = (17)^2$

Thus, 512 is the odd one out.

=> Ans - (A)

Question 8

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

A 165

B 792

C 852

D 671

Answer: C

Explanation:
The positive difference of the first two digits is equal to the third digit, but $8 - 5 \neq 2$, hence 852 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. Asia, Africa, North America, ?

A China

B Australia

C Canada

D Japan

Answer: B

Explanation:
Continents of the world are given :

= Asia -> Africa -> North America -> Australia

=> 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. DP, EY, FJ, ?

A GX

B GS

C GT

D GW

Answer: D

Explanation:
Expression : DP, EY, FJ, ?

The pattern followed in each letter of the terms is :

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

2nd letter : P (+9 letters) = Y (+11 letters) = J (+13 letters) = W

Thus, missing term = **GW**

=> Ans - (D)

Question 11

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. DAF, FED, HIB, ?

A   JMZ

B   JOY

C   LUX

D   JOZ

   Answer: A

Explanation:
Expression : DAF, FED, HIB, ?

The pattern followed in each letter of the terms is :

1st letter : D (+2 letters) = F (+2 letters) = H (+2 letters) = J

2nd letter : A (+4 letters) = E (+4 letters) = I (+4 letters) = M

3rd letter : F (-2 letters) = D (-2 letters) = B (-2 letters) = Z

Thus, missing term = **JMZ**

=> Ans - (A)

Question 12

A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
1, 7, 42, 210, 840, ?

A   1240

B   2640

C   1680

D   2520

   Answer: D

Explanation:
Consecutive natural numbers in decreasing order are multiplied

$1 \times 7 = 7$

$7 \times 6 = 42$

$42 \times 5 = 210$

$210 \times 4 = 840$

$840 \times 3 = \mathbf{2520}$

=> Ans - (D)

Question 13

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.
Statement:
(I) Children play in the playground.
(II) It gives them a different approach of problem solving and decision making.
Conclusions:
(I) Playing outdoor is very necessary for overall development of child. (II) There should be balance between playing and studying for a child.

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 14

C has more money than E and E has more money than B. C is the second richest after A. Who has the least money out of A, B, C and E?

A   C

B   A

C   B

D   E

Answer: C

Explanation:
C has more money than E and E has more money than B, => C > E > B

C is the second richest after A, => A > C

Combining above statements, we get : **A > C > E > B**

∴ B has the least money out of A, B, C and E.

=> Ans - (C)

Question 15

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

i. Monopoly ii. Manifesto iii. Manifold iv. Mankind

A   ii, iii, iv, i

B   iii, ii, iv, i

C   i, iii, iv, ii

D   i, iv, iii, ii

   Answer: A

Explanation:

As per the order of dictionary :

= Manifesto -> Manifold -> Mankind -> Monopoly

≡ ii, iii, iv, i

=> Ans - (A)

Question 16

In a certain code language, "HISTORY" is written as "XQNSRHI". How is "ETHICS" written in that code language?

A   DSGHBR

B   RBHGSF

C   RBHDSG

D   GSDRBH

   Answer: B

Explanation:

"HISTORY" is written as "XQNSRHI"

The pattern followed when we reverse the word is :

Y	R	O	T	S	I	H
(-1)	(-1)	(-1)	(-1)	(-1)	(-1)	**(+1)**
X	Q	N	S	R	H	I

Similarly, reverse for ETHICS :

S	C	I	H	T	E
(-1)	(-1)	(-1)	(-1)	(-1)	**(+1)**
R	B	H	G	S	F

=> Ans - (B)

Question 17

In the following question select the missing number of the given series

6	10	9
7	2	1
3	4	?

A 9

B 8

C 6

D 7

Answer: C

Explanation:
The sum of each column is same.

Eg :- $6 + 7 + 3 = 16$

and $10 + 2 + 4 = 16$

Similarly, $9 + 1 + x = 16$

=> $x = 16 - 10 = 6$

=> Ans - (C)

Question 18

If "S" denotes "multiplied by", "V" denotes "subtracted from", "M" denotes "added to" and "L" denotes "divided by", then
96 L 8 S 4 V 16 M 9 =?

A 32

B 37

C 41

D 48

Answer: C

Explanation:
Expression : 96 L 8 S 4 V 16 M 9 =?

