SSC CHSL 9 Jan 2017 Morning Shift
Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Pernicious : Lethal : : Indict : ?

A   Insolent

B   Impudent

C   Spoil

D   Accuse

   Answer: D

Explanation:

Pernicious and Lethal are synonyms meaning having a harmful effect, similarly synonym of indict is *accuse*.

=> Ans - (D)

Question 2

Select the related word/letters/number from the given alternatives.
FG : UT : : HI : ?

A   HI

B   GH

C   SR

D   ED

   Answer: C

Explanation:
Expression = FG : UT : : HI : ?

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

Similarly, HI : **SR**

=> Ans - (C)

Question 3

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

? : LM : : QR : WX

A CD

B EF

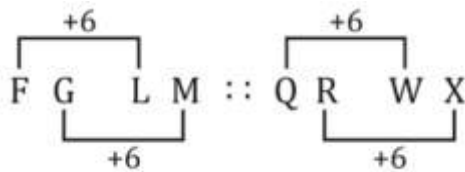**C** FG

D TU

  Answer: C

Explanation:
Expression = ? : LM : : QR : WX

The pattern followed is :

Thus, **FG** : LM

=> Ans - (C)

Question 4

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

4 : 44 : : ? : 77

A 3

B 6

C 7

D 5

  Answer: C

Explanation:
Expression = 4 : 44 : : ? : 77

The pattern followed is = $x : 11x$

Eg :- $4 : 11 \times 4 = 4 : 44$

Similarly, $7 \times 11 = 77$

=> Ans - (C)

Question 5

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

A Zenith

B Culminating point

C Peak

D Nadir

Answer: D

Explanation:
Zenith, culminating point and peak are synonyms meaning the highest point, while nadir means the lowest point, hence it is the odd one out.

=> Ans - (D)

Question 6

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

A TP

B DH

C WS

D RN

Answer: B

Explanation:
(A) : T (-4 letters) = P

(B) : D (**+4** letters) = H

(C) : W (-4 letters) = S

(D) : R (-4 letters) = N

=> Ans - (B)

Question 7

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

A 431

B 936

C 871

D 652

    Answer: D

Explanation:

The positive difference between the first two digits is equal to the third digit, but $6 - 5 \neq 2$, hence 652 is the odd one out.

=> Ans - (D)

Question 8

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

A 5210

B 7214

C 9218

D 7426

    Answer: D

Explanation:

The product of the first two digits is equal to the last two digits, but $7 \times 4 \neq 26$, hence 7426 is the odd one out.

=> Ans - (D)

Question 9

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

Rajasthan, Madhya Pradesh, Maharashtra, ?

A Uttar Pradesh

B Jammu Kashmir

C Tamil Nadu

D   Assam

    Answer: A

Explanation:

Sequence of states according to area in decreasing order.

= Rajasthan -> Madhya Pradesh -> Maharashtra -> Uttar Pradesh

=> Ans - (A)

Question 10

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

200, 100, 50, 25, 12.5, 6.25, ?

A   2.125

B   3.025

C   3.125

D   2.025

    Answer: C

Explanation:

Each number is divided by 2

$200 \div 2 = 100$

$100 \div 2 = 50$

$50 \div 2 = 25$

$25 \div 2 = 12.5$

$12.5 \div 2 = 6.25$

$6.25 \div 2 = \textbf{3.125}$

=> Ans - (C)

Question 11

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:
(I) a R b
(II) b R a

Conclusion:
(I) This relation is symmetric.
(II) This is a relation.

A   Conclusion I follows

B   Conclusion II follows

C   Neither I nor II follows

D   Both I and II follows

Answer: B

Question 12

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

?, ONM, GFE, XWV

A   TUV

B   VUT

C   GHI

D   PQR

Answer: B

Explanation:
Expression : ?, ONM, GFE, XWV

The pattern followed in each letter of the terms is :

1st letter : V (-7 letters) = O (-8 letters) = G (-9 letters) = X

2nd letter : U (-7 letters) = N (-8 letters) = F (-9 letters) = W

3rd letter : T (-7 letters) = M (-8 letters) = E (-9 letters) = V

Thus, missing term = **VUT**

=> Ans - (B)

Question 13

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

RS, ? , BC, GH

A   WX

B   XY

C   UV

D   GE

   Answer: A

Explanation:

Expression : RS, ? , BC, GH

The pattern followed in each letter of the terms is :

1st letter : R (+5 letters) = W (+5 letters) = B (+5 letters) = G

2nd letter : S (+5 letters) = X (+5 letters) = C (+5 letters) = H

Thus, missing term = **WX**

=> Ans - (A)

Question 14

Farhan travels 4 km in the north-east direction and then turns towards the south-east to travel another 3 km. How far is he now from his original position?
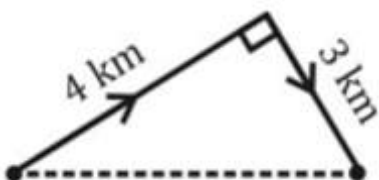
A   4 km

B   6 km

C   7 km

D   5 km

   Answer: D

Explanation:

Farhan travels 4 km in the north-east direction and then turns towards the south-east to travel another 3 km.

Thus, distance between original and final position = $\sqrt{(4)^2 + (3)^2}$

= $\sqrt{16 + 9} = \sqrt{25} = 5$ km

=> Ans - (D)

Question 15

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

i. Arise
ii. Abysmal
iii. Agility
iv. Accrue

A   ii, i, iv, iii

B   iii, iv, ii, i

C   ii, iv, i, iii

D   ii, iv, iii, i

  Answer: D

Explanation:
As per the order of dictionary :

= Abysmal -> Accrue -> Agility -> Arise

$\equiv$ ii, iv, iii, i

=> Ans - (D)

Question 16

In a certain code language, "LOYALTY" is written as "MPZBMUZ". How is "PROCLAIM" written in that code language?

A   QSPDDBJN

B   QSPDBMJN

C   QSPDMBJN

D   QPSDMBJN

  Answer: C

Explanation:
"LOYALTY" is written as "MPZBMUZ"

The pattern followed is :

L	O	Y	A	L	T	Y
(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
M	P	Z	B	M	U	Z

Similarly, for PROCLAIM :

P	R	O	C	L	A	I	M
(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
Q	S	P	D	M	B	J	N

=> Ans - (C)

Question 17

In the following question, select the missing number form the given series

256	289	484
6	5	6
96	85	?

A 124

B 132

C 120

D 125

Answer: B

Explanation:

In each column, the first number is the square of the number which is obtained, by dividing the other two.