$\equiv 96 \div 8 \times 4 - 16 + 9$

= $(12 \times 4) - 7$

= $48 - 7 = 41$

=> Ans - (C)

Question 19

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

A dfcec

B dfece

C cfede

D cdfed

Answer: B

Explanation:
The pattern followed is that in groups of 4, the term 'cdef' is repeated.

= c**d**e**f** cd**ef** **c**de**f**

=> Ans - (B)

Question 20

A boy and a girl are facing each other. If the boy is standing at the north-west direction of the girl, in which direction is the girl to the boy?

A North

B South

C East

D South-east

Answer: D

Explanation:

The boy is standing at the north-west direction of the girl.

Thus, opposite of north-west is south-east

Thus, the girl is **South-east** from the boy

=> 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, 'R' can be represented by 12, 23 etc. and 'G' can be represented by 77, 88 etc. Similarly, you have to Identify the set for the word 'FRIEND'.

Matrix - I

	0	1	2	3	4
0	L	R	S	T	T
1	E	L	R	S	T
2	D	E	L	R	S
3	O	D	E	L	R
4	Q	O	D	E	L

Matrix - II

	5	6	7	8	9
0	G	N	I	P	Q
5	F	G	N	I	P
6	C	F	G	N	I
7	M	C	F	G	I
8	M	M	C	F	N

A 76, 23, 85, 21, 78, 20

B 89, 23, 79, 21, 77, 20

C 87, 12, 68, 21, 99, 33

D 98, 23, 68, 96, 78, 20

Answer: B

Explanation:

The letters are:

89 - N

20 - D

23 - R

79 - I

21 - E

77 - F

Question 22

Aryan has a brother named Bishnu. Aryan is the son of Chetan. Dev is Chetan's father. In term of relationship, what is Bishnu of Dev?

A   Grandson

B   Father

C   Brother

D   Cousin

Answer: A

Explanation:

Aryan has a brother named Bishnu and Aryan is the son of Chetan, => Chetan is the father of Aryan and Bishnu.

Also, Dev is Chetan's father, => Dev is grandfather of Aryan and Bishnu.

=> Bishnu is Dev's grandson.

=> Ans - (A)

Question 23

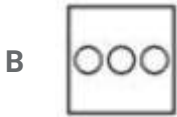If a mirror image is placed on a line MN, then which of the answer figures is the right image of the given figure?

A

B

C

D

Answer: D

Question 24

Identify the diagram that best represents the relationship among the given classes. Food Supplement, Bournvita, Horlicks

A

B

C

D
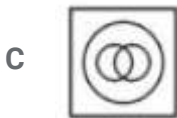
Answer: D

Explanation:

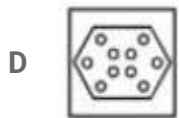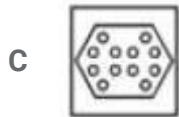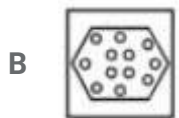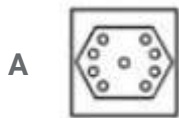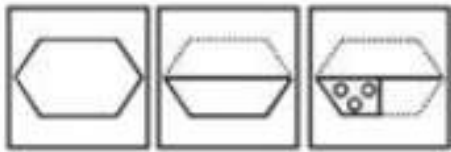Bournvita and Horlicks are both food supplement but are different from each other.

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

=> Ans - (D)

Question 25

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

A

B

C

D

Answer: C

Mathematics

Instructions
For the following questions answer them individually

Question 26

If cos 45° - sec 60° = x, then the value of x is

A (√3-4)/2√3

B 1

C (1-2√2)/√2

D (√3+√2)/2

Answer: C

Explanation:

Expression : cos 45° - sec 60° = x

$= \frac{1}{\sqrt{2}} - \frac{1}{\cos 60}$

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

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

=> Ans - (C)

Question 27

A man travels 400 km in, partly by rail and partly by steamer. He spends 9 hours more time on steamer. If the velocity of the steamer is 30 km/hr and the velocity of rail is 70 km/hr, how much distance does he cover by steamer?

A 309 km

B 371 km

C 464 km

D 556 km

Answer: A

Explanation:

Let distance covered by steamer = d km

=> Distance covered by rail = $(400 - d)$ km

Let time taken on rail = t hours and time taken on steamer = $(t + 9)$ hours

Speed of rail = 70 km/hr and speed of steamer = 30 km/hr

Using, speed = distance/time

For steamer, $\frac{d}{t+9} = 30$

=> $d = 30t + 270$ ------------(i)

For rail, $\frac{400-d}{t} = 70$

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

=> $400 - (30t + 270) = 70t$

=> $400 - 270 = 70t + 30t = 100t$

=> $t = \frac{130}{100} = 1.3$ hours

Substituting value of t in equation (i), => $d = (30 \times 1.3) + 270$

= $39 + 270 = 309$ km

Question 28

Raheem sells a machine for Rs 48 lakhs at a loss. Had he sold it for Rs 60 lakh, his gain would have been 5 times the former loss. Find the cost price of the machine.

A   Rs 58 lakhs

B   Rs 69.6 lakhs

C   Rs 42 lakhs

D   Rs 50 lakhs

   Answer: D

Explanation:

Let cost price of the machine = Rs. x lakhs

When selling price = Rs. 48 lakhs

=> Loss = Rs. $(x - 48)$ lakhs

If selling price = Rs. 60 lakhs

=> Profit = Rs. $(60 - x)$ lakhs

According to ques, Profit = 5 $\times$ loss

=> $(60 - x) = 5 \times (x - 48)$

=> $60 - x = 5x - 240$

=> $5x + x = 240 + 60 = 300$

=> $x = \frac{300}{6}$ = Rs. 50 lakhs

Question 29

If (1 + cosA)/2 = x, then the value of x is

A $sin^2(A/2)$

B   √sin(A/2)

C   √cos(A/2)

D $cos^2(A/2)$

   Answer: D

Explanation:

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

=> $cos(2\theta) = cos^2\theta - (1 - cos^2\theta)$

=> $cos(2\theta) = 2cos^2\theta - 1$

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

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

=> $cosA + 1 = 2cos^2\left(\frac{A}{2}\right)$

=> $\frac{(cosA+1)}{2} = cos^2\left(\frac{A}{2}\right)$

=> Ans - (D)

Question 30

If the number 583_437 is completely divisible by 9, then the smallest whole number in the place of the blank digit will be

A 4

B 5

C 3

D 6

   Answer: D

Explanation:

Number : 583_437

Let the missing digit = x

=> Sum of digits = 5 + 8 + 3 + x + 4 + 3 + 7 = 30 + x

Clearly, sum of digits is between 30 and 39. The only number divisible by 9 and which lies between 30 and 39 is 36

=> $30 + x = 36$

=> $x = 36 - 30 = 6$

=> Ans - (D)

Question 31

Two numbers are 35% and 50% lesser than a third number. By how much percent is the second number to be enhanced to make it equal to the first number?

A 23.08 percent

B 15 percent

C 25 percent

D 30 percent

Answer: D

Explanation:

Let the third number = $100x$

Let first number be a and second number be b

=> $a = 100x - \frac{35}{100} \times 100x = 65x$

and $b = 100x - \frac{50}{100} \times 100x = 50x$

% by which the second number is to be enhanced to make it equal to the first number

= $\frac{65x - 50x}{50x} \times 100$

= $15 \times 2 = 30\%$

=> Ans - (D)

Question 32

A bank offers 15% compound interest per half year. A customer deposits Rs 2400 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 2268

B Rs 1134

C Rs 553.5

D Rs 283

Answer: C

Explanation:

Principal = Rs. 2400 and Rate = 15%

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

= $[2400(1 + \frac{15}{2 \times 100})^{2 \times 1}] + [2400(1 + \frac{15}{2 \times 100})^{2 \times \frac{1}{2}}]$

= $[2400 \times (\frac{43}{40})^2] + [2400 \times \frac{43}{40}]$

= $[2400 \times \frac{43}{40}] \times [\frac{43}{40} + 1]$

= $(60 \times 43) \times (\frac{83}{40})$

= $\frac{3}{2} \times 3569 =$ Rs.5353.5

∴ Compound Interest = Rs.(5353.5 - 4800) = Rs. 553.5

Question 33

If secA + tanA = x, then the value of x is

A cosA/(1 + sinA)

B √[cosA/(1 - sinA)]

C √[cosA/(1 + sinA)]

D cosA/(1 - sinA)

Answer: D

Explanation:

Expression : secA + tanA = x

= $\frac{1}{cosA} + \frac{sinA}{cosA} = \frac{1+sinA}{cosA}$

Multiplying both numerator and denominator by $(1 - sinA)$

= $\frac{1+sinA}{cosA} \times \frac{1-sinA}{1-sinA}$

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

= $\frac{cosA}{1-sinA}$

=> Ans - (D)

Question 34

Find two numbers such that their mean proportion is 16 and third proportion is 1024.