Eg :- $\left(\frac{96}{6}\right)^2 = (16)^2 = 256$

and $\left(\frac{85}{5}\right)^2 = (17)^2 = 289$

Similarly, $\left(\frac{x}{6}\right)^2 = 484 = (22)^2$

=> $x = 22 \times 6 = 132$

=> Ans - (B)

Question 18

If "S" denotes "multiplied by", "V" denotes "subtracted from", "M" denotes "added to" and "L" denotes "divided by", then 8 V 10 M 96 L 6 S 9 = ?

A 140

B 142

C 134

D 144

Answer: B

Explanation:

Expression : 8 V 10 M 96 L 6 S 9 = ?

$\equiv 8 - 10 + 96 \div 6 \times 9$

$= -2 + (16 \times 9)$

$= -2 + 144 = 142$

=> Ans - (B)

Question 19

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

_qr_srq_p_rs_r_p

A pqrsss

B qprsss

C pspqsq

D pspqqq

Answer: C

Explanation:

The pattern followed is that in groups of 4, the term 'pqrs' is alternatively repeated in this and reverse order.

= **p**q**rs** srq**p** p**q**rs **srq**p

=> Ans - (C)

Question 20

A man is facing east. He turns 60 degrees in the anticlockwise direction and then again turns another 120 degrees in the same direction. Which direction is he facing now?
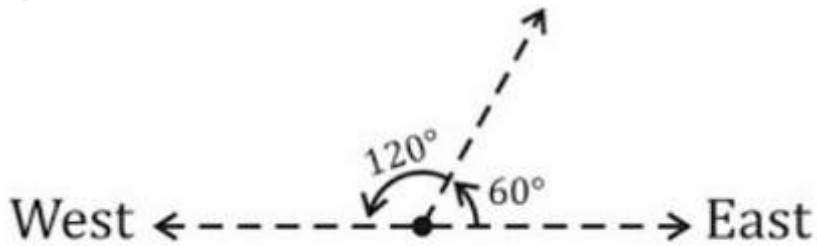
A East

B North-west

C South-east

D West

Answer: D

Explanation:

The man is initially facing east. He turns 60 degrees in the anticlockwise direction and face north-east, again he turns 120 degrees in the anticlockwise direction.

Thus, he is facing west at the end.

=> 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, 'N' can be represented by 21, 67 etc. and 'R' can be represented by 66, 57 etc. Similarly, you have to identify the set for the word 'GRAIN'.

Matrix - I

	0	1	2	3	4
0	Q	O	A	N	K
1	W	I	N	H	L
2	E	N	S	G	O
3	N	Y	D	O	M
4	R	T	O	F	A

Matrix - II

	5	6	7	8	9
5	Z	M	R	S	Q
6	X	R	N	W	A
7	C	S	Y	E	N
8	S	N	T	E	S
9	V	B	E	R	G

A   99, 33, 76, 88, 76

B   23, 24, 76, 75, 89

C   23, 66, 69, 11, 21

D   99, 20, 89, 11, 44

Answer: C

Explanation:

(A) : 99, 33, 76, 88, 76 = GOSES

(B) : 23, 24, 76, 75, 89 = GOSCS

(C) : 23, 66, 69, 11, 21 = **GRAIN**

(D) : 99, 20, 89, 11, 44 = GESIA

=> Ans - (C)

Question 22

Introducing a woman, Anjali says, "She is the wife of my daughter's only brother". How is the girl related to Anjali?

A Niece

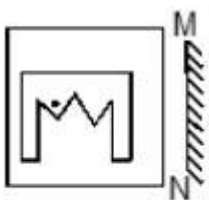**B** Daughter-in-law

C Sister

D Cousin

Answer: B

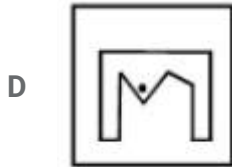**Explanation:**

Anjali's daughter's only brother = Anjali's son

Now, the girl is the wife of Anjali's son, => that girl is Anjali's daughter-in-law

=> Ans - (B)

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 ?
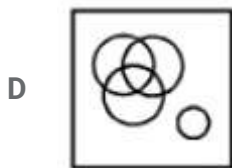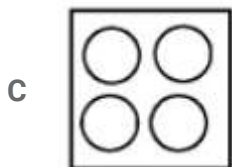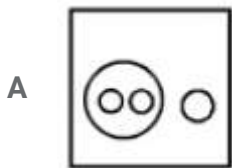

A

B

C

D

Answer: B

Question 24

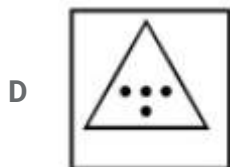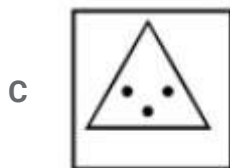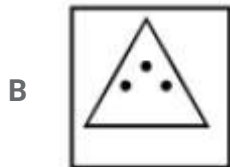Identify the diagram that best represents the relationship among the given classes.

Computer hardware, Monitor, Keyboard, Operating system

A

B

C

D

Answer: A

Question 25

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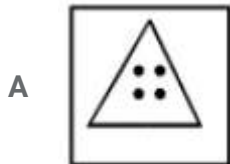
A

B

C

D

Answer: A

General Awareness

Instructions

For the following questions answer them individually

Question 26

Which of the following language is used to access data from a database?

A   ASP.Net

B   Java

C   SQL

D   C++

    Answer: C

Question 27

Electric tram was invented by?

A   Fyodor Pirotsky

B   Arthur Pitney

C   Fritz Pfleumer

D   Stephen Perry

    Answer: A

Question 28

Which of the following is a symptom of haemophilia?

A   Night Blindness

B   No clotting of Blood

C   Rickets

D   Loss of haemoglobin

    Answer: B

Question 29

The process of pollination by birds is also known as

A   Hydrophily

B   Entomophily

C   Embryophily

D   Ornithophily

    Answer: D

Question 30

Spiders belong to the phylum

A   Mollusca

B   Annelida

C   Cnidaria

D   Arthropoda

   Answer: D

Question 31

Which among the following has the maximum density?

A   Water

B   Ice

C   Ethylene

D   Acetone

   Answer: A

Question 32

What happens in an oxidation reaction?

A   Protons are lost.

B   Electrons are lost

C   Neutrons are lost.

D   Electrons are gained.

   Answer: B

Question 33

Nalanda Mahavihara site is in

A   Rajasthan

B   Assam

C   Bihar

D   Gujarat

   Answer: C

Question 34

The Desert Festival is held in _____.