A 4 and 32

B 4 and 64

C 8 and 64

D 8 and 32

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 = 16

=> $xy = (16)^2 = 256$ -------------(i)

Third proportion = 1024

=> $y^2 = x \times 1024$ -----------(ii)

Substituting value of x from equation(i) in equation(ii), we get :

$\Rightarrow y^2 = \frac{256}{y} \times 1024$

$\Rightarrow y^3 = (2)^8 \times (2)^{10} = (2)^{18}$

$\Rightarrow y = (2)^{18 \div 3} = (2)^6 = 64$

Substituting it in equation(i), $\Rightarrow x = \frac{256}{64} = 4$

Question 35

A cone of radius 3.5 cm and height 12 cm is completely filled with water. This water is emptied into an empty cylindrical vessel of radius 7 cm. What will be the height of water in this vessel?

A 2 cm

B 0.33 cm

C 0.5 cm

D 1 cm

Answer: D

Explanation:

Let height of cylinder = h cm and radius, r = 7 cm

Height of cone, H = 12 cm and Radius, R = 3.5 cm

Volume of cylinder = Volume of cone

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

$\Rightarrow (7)^2 \times h = \frac{1}{3} \times (3.5)^2 \times 12$

$\Rightarrow 49h = 12.25 \times 4 = 49$

$\Rightarrow h = \frac{49}{49} = 1$ cm

$\Rightarrow$ Ans - (D)

Question 36

If the length of the side of an equilateral triangle is 8 cm, what is its area?

A 32√3 sq cm

B 16 sq cm

C 16√3 sq cm

D 32 sq cm

Answer: C

Explanation:

Side of equilateral triangle, $s = 8$ cm

Area of equilateral triangle = $\frac{\sqrt{3}}{4} s^2$

$= \frac{\sqrt{3}}{4} \times (8)^2 = \sqrt{3} \times \frac{64}{4}$

$= 16\sqrt{3}$ sq. cm

=> Ans - (C)

Question 37

A line passing through the origin perpendicularly cuts the line 3x - 2y = 6 at point M. Find M?

A   (18/13, 12/13)

B   (18/13, -12/13)

C   (-18/13, -12/13)

D   (-18/13, 12/13)

Answer: B

Explanation:

Slope of line 3x - 2y = 6 = $-\frac{3}{-2} = \frac{3}{2}$

Product of slopes of two perpendicular lines = -1

Let slope of line passing through origin = m

=> $m \times \frac{3}{2} = -1$

=> $m = \frac{-2}{3}$

Equation of line passing through origin and having slope m is $y = mx$ (Since y intercept is zero)

=> $y = \frac{-2}{3}x$

=> $3y = -2x$ => $2x + 3y = 0$

Solving the above equations, we get the intersection point M = $\left(\frac{18}{13}, \frac{-12}{13}\right)$

=> Ans - (B)

Question 38

The average weight of Shubha, Govinda and Reshma is 65 kg. If the average weight of Shubha and Govinda be 63 kg and that of Govinda and Reshma be 70 kg, then the weight of Govinda is

A   41

B   71

C   88

D 46

Answer: B

Explanation:

Let respective weights of Shubha, Govinda and Reshma is s, g, r kg

Average weight of the three = $\frac{s+g+r}{3} = 65$

=> $s + g + r = 65 \times 3 = 195$ kg -------------(i)

Similarly, Total weight of Shubha and Govinda = $s + g = 63 \times 2 = 126$ kg --------------(ii)

Total weight of Govinda and Reshma = $g + r = 70 \times 2 = 140$ kg ------------(iii)

Adding equations(ii) and (iii), => $s + 2g + r = 126 + 140 = 266$ --------------(iv)

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

=> $g = 266 - 195 = 71$ kg

=> Ans - (B)

Question 39

Find length of the arc whose central angle is 45° and radius of the circle is 28 cm?