A   Barmer

B   Jaisalmer

C   Sahara

D   Thar

   Answer: B

Question 35

In 2015 the nominal rate of interest in country was 6%, and the inflation rate then was 1.5%. So real rate of interest in 2015 was

A   7.50%

B   4.50%

C   4%

D   0.25%

   Answer: B

Question 36

The goods which people consume more, when their price rises are called _____.

A   Essential goods

B   Capital goods

C   Veblen goods

D   Giffen goods

    Answer: D

Question 37

Who coined the term "Ecology"?

A   Ernst Haeckel

B   G. Evelyn Hutchinson

C   Hugo de Vries

D   Robert Brown

    Answer: A

Question 38

Banana freckle is a plant disease. It is caused by a

A   Virus

B   Fungus

C   Bacteria

D   Insect

    Answer: B

Question 39

Pablo Picasso was from _____.

A   India

B   UK

C   Spain

D   Italy

    Answer: C

Question 40

Which of the following Indian chilly is considered one of the hottest in the world?

A   Bhut Jolokia

B   Bhut Mahabora

C   Lal Chitin

D   Lal Shamak

    Answer: A

Question 41

Name the hottest planet.

A   Mercury

B   Venus

C   Neptune

D   Mars

    Answer: B

Question 42

Who killed Mahatma Gandhi?

A   Nathuram Godse

B   James Russell

C   Sucha Singh Bassi

D   Kunder Mehta

    Answer: A

Question 43

What was the capital of Maharaja Ranjit Singh's kingdom?

A   Patna

B   Fatehpur Sikri

C   Islamabad

D   Lahore

Answer: D

Question 44

_____ is the 2016 Oscar Winner for Best Actor.

A   Leonardo DiCaprio

B   Bryan Cranston

C   Matt Damon

D   Michael Fassbender

Answer: A

Question 45

Who discovered theory of relativity?

A   Isaac Newton

B   Albert Einstein

C   Niel Bohr

D   Michael Faraday

Answer: B

Question 46

Which device is used to measure the depth of ocean?

A   Lexometer

B   Nanometer

C   Fathometer

D   Hydrometer

Answer: C

Question 47

The movement Objections Resolution to guide the deliberations of the Assembly was started by

A   Jawaharlal Nehru

B   Kiran Desai

C   K Natwar Singh

D   K.M. Munshi

Answer: A

Question 48

Rajya Sabha member has tenure of _____ years.

A   8

B   6

C   4

D   2

Answer: B

Question 49

Limba Ram is associated with which Sport?

A   Javelin Thrower

B   Archery

C   Cricket

D   Badminton

Answer: B

Question 50

Who wrote the book 'Glimpses of World History'?

A   Shashi Tharoor

B   Mahatma Gandhi

C   Nirad C Chaudhuri

D   Jawaharlal Nehru

   Answer: D

Mathematics

Instructions

For the following questions answer them individually

Question 51

The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 16% per annum is Rs 320. What is the value of given sum (in Rs)?

A   25000

B   50000

C   37500

D   12500

   Answer: D

Explanation:

Let the given sum = Rs. $100x$

Rate of interest = 16% and time period = 2 years

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

= $100x\left[\left(1 + \frac{16}{100}\right)^2 - 1\right]$

= $100x\left[\left(\frac{29}{25}\right)^2 - 1\right] = 100x\left(\frac{841-625}{625}\right)$

= $100x \times \frac{216}{625} = \frac{864x}{25}$

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

= $\frac{100x \times 16 \times 2}{100} = 32x$

=> Difference between simple and compound interests = $\frac{864x}{25} - 32x = 320$

=> $\frac{864x - 800x}{25} = 320$

=> $64x = 320 \times 25$

=> $x = \frac{320 \times 25}{64} = 5 \times 25 = 125$

∴ Value of given sum = $100 \times 125 = Rs.12,500$

Question 52

Of the 5 numbers whose average is 76, the first is 3/7 times the sum of other 4. The first number is

A 171

B 114

C 76

D 228

Answer: B

Explanation:
Sum of the five numbers = $5 \times 76 = 380$

Let the first number = x and Sum of other 4 numbers = y

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

Also, => $x + y = 380$

=> $\frac{3y}{7} + y = 380$

=> $\frac{3y + 7y}{7} = 380$

=> $10y = 380 \times 7 = 2660$

=> $y = \frac{2660}{10} = 266$

∴ The first number = $x = \frac{3}{7} \times 266$

= $3 \times 38 = 114$

Question 53

What is the equation of the line passing through the point (2,-3) and making an angle of -45°with the positive X-axis?

A x - y = -5

B x - y = -1

C x + y = -5

D x + y = -1

Answer: D

Explanation:

Slope of line making an angle of -45° with the positive x-axis = $tan(-45°) = -tan(45°) = -1$

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

Equation of line passing through (2,-3) and slope = -1

=> $(y + 3) = -1(x - 2)$

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

=> $x + y = 2 - 3 = -1$

Question 54

If 2(3x-2) < 6-3x and 6x + 2(6-x) > 2x-2, then x can take which of the following values?

A -8

B 5

C 8

D -5

Answer: D

Explanation:

Expression 1 : 2(3x-2) < 6-3x

=> $6x - 4$ < $6 - 3x$

=> $6x + 3x$ < $6 + 4$ => $9x$ < 10

=> x < $\frac{10}{9}$

Expression 2 : 6x + 2(6-x) > 2x-2

=> $6x + 12 - 2x$ > $2x - 2$

=> $4x - 2x$ > $-2 - 12$ => $2x$ > -14

=> x > $\frac{-14}{2}$ > -7

Combining above inequalities, $-7 < x < \frac{10}{9}$

The only number that satisfies above inequality is -5

=> Ans - (D)

Question 55

If (36 - 16x) - (4x - 8) = 4, then the value of x is

A 4

B 2

C 6

D 3

Answer: B

Explanation:
Expression : $(36 - 16x) - (4x - 8) = 4$

=> $36 - 16x - 4x + 8 = 4$

=> $-20x = 4 - 44 = -40$

=> $x = \frac{-40}{-20} = 2$

=> Ans - (B)

Question 56

Marked price of an item is Rs 400. On purchase of 1 item discount is 6% and on purchase of 4 items discount is 24%. Rachita buys 5 items, what is the effective discount?

A 34 percent

B 20.4 percent

C 12.8 percent

D 23.25 percent

Answer: B

Explanation:
Marked price of item = Rs. 400

Amount saved on buying 1 item = $\frac{6}{100} \times 400 = Rs.24$

Marked price of 4 items = 4×400 = Rs. 1600

Amount saved on buying 4 items = $\frac{24}{100} \times 1600 = Rs.384$

Thus, on buying 5 items, total amount saved = 24 + 384 = Rs. 408

Total marked price of 5 items = 400 + 1600 = Rs. 2000

∴ Effective discount = $\frac{408}{2000} \times 100$

= $\frac{204}{10} = 20.4\%$

Question 57

In a triangle the length of the side opposite the angle which measures 60° is 6√3 cm. What is the length of the side opposite to the angle which measures 90°?

A 12√3 cm

B 6 cm

C 12 cm

D 3√3 cm

Answer: C

Explanation:

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

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 60° angle = 6√3 cm

=> Length of side opposite the 90° angle = $\frac{2}{\sqrt{3}} \times 6\sqrt{3} = 12$ cm

=> Ans - (C)

Question 58

What is the value of cot210°?

A 1/√3

B -1/√3

C √3

D -√3

Answer: C

Explanation:

Expression : cot 210°

= $cot(180°+30°) = cot30°$

= $\sqrt{3}$

=> Ans - (C)

Question 59

199994 x 200006 = ?

A 39999799964

B 39999999864

C 39999999954

D 39999999964

   Answer: D

Explanation:
Expression : 199994 x 200006

= (200000 - 6) x (200000 + 6)

= $(200000)^2 - (6)^2$

= 40000000000 - 36 = 39999999964

=> Ans - (D)

Question 60

A missile travels at 1260 km/h. How many metres does it travel in one second?

A 322 metres

B 369 metres

C 384 metres

D 350 metres

   Answer: D

Explanation:
Speed of missile = 1260 km/hr

=> Speed in m/s = $1260 \times \frac{5}{18}$

= $5 \times 70 = 350$ m/s

∴ In 1 second, it travels 350 metres

=> Ans - (D)

Question 61

If cot(A + B) = x, then value of x is

A (cotAcotB + 1)/(cotB - cotA)

B (cotAcotB + 1)/(cotB + cotA)

C (cotAcotB - 1)/(cotB + cotA)

D (cotAcotB - 1)/(cotB - cotA)

Answer: C

Explanation:

Expression : cot(A + B) = x

$$= \frac{cos(A+B)}{sin(A+B)}$$

$$= \frac{cosAcosB - sinAsinB}{sinAcosB + cosAsinB}$$

Dividing both numerator and denominator by $(sinAsinB)$, we get :

$$= \frac{cosAcosB - sinAsinB}{sinAsinB} \div \frac{sinAcosB + cosAsinB}{sinAsinB}$$

$$= \left(\frac{cosAcosB}{sinAsinB} - 1 \right) \div \left(\frac{cosB}{sinB} + \frac{cosA}{sinA} \right)$$

$$= \frac{cotAcotB - 1}{cotB + cotA}$$

=> Ans - (C)

Question 62

A shopkeeper, sold almonds at the rate Rs 1250 per kg and bears a loss of 7%. Now if he decides to sell it at Rs 1375 per kg, what will be the result?

A 4.6 percent gain

B 2.3 percent loss

C 2.3 percent gain

D 4.6 percent loss

Answer: C

Explanation:

Let Cost price = Rs. x

Selling price = Rs. 1250

=> Loss % = $\frac{x - 1250}{x} \times 100 = 7$

=> $\frac{x - 1250}{x} = \frac{7}{100}$

=> $100x - 125000 = 7x$

=> $x = \frac{125000}{93} \approx 1344$

If selling price = Rs. 1375

=> **Profit %** = $\frac{1375 - 1344}{1344} \times 100 \approx 2.3\%$

Question 63

If the volume of a cylinder is 3850 cubic cm and height is 25 cm, what is its radius? (Take π = 22/7)

A   7 cms

B   14 cms.

C   3.5 cms.

D   10.5 cms

Answer: A

Explanation:

Let radius of cylinder = r cm and height = 25 cm

Volume of cylinder = 3850 cm^3

=> $\pi r^2 h = 3850$

=> $\frac{22}{7} \times (r^2) \times 25 = 3850$

=> $r^2 = \frac{3850 \times 7}{22 \times 25} = \frac{77 \times 7}{11}$

=> $r = \sqrt{7 \times 7} = 7$ cm

Question 64

If $tan^2 A - sin^2 A = x$, then value of x is

A $tan^2 A sin^2 A$

B $cot^2 A cosec^2 A$

C $tan A sin A$

D $cot A cosec A$

Answer: A

Explanation:

Expression : $tan^2 A - sin^2 A = x$

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

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

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

= $tan^2 A sin^2 A$

Question 65

Madhur works 2 times faster than Sagar. If Sagar can complete a job alone in 18 days, then in how many days can they together finish the job?

A   5 days

B   2 days

C   6 days

D   4 days

   Answer: C

Explanation:

Let total work to be done = 18 units

Sagar's efficiency = $\frac{18}{18} = 1$ units/day

Madhur works 2 times faster than Sagar, => Madhur's efficiency = $1 \times 2 = 2$ units/day

Madhur and Sagar 1 day's work = 1 + 2 = 3 units/day

=> Time taken by them to finish the work together = $\frac{18}{3} = 6$ days

Question 66

The bus fare between two cities is increased in the ratio 11:18. What would be the increase in the fare, if the original fare is Rs 550?

A   Rs 350

B   Rs 900

C   Rs 180

D   Rs 360

   Answer: A

Explanation:

Let original fare = Rs. $11x$

=> New fare = Rs. $18x$

Also, original fare = $550 = 11x$

=> $x = \frac{550}{11} = 50$

∴ Increase in fare = $18x - 11x = 7x$

= $7 \times 50 = Rs.350$

Question 67

Dodecahedron has 30 edges. How many vertices does it have?

A 12

B 16

C 20

D 10

Answer: C

Explanation:

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

Dodecahedron has 30 edges and 12 faces.

=> $V = 2 + E - F = 2 + 30 - 12$

=> $V = 32 - 12 = 20$

=> Ans - (C)

Question 68

If xy = 22 and $x^2 + y^2$ = 100, then what will be the value of (x + y)?

A 12

B 144

C 72

D 6

Answer: A

Explanation:

Given : $(x^2 + y^2) = 100$ and $xy = 22$

Using $(x + y)^2 = x^2 + y^2 + 2xy$

=> $(x + y)^2 = 100 + (2 \times 22)$

=> $(x + y) = \sqrt{144} = 12$

=> Ans - (A)

Question 69

Which of the following equations has equal roots?