A 11 cm

B 33 cm

C 44 cm

D 22 cm

Answer: D

Explanation:

Central angle = $\theta = 45°$ and radius = $r = 28$ cm

Length of arc = $\frac{\theta}{360} \times 2\pi r$

= $\frac{45}{360} \times 2 \times \frac{22}{7} \times 28$

= $\frac{1}{8} \times 44 \times 4 = \frac{44}{2} = 22$ cm

=> Ans - (D)

Question 40

The area of a square is 100 sq cm, find length of its diagonal?

A 10√2 cm

B   10 cm

C   20 cm

D   20√2 cm

Answer: A

Explanation:

Let the side of square = s cm and diagonal = d cm

=> Area of square = $(s)^2 = 100$

=> $s = \sqrt{100} = 10$ cm

In right triangle of the square, => $(s)^2 + (s)^2 = (d)^2$

=> $(d)^2 = (10)^2 + (10)^2$

=> $(d)^2 = 100 + 100 = 200$

=> $d = \sqrt{200} = 10\sqrt{2}$ cm

=> Ans - (A)

Question 41

Ticket for an adult is Rs 1500 and a child is Rs 800. 1 child goes free with two adults. If a group has 25 adults and 12 children what is the discount the group gets?

A   26.47 percent

B   20.38 percent

C   31.60 percent

D   33.33 percent

Answer: B

Explanation:

Cost price of adult ticket = Rs. 1500 and child ticket = Rs. 800

For 25 adults and 12 children, total cost = $(25 \times 1500) + (12 \times 800)$

= $37500 + 9600 = Rs.47,100$

If one child goes free with two adults, => 12 children will go with 24 adults, thus all the children will go for free.

Cost of 25 adults = $25 \times 1500 = Rs.37,500$

Discount % = $\frac{47100-37500}{47100} \times 100$

= $\frac{9600}{471} = 20.38\%$

=> Ans - (B)

Question 42

If (9 - 3x) - (17x - 10) = -1, then the value of x is

A 1

B -1

C 9/10

D -9/10

    Answer: A

Explanation:

Expression : $(9 - 3x) - (17x - 10) = -1$

=> $(9 - 3x) + (-17x + 10) = -1$

=> $-20x + 19 = -1$

=> $-20x = -1 - 19 = -20$

=> $x = \frac{-20}{-20} = 1$

=> Ans - (A)

Question 43

If a - b = -7 and $a^2 + b^2$ = 85, then find ab.

A 18

B -30

C -44

D -60

    Answer: A

Explanation:

Given : $(a - b) = -7$ and $a^2 + b^2 = 85$

Using $(a - b)^2 = a^2 + b^2 - 2ab$

=> $(-7)^2 = 85 - (2 \times ab)$

=> $2ab = 85 - 49 = 36$

=> $ab = \frac{36}{2} = 18$

=> Ans - (A)

Question 44

Prabodh has done 1/2 of a job in 30 days, Sapan completes the rest of the job in 45 days. In how many days can they together do the job?

A   18 days

B   48 days

C   27 days

D   36 days

   Answer: D

Explanation:
Let total work to be done = 60 units

Prabodh has done 1/2 of a job i.e. $\frac{60}{2} = 30$ units in 30 days

=> Prabodh's efficiency = $\frac{30}{30} = 1$ unit/day

Work left = 60 - 30 = 30 units which is done by Sapan in 45 days

=> Sapan's efficiency = $\frac{30}{45} = \frac{2}{3}$ units/day

Prabodh and Sapan 1 day's work = $1 + \frac{2}{3} = \frac{5}{3}$ units/day

$\therefore$ Time taken by them together to complete the work = $60 \div \frac{5}{3}$

= $60 \times \frac{3}{5} = 12 \times 3 = 36$ days

Question 45

The sum of a non-zero number and thrice its reciprocal is 52/7. Find the number.

A   8

B   9

C   7

D   6

   Answer: C

Explanation:
Let the number be x

According to ques, => $x + \frac{3}{x} = \frac{52}{7}$

=> $\frac{x^2 + 3}{x} = \frac{52}{7}$

=> $7x^2 + 21 = 52x$

=> $7x^2 - 52x + 21 = 0$

=> $7x^2 - 49x - 3x + 21 = 0$

=> $7x(x - 7) - 3(x - 7) = 0$

=> $(7x - 3)(x - 7) = 0$

=> $x = 7, \frac{3}{7}$

=> Ans - (C)

Question 46

If 2x - 2(3 + 4x) < -1 - 2x < -5/3 - x/3; then x can take which of the following values?