A $x^2 - 13x + 22 = 0$

B $x^2 - 7x + 10 = 0$

C $x^2 - 2x + 26 = 0$

D $x^2 + 8x + 16 = 0$

Answer: D

Explanation:

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

(A) : $x^2 - 13x + 22 = 0$

=> D = $(-13)^2 - 4(1)(22) = 169 - 88 = 81 \neq 0$

(B) : $x^2 - 7x + 10 = 0$

=> D = $(-7)^2 - 4(1)(10) = 49 - 40 = 9 \neq 0$

(C) : $x^2 - 2x + 26 = 0$

=> D = $(-2)^2 - 4(1)(26) = 4 - 104 = -100 \neq 0$

(D) : $x^2 + 8x + 16 = 0$

=> D = $(8)^2 - 4(1)(16) = 64 - 64 = 0$

Thus, the equation : $x^2 + 8x + 16 = 0$ has equal roots.

=> Ans - (D)

Question 70

The point P(5,-2) divides the segment joining the points (x,0) and (0,y) in the ratio 2:5. What is the value of x and y?

A   x = -7; y = 7

B   x = 3; y = -3

C   x = 7; y = -7

D   x = -3; y = 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

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

Now, point P (5,-2) divides (x,0) and (0,y) in ratio = 2 : 5

=> $5 = \frac{(2 \times 0) + (5 \times x)}{2 + 5}$

=> $x = \frac{5 \times 7}{5} = 7$

Similarly, $-2 = \frac{(2 \times y) + (5 \times 0)}{2 + 5}$

=> $y = -1 \times 7 = -7$

Question 71

Two students appeared for an examination. One of them secured 20 marks more than the other and his marks were 55% of the sum of their marks. The marks obtained by them are

A 92 and 72

B 83 and 63

C 110 and 90

D 64 and 44

Answer: C

Explanation:
Let marks scored by 1st student = x

=> Marks scored by another student = $(x + 20)$

According to question, => $(x + 20) = \frac{55}{100} \times (x + x + 20)$

=> $x + 20 = \frac{11}{10} \times (x + 10)$

=> $10x + 200 = 11x + 110$

=> $11x - 10x = 200 - 110 = 90$

=> $x = 90$

∴ Marks scored by other student = 90 + 20 = 110

Question 72

Refer the below data table and answer the following question

	Number of employees	Annual Salary (in lakh)	Bonus as percent of annual salary
Manager	3	54	60%
Executive	6	16	20%
Trainee	1	2	20%

What is the average bonus in rupees?

A 1168000

B 11680000

C 240000

D 360000

Answer: A

Explanation:

Total bonus of managers (in lakh) = $3 \times 54 \times \frac{60}{100} = 97.2$ lakhs

Total bonus of executive (in lakh) = $6 \times 16 \times \frac{20}{100} = 19.2$ lakhs

Total bonus of trainee (in lakh) = $1 \times 2 \times \frac{20}{100} = 0.4$ lakhs

=> Average bonus in rupees = $\frac{(97.2+19.2+0.4)}{(3+6+1)}$

= $\frac{116.8}{10} = 11.68$ lakhs = 1168000

Question 73

Refer the below data table and answer the following question

	2011	2012	2013	2014	2015
Company A	1000	2000	3000	3000	2000
Company B	2000	1000	4000	1000	2000
Company C	3000	5000	5000	4000	3000

For which of the following pairs of years the total exports from the three Companies together are equal? (Note: Figures given are in lakh rupees)

A 2011 & 2013

B 2012 & 2014

C 2011 & 2012

D 2014 & 2015

Answer: B

Explanation:

Total exports from the three companies together in :

2011 = 1000 + 2000 + 3000 = 6000

2012 = 2000 + 1000 + 5000 = 8000

2013 = 3000 + 4000 + 5000 = 12000

2014 = 3000 + 1000 + 4000 = 8000

2015 = 2000 + 2000 + 3000 = 7000

Clearly, total exports in 2012 and 2014 are equal to 8000

=> Ans - (B)

Question 74

Refer the below data table and answer the following question

Year	Profit or loss in Rs. Crore
2011	-10
2012	-20
2013	-5
2014	20
2015	25

What was the total profit or loss of the company in last 5 years ?

A   Loss of Rs 10 crores

B   Profit of Rs 20 crores

C   Profit of Rs 10 crores

D   Loss of Rs 20 crores

Answer: C

Explanation:
Total profit or loss in Rs. crore in last 5 years

= -10 -20 -5 + 20 + 25 = 45 - 35

= Rs. 10 crore

Since, it is positive, thus profit of Rs. 10 crore

=> Ans - (C)

Question 75

Refer the below data table and answer the following question

India's Exports in 2015	Value in million US$
Jewellery	500
Software	825
Cotton	550
Steel	850
Electronics	750

Software was what percent of total exports ?

A   26.24 percent

B 28.74 percent

C 21.24 percent

D 23.74 percent

Answer: D

Explanation:

Value in millions of software = 825

Total exports = 500 + 825 + 550 + 850 + 750 = 3475

=> % of software in total exports = $\frac{825}{3475} \times 100$

= $\frac{3300}{139} = 23.74\%$

=> Ans - (D)

English

Instructions

For the following questions answer them individually

Question 76

Rearrange the parts of the sentence in correct order.

His exact date of birth is not known
P-but it is believed that he was born in
Q- late May and later on he decided to celebrate May 29 as his birthday,
R- as this was the date he climbed Everest

A PRQ

B PQR

C QRP

D RPQ

Answer: B

Question 77

Rearrange the parts of the sentence in correct order.

Today, less privileged white
P- Americans are considered to be
Q- and pathologists predominates
R- in crisis, and the language of sociologists

A   PRQ

B   QPR

C   RPQ

D   QRP

   Answer: A

Question 78

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.

Vicky said, "I clean my teeth daily."

A   Vicky said he cleans his teeth daily.

B   Vicky says he cleans his teeth daily.

C   Vicky said that he cleaned his teeth daily.

D   Vicky said that he used to clean his teeth daily.

   Answer: C

Question 79

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.

Nobody gets _____ with a pretentious smug.

A   along

B   up

C   about

D   through

   Answer: A

Question 80

Improve the bracketed part of the sentence.

As the financial situation worsened we realized that we were heading (toward) a disaster.

A along

B into

C for

D no improvement

Answer: C

Question 81

Improve the bracketed part of the sentence.

After today's terrible test I am sure that my teacher's opinion (about) me will change for the worse.

A for

B of

C in

D no improvement

Answer: D

Question 82

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

Actions speak louder than words

A Achievers are better than those who talk big

B No action can compensate for saying bad words

C A pen is mightier than a sword

D What someone does mean more than what they say they will do

Answer: D

Question 83

Select the antonym of coalesce

A separate

B adhere

C cleave

D amalgamate

Answer: A

Question 84

Select the antonym of loiter

A lag

B hasten

C amble

D loll

Answer: B

Question 85

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

The outer layer of the cerebrum (part of the brain), composed of folded grey matter, plays an important role in the consciousness.

A victor

B cortex

C scrub

D capered

Answer: B

Question 86

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 was taken by surprise (A)/when I came(B)/face to face with my school friend.(C)/No error(D)

A   A

B   B

C   C

D   D

Answer: D

Question 87

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

A hot spring in which water intermittently boils, pushing a tall column of water and steam into the air.

A   geyser

B   smite

C   brew

D   pitted

Answer: A

Question 88

Select the word with the correct spelling.

A   sylabus

B   encroach

C   coalesse

D   adhetion

Answer: B

Question 89

Select the word with the correct spelling.

A sargeons

B divorsee

C depicted

D parlancee

Answer: C

Question 90

Select the synonym of gregarious

A introvert

B melancholy

C affable

D pensive

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'.

The factory complex houses a shop-floor(A)/and 10 cubicles for the staff in an area(B)/of about thousand squares meters.(C)/No error(D)

A A

B B

C C

D D

Answer: C

Question 92

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.

Even if two horses may look _____, they may not be of the same age.

A   comparable

B   alike

C   on par

D   only same

   Answer: B

Question 93

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.

Do you intimidate your younger brothers?

A   Were your younger brothers being intimidated by you?

B   Are your younger brothers intimidated by you?

C   Have your younger brothers being intimidated by you?

D   Are your younger brothers being intimidated by you?

   Answer: D

Question 94

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

A blessing in disguise

A   A misfortune that eventually has good results

B   A person who has changed so much that he is now unrecognisable

C   A prayer asking for God's favour

D   A bad person hiding his face behind a mask

   Answer: A

Question 95

Select the synonym of reassert

A   renounce

B   acknowledge

C   disbelief

D   conceal

   Answer: B

Instructions

In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

Once again, a _____ monsoon so vital to India's economic fortunes has left some states in shambles. From Assam to Karnataka, heavy rainfall in a _____ has created paralysing floods that have taken a _____, wiped out crops and destroyed hard-earned assets. When the waters _____, a familiar cycle of assessment of damage by Central teams, preparation of loss estimates and expensive _____ work such as repairs of river embankments, will follow.

a _____ monsoon so vital to India's economic fortunes

Question 96

a _____ monsoon so vital to India's economic fortunes

A   rapid

B   huge

C   thunder

D   vigorous

   Answer: D

Question 97

heavy rainfall in a _____

A   short span of time

B   very quickly

C   short moments

D   fraction of a second

Answer: A

Question 98

floods that have taken a _____

A   many deaths

B   dangerous turn

C   heavy toll of life

D   big cost in terms of life

Answer: C

Question 99

When the waters _____,

A   rush back

B   recede

C   flow away

D   ebb

Answer: B

Question 100

expensive _____ work such as repairs of river embankments, will follow.

A   rejuvenation

B   reclamation

C   renovation

D   restoration

Answer: D

SSC CHSL 9 Jan 2017 Evening Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/number from the given alternatives.
PHOTOGRAPHER : CAMERA : : WRITER : ?

A PEN

B BALL

C FRETSAW

D KNIFE

　　Answer: A

Explanation:

A photographer uses camera to click pictures, similarly a writer uses a *pen* to write.

=> Ans - (A)

Question 2

Select the related word/letters/number from the given alternatives.
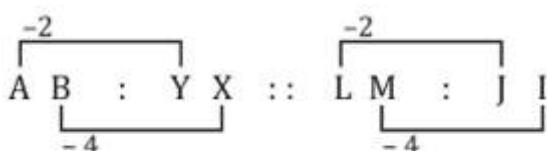
AB : YX : : LM : ?

A NM

B OP

C JI

D GH

　　Answer: C

Explanation:

Expression = AB : YX : : LM : ?

The pattern followed is :

Thus, LM : **JI**

=> Ans - (C)

Question 3

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

DA : FE : : HI : ?

A   KO

B   JM

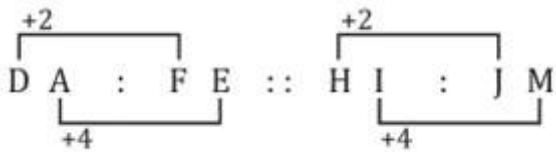**C**   JK

D   KJ

   Answer: B

Explanation:

Expression = DA : FE : : HI : ?

The pattern followed is :

Thus, HI : **JM**

=> Ans - (B)

Question 4

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

2 : 16 : : 3 : ?

A   340

B   81

C   243

D   122

   Answer: B

Explanation:

Expression = 2 : 16 : : 3 : ?

The pattern followed is = $x : x^4$

Eg :- $2 : 2^4 = 2 : 16$

Similarly, $3^4 = 81$

=> Ans - (B)

Question 5

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

A   Aizawl

B   Agartala

C   Shillong

D   Darjeeling

   Answer: D

Explanation:
Aizawl is the capital of Mizoram, Agartala is the capital of Tripura and Shillong is capital of Meghalaya while Darjeeling is not a capital city, hence it is the odd one out.

=> Ans - (D)

Question 6

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

A   VT

B   FD

C   PN

D   JM

   Answer: D

Explanation:
(A) : V (-2 letters) = T

(B) : F (-2 letters) = D

(C) : P (-2 letters) = N

(D) : J (**+3** letters) = M

=> Ans - (D)

Question 7

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

A 13981

B 93172

C 47542

D 67325

   Answer: D

Explanation:

The sum of digits of first three numbers is 22, while $6 + 7 + 3 + 2 + 5 = 23$, hence 67325 is the odd one out.

=> Ans - (D)

Question 8

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

A 5712

B 6212

C 3811

D 7831

   Answer: A

Explanation:

Among the given numbers, only 5712 is divisible by 3, hence it is the odd one out.

=> Ans - (A)

Question 9

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

Jallianwala Bagh Massacre, Simon Commission, Dandi March, ?

A Quit-India Movement

B Advent of British

C Advent of French

D Champaran Satyagraha

Answer: A

Explanation:
Historical events in periodical order are given.