A 1

B 2

C -2

D -1

Answer: D

Explanation:
Expression 1 : $-1 - 2x < \frac{-5}{3} - \frac{x}{3}$

=> $3 + 6x < 5 + x$

=> $6x - x < 5 - 3$

=> $x < \frac{2}{5}$ ---------(i)

Expression 2 : $2x - 2(3 + 4x) < -1 - 2x$

=> $-6x - 6 < -1 - 2x$

=> $6x - 2x > 1 - 6$

=> $x > \frac{-5}{4}$ ------(ii)

Combining inequalities (i) and (ii), we get : $\frac{-5}{4} < x < \frac{2}{5}$

Thus, only value that x can take among the options = **-1**

=> Ans - (D)

Question 47

Read the below data table and answer the following question

	Weight	Height in meter
Aabha	68	1.68
Aahana	77	1.57
Aakaanksha	55	1.8
Aakriti	51	1.76

Who has the least weight to height ratio ?

A Aabha

B Aahana

C Aakaanksha

D Aakriti

 Answer: D

Explanation:

Ratio of weight to height

Aabha : $\frac{68}{1.68} \approx 40.5$

Aahana : $\frac{77}{1.57} \approx 49$

Aakaanksha : $\frac{55}{1.8} \approx 30.5$

Aakriti : $\frac{51}{1.76} \approx 29$ **[LEAST]**

=> Ans - (D)

Question 48

Read the below data table and answer the following question

Year	Company's % Profit
2011	10
2012	25
2013	20
2014	15
2015	20

What was the revenue of the company if its expenditure was rupees 225 crore in the year when it % profit was the least ?

A 270

B 247.5

C 292.5

D 225

Answer: B

Explanation:

Profit % was least in 2011 = 10%

Let revenue = Rs. x crore and expenditure = Rs. 225 crore

=> Profit % = $\frac{x-225}{225} \times 100 = 10$

=> $\frac{x-225}{225} = \frac{10}{100} = \frac{1}{10}$

=> $x - 225 = \frac{225}{10} = 22.5$

=> $x = 225 + 22.5 = 247.5$ crore

=> Ans - (B)

Question 49

The following tables shows the number of in each house of a society

No of children	No of houses
0	4
1	10
2	19
3	3
Ejaz	50

What is the average number of children per house ?

A 1.58

B 1.83

C 2.08

D 1.33

Answer: A

Explanation:
Total number of houses = 4 + 10 + 19 + 3 = 36

Total children = $(0 \times 4) + (1 \times 10) + (2 \times 19) + (3 \times 3)$

= 10 + 38 + 9 = 57

∴ Average number of children per house = $\frac{57}{36} = 1.58$

=> Ans - (A)

Question 50

Read the below data table and answer the following question.

Partners	Present % share
Anand	15
Basu	5
Chinmay	15
Dhiraj	20
Ejaz	45

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

A   270000 shares

B   300000 shares

C   255000 shares

D   285000 shares

Answer: D

Explanation:
Total shares = 6,00,000

Original shares with Ejaz = $\frac{45}{100} \times 600000 = 2,70,000$

If Basu offers to sell 15,000 of his shares to Ejaz,

=> Shares with Ejaz = 2,70,000 + 15,000 = 2,85,000

=> Ans - (D)

General Awareness

Instructions
For the following questions answer them individually

Question 51

Champaner-Pavagadh Archaeological Park is in .

A   Rajasthan

B   Assam

C   Bihar

D Gujarat

Answer: D

Question 52

Highest Civilian Honour received by Kamal Haasan is .

A Padma Shri

B Padma Bhushan

C Padma Vibhushan

D Bharat Ratna

Answer: B

Question 53

Which disease is caused due to deficiency of Iodine?

A Rickets

B Scurvy

C Goitre

D Growth retardation

Answer: C

Question 54

Grevillea Robusta is the scientific name of .

A Peepal

B Teak

C Silver Oak

D Jack fruit

Answer: C

Question 55

The modern periodic table consists of 18 groups and 7 periods. What is the atomic number of the element placed in the 3rd group and the 4th period?

A   23

B   21

C   19

D   11

Answer: B

Question 56

Which of the following elements has the lowest melting point?