= Jallianwala Bagh Massacre -> Simon Commission -> Dandi March -> Quit-India Movement

=> Ans - (A)

Question 10

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

ZA, XC, TG, NM, ?

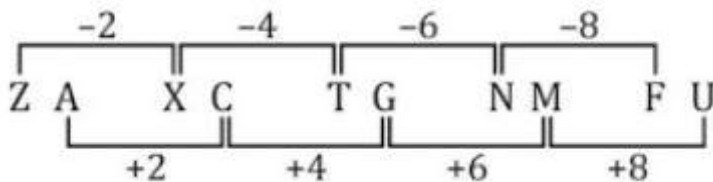**A** KL

B FU

C LM

D TG

Answer: B

Explanation:
Expression : ZA, XC, TG, NM, ?

The pattern followed in each letter of the terms is :

Thus, missing term = **FU**

=> Ans - (B)

Question 11

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

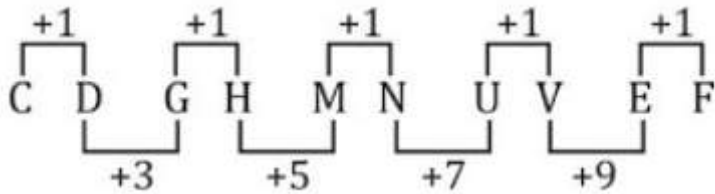**CD, ? , MN, UV, EF**

A EF

B GH

C KL

D MN

   Answer: B

Explanation:

Expression : CD, ? , MN, UV, EF

The pattern followed is :

Thus, missing term = **GH**

=> Ans - (B)

Question 12

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

72, 56, 42, 30, 20, ?

A 22

B 20

C 12

D 64

   Answer: C

Explanation:

Consecutive even numbers in decreasing order are subtracted.

72 - 16 = 56

56 - 14 = 42

42 - 12 = 30

30 - 10 = 20

20 - 8 = **12**

=> Ans - (C)

Question 13

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:
(I) Some white is black.
(II) No black is green.

Conclusion:
(I) Some white is green.
(II) Some white is not green.

A   Conclusion I follows

B   Conclusion II follows

C   Either 1 or 2 follows

D   Both I and II follows

   Answer: C

Question 14

If 1st January 2013 was Wednesday, then what day of the week was it on 2nd January 2014?

A   Wednesday

B   Thursday

C   Tuesday

D   Friday

   Answer: D

Explanation:
According to the question, 1st January 2013 is Wednesday

Number of days left in January = $31 - 1 = 30$

Similarly, odd days from 1st January 2013 till 2nd January 2014 =

= $(30 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31 + 30 + 31 + 2)\%7$

= $(2 + 0 + 3 + 2 + 3 + 2 + 3 + 3 + 2 + 3 + 2 + 3 + 2) = 30$

Now, dividing 30 by 7, remainder = 2

Thus, day on 2nd January 2014 = Wednesday (+2) = Friday

=> Ans - (D)

Question 15

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

i. Victory
ii. Victorious
iii. Vaccine
iv. Vacancy

A   ii, i, iii, iv

B   ii, i, iv, iii

C   ii, iv, iii, i

D   iv, iii, ii,i

   Answer: D

Explanation:
As per the order of dictionary :

= Vacancy -> Vaccine -> Victorious -> Victory

≡ iv, iii, ii,i

=> Ans - (D)

Question 16

In a certain code language, 'TRUMPET' is written as '7591427' and 'SORROW' is written as '385586'. How is 'EMPRESS' written in that code language?

A   2145237

B   2145233

C   2154323

D   3154233

   Answer: B

Explanation:
The codes for each letter is given :

E -> 2
M -> 1
P -> 4
R -> 5
E -> 2

S -> 3

S -> 3

Thus, EMPRESS : **2145233**

=> Ans - (B)

Question 17

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

7	13	17
5	?	3
35	104	51

A 8

B 12

C 7

D 9

Answer: A

Explanation:

The number at the end in each column is obtained by multiplying the other two.

Eg :- $7 \times 5 = 35$ and $17 \times 3 = 51$

Similarly, $13 \times x = 104$

=> $x = \frac{104}{13} = 8$

=> Ans - (A)

Question 18

If "P" denotes "multiplied by", "R" denotes "subtracted from", "S" denotes "added to" and "Q" denotes "divided by", then 6 P 7 S 169 Q 13 R 5 = ?

A 55

B 50

C 45

D 43

Answer: B

Explanation:

Expression : 6 P 7 S 169 Q 13 R 5 = ?

$\equiv 6 \times 7 + 169 \div 13 - 5$

= $42 + \frac{169}{13} - 5$

= $37 + 13 = 50$

=> Ans - (B)

Question 19

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

T_ST_S_U_T_S

A UUSTT

B TUUTS

C TTSTU

D UUTSU

   Answer: D

Explanation:

The pattern followed is that in groups of 3, the terms 'TUS' is repeated.

= T**U**S T**U**S **TU**S TU**S**

=> Ans - (D)

Question 20

Vishal travels 8 km towards east, then turns left and travels another 5 km, and then he turns 270 degrees anticlockwise. Which direction is he facing now?
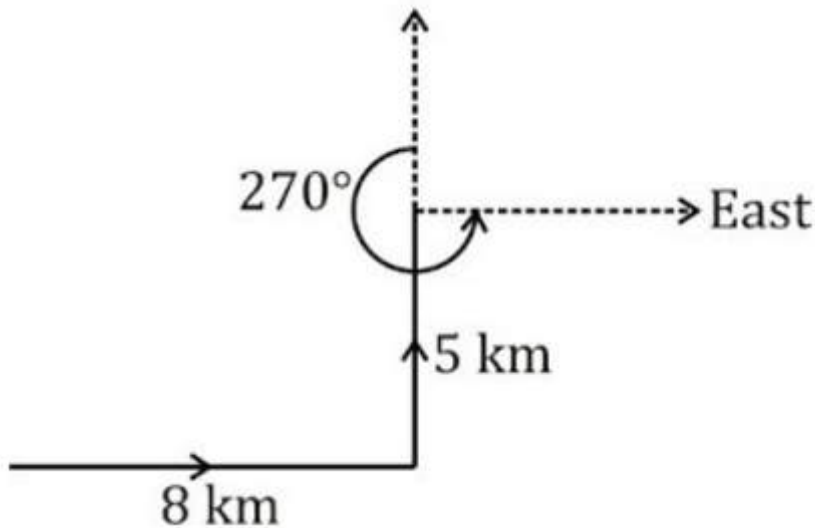
A West

B East

C North

D South

   Answer: B

Explanation:

Vishal travels 8 km towards east, then turns left and travels towards north for another 5 km, and then he turns 270 degrees anticlockwise.

Thus, he is facing east direction at the end.

=> 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, 'E' can be represented by 11, 00 etc. and '5' can be represented by 20, 75 etc. Similarly, you have to identify the set for the word 'FLOW'.

Matrix - I

	0	1	2	3	4
0	E	R	G	N	A
1	D	E	N	K	S
2	S	N	F	L	O
3	N	Y	H	O	R
4	F	U	O	N	T

Matrix - II

	5	6	7	8	9
5	F	Q	R	S	I
6	L	R	S	Y	E
7	S	L	R	E	F
8	G	J	L	S	P
9	H	E	W	L	O

A   22, 23, 98, 11

B   79, 65, 11, 77

C   40, 87, 99, 97

D   55, 66, 11, 58

   Answer: C

Explanation:
(A) : 22, 23, 98, 11 = FLLE

(B) : 79, 65, 11, 77 = FLER

(C) : 40, 87, 99, 97 = **FLOW**

(D) : 55, 66, 11, 58 = FRES

=> Ans - (C)

Question 22

**Ramesh and Suresh are brothers. Dharmendra is the father of Ramesh and Sunita is the wife of Suresh's only brother. Sapna is the daughter of Sunita. How is Sapna related to Dharmendra?**

A   Daughter

B   Sister-in-law

C   Niece

D   Granddaughter

Answer: D

Explanation:
Ramesh and Suresh are brothers and Dharmendra is the father of Ramesh.

Sunita is the wife of Suresh's only brother, => Sunita is the wife of Ramesh.

Sapna is the daughter of Sunita, => Ramesh is father of Sapna.

Thus, Sapna is granddaughter of Dharmendra.

=> 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 ?
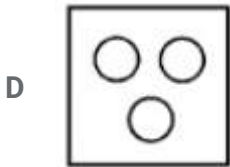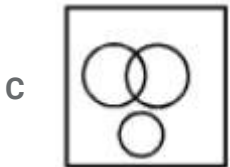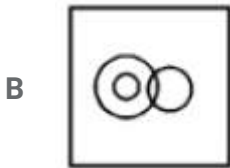

A

B

C

D
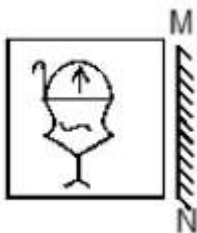
Answer: D

Question 24

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

Utensils, Mugs, Calculator

A
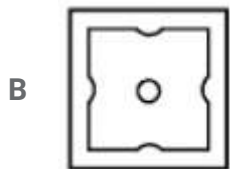

B

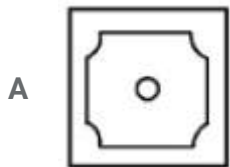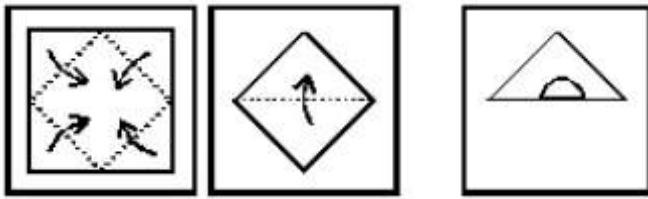

C

D

Answer: A

Question 25

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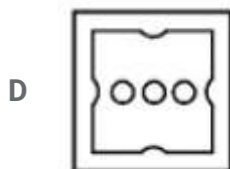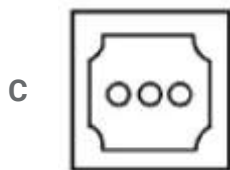
A

B

C

D

Answer: A

General Awareness

Instructions

For the following questions answer them individually

Question 26

The tag line "Do no Evil" is owned by

A   Yahoo

B   Bing

C   Google

D   Start page

   Answer: C

Question 27

Electric chair was invented by

A   Alfred P. Southwick

B   Isaac Singer

C   Murasaki Shikibu

D   Hanaoka Seish?

   Answer: A

Question 28

Brain fever is a disease spread through which of the following?

A   Flies

B   Mosquito

C   Virus

D   Cockroach

   Answer: B

Question 29

Mangroves are plants that have

A   Modified Roots

B   Modified Stems

C   Respiratory Roots

D   Respiratory Stems

   Answer: C

Question 30

Rodentia Sciurus is the scientific name of

A Rat

B Platypus

C Squirrel

D Beaver

Answer: C

Question 31

The reactions in which oxidation and reduction occur simultaneously are called _____.

A Feral reactions

B Redox reactions

C Demug reactions

D Kerol reactions

Answer: B

Question 32

Who discovered Nitrogen?

A Faraday

B Heisenberg

C Hooke

D Rutherford

Answer: D

Question 33

Odisha's World famous Konark Sun Temple was built by

A Krushadevray

B Ashoka

C Chandragupta

D Narasimhadeva

   Answer: D

Question 34

Nepali is primarily spoken in which State?

A Karnataka

B Rajasthan

C Sikkim

D Andhra Pradesh

   Answer: C

Question 35

A manufacturer faces price elasticity of demand of a -2 for its product. If it lowers its price by 5%, the increase in quantity sold will be

A 3%

B 10%

C 2.50%

D 7%

   Answer: B

Question 36

If cash reserve ratio decreases, credit creation will _____.

A increase

B decrease

C does not change

D first decreases than increases

Answer: A

Question 37

Device used for the detection and measurement of all types of radiation (alpha, beta and gamma)

A Geiger counter

B Polarimeter

C Calorimeter

D Radiometer

Answer: A

Question 38

Haematite is an ore/mineral of

A Zinc

B Iron

C Lead

D Manganese

Answer: B

Question 39

Name the lead actor in the hollywood movie "Top Gun"?

A Harrison Ford

B Tom Cruise

C Mel Gibson

D Nicolas Cage

Answer: B

Question 40

The study of universe is known as _____.

A Cosmology

B Astrology

C Seismology

D Limnology

Answer: A

Question 41

Shortest day in the Northern hemisphere is _____.

A 22nd November

B 22nd December

C 22nd March

D 22nd June

Answer: B

Question 42

Adolf Hitler, the _____ Politician was responsible for genocide of millions of Jews.

A German

B French

C Austrian

D British

Answer: A

Question 43

Prithviraj Chauhan married _____. She was the daughter of his enemy Jaichandra Gahadwal.

A Krishnavati

B Purvavati

C Somyukta

D Saumyavati

Answer