A   Oxygen

B   Gold

C   Silver

D   Manganese

Answer: A

Question 57

Who is known as father of computer?

A   Charles Babbage

B   Tim Berners Lee

C   Douglas Carl Engelbart

D   Sabeer Bhatia

Answer: A

Question 58

Urdu is the official language of .

A Andhra Pradesh

B Arunachal Pradesh

C West Bengal

D Jammu & Kashmir

Answer: D

Question 59

Stagflation is a period of .

A Persistent high inflation combined with high unemployment

B Persistent high inflation combined with low unemployment

C Persistent low inflation combined with high unemployment

D Persistent low inflation combined with low unemployment

Answer: A

Question 60

Which of the following is a greenhouse gas or a gas which can deplete the ozone layer?

A CH2ClF

B C2H2

C PF5

D COCl2

Answer: A

Question 61

Periyar National Park is in which mountain range?

A Aravalli Range

B Vindhya Range

C Eastern Ghats

D Western Ghats

Answer: D

Question 62

First Indian to swim across the English Channel was .

A Apsara

B Durga Agarwal

C Mihir Sen

D Arati Saha

Answer: C

Question 63

Which of these islands are located in the Arabian Sea?

A Andaman Islands

B Nicobar Islands

C Lakshadweep Islands

D All of the above

Answer: C

Question 64

Which state does not share its border with Jharkhand?

A Madhya Pradesh

B Chhattisgarh

C Orissa

D West Bengal

Answer: A

Question 65

Ashoka converted to which religion after the Kalinga war?

A   Jainism

B   Buddhism

C   Christianity

D   Judaism

Answer: B

Question 66

Gandhi Ji started the Non-Cooperation Movement in?

A   1880

B   1900

C   1920

D   1940

Answer: C

Question 67

Who discovered X-Ray?

A   Wilhelm Rontgen

B   William Lee

C   X Rollswick

D   I Thompson

Answer: A

Question 68

Find the power of a convex lens if the image formed is at a distance of 25 cm from the lens when the object is placed on the other side of the lens at 12 cm from the optical centre?

A -4.33 diopters

B 12.33 diopters

C -12.33 diopters

D 4.33 diopters

    Answer: B

Question 69

What is the unit of the physical quantity Entropy?

A watt per kelvin

B newton per kelvin

C pascal per kelvin

D joule per kelvin

    Answer: D

Question 70

Which Article specifies the Fundamental Duties of every citizen?

A Article 80

B Article 343

C Article 51A

D Article 356

    Answer: C

Question 71

Article 173 of the Indian Constitution "Qualification for membership of the State Legislature" 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 72

Michael Schumacher is associated with which sport?

A Football

B Golf

C Formula One racing

D Swimming

Answer: C

Question 73

Who is the author of "The Guest"?

A Mohit Goyal

B Mitali Meelan

C Ashwini Parashar

D Anand Neelakantan

Answer: B

Question 74

If price of an article decreases from Rs P1 to Rs 190, when quantity demanded increases from 5000 units to 5200 units, and if point elasticity of demand is
-0.8 find P1?

A Rs 220

B Rs 240

C Rs 200

D Rs 250

Answer: C

Question 75

When a Cuttlefish is described as a Molluscs, it is at which level of classification?

A   Class

B   Order

C   Family

D   Phylum

   Answer: D

English

Instructions
For the following questions answer them individually

Question 76

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.
Purush wandered through life, with no clear ideas of where he was heading and what he wanted to accomplish.

A   madly

B   excitedly

C   crazily

D   aimlessly

   Answer: D

Question 77

Improve the bracketed part of the sentence. Would it be impolite (to be asked) why they are leaving?

A   to ask

B   for asking

C for being asked

D no improvement

   Answer: A

Question 78

Rearrange the parts of the sentence in correct order.
We should learn our lesson
P-from this history and stay away
Q-of our neighbours
R-from interfering in the messy domestic politics

A PRQ

B PQR

C QPR

D RPQ

   Answer: A

Question 79

Select the antonym of to hew

A to prune

B to chop

C to agglutinate

D to cleave

   Answer: C

Question 80

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.
The chess player moved his piece to a more position, securing the win.

A profitable

B auspicious

C advantageous

D worthwhile

Answer: C

Question 81

Select the synonym of maestro

A neophyte

B catechumen

C sophomore

D conductor

Answer: D

Question 82

In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best express the same sentence in Indirect/Direct speech.
The coach said, "Don't move, boys."

A The coach told to the boys don't move.

B The coach said to the boys not to be moving.

C The coach asked the boys not to move.

D The coach told to them, don't move boys.

Answer: C

Question 83

Rearrange the parts of the sentence in correct order.
Public goods are
P-important as they
Q-mitigate the impact of
R-income poverty and inequality

A QRP

B PQR

C   RPQ

D   QPR

   Answer: B

Question 84

Improve the bracketed part of the sentence.
The workers are bent (on) getting a full months pay as bonus.

A   for

B   upon

C   to

D   no improvement

   Answer: B

Question 85

Select the antonym of to flay

A   to scalp

B   to peel

C   to excoriate

D   to sheath

   Answer: D

Question 86

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.
They will advise me about the price of the accessories.

A   I will have been advised about the price of the accessories.

B   I would have been advised about the price of the accessories.

C   I shall be advised about the price of the accessories.

D   I would have had been advised about the price of the accessories.

Answer: C

Question 87

Select the word with the correct spelling.

A Paraguay

B snugled

C gimicky

D benifice

Answer: A

Question 88

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'.
Mother does not hardly(A)/know what happened(B)/in school yesterday.(C)/No error(D)

A A

B B

C C

D D

Answer: A

Question 89

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 beggar who comes(A)/to our doors(B)/goes back empty handed.(C)/No error(D)

A A

B B

C C

D D

Answer: B

Question 90

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
To lift or haul something heavy with great effort.

A   heave

B   shrimp

C   wimp

D   runt

   Answer: A

Question 91

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

A   a market for semi-precious stones and jewellery

B   a market where stolen goods are sold

C   a street market selling second-hand goods

D   a small but crowded and noisy place

   Answer: C

Question 92

Select the word with the correct spelling.

A   libreto

B   jazziest

C   serephim

D   kamikazey

   Answer: B

Question 93

Select the synonym of troll

A spruce

B suave

C gnome

D dapper

Answer: C

Question 94

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
A conclusion or agreement done or reached decisively and with authority.

A precise

B definitive

C reliable

D specific

Answer: B

Question 95

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

A a very gory murder scene

B a lot of hard work

C loss of lives in battle

D a person's physical body and their needs and frailties

Answer: D

Question 96

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.
The scene will now shift to obtaining instruments of ratification to bring the agreement into force 2020, the first year of
its implementation. The agreement will enter into force with the ratification of 55 countries, whose aggregate greenhouse gas (GHG)
emissions at least 55 per cent of global emissions.
The scene will now shift to obtaining instruments

A enough

B full

C lavish

D comfortable

   Answer: A

Question 97

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.
The scene will now shift to obtaining instruments of ratification to bring the agreement into force 2020, the first year of
its implementation. The agreement will enter into force with the ratification of 55 countries, whose aggregate greenhouse gas (GHG)
emissions at least 55 per cent of global emissions.
bring the agreement into force 2020

A on

B before

C at

D previous

   Answer: B

Question 98

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.
The scene will now shift to obtaining instruments of ratification to bring the agreement into force 2020, the first year of
its implementation. The agreement will enter into force with the ratification of 55 countries, whose aggregate greenhouse gas (GHG)
emissions at least 55 per cent of global emissions.
the first year of its implementation.

A   proposal

B   proposition

C   supposed

D   proposed

   Answer: D

Question 99

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.
The scene will now shift to obtaining instruments of ratification to bring the agreement into force 2020, the first year of
its implementation. The agreement will enter into force with the ratification of 55 countries, whose aggregate greenhouse gas (GHG)
emissions at least 55 per cent of global emissions.
The agreement will enter into force with the ratification of 55 countries

A   partially

B   at least

C   slightly

D   somewhat

   Answer: B

Question 100

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.

The scene will now shift to obtaining instruments of ratification to bring the agreement into force 2020, the first year of
its implementation. The agreement will enter into force with the ratification of 55 countries, whose aggregate greenhouse gas (GHG)
emissions at least 55 per cent of global emissions.
whose aggregate greenhouse gas (GHG) emissions at least 55 per cent of global emissions.

A   established

B   constitute

C   enact

D   complement

   Answer: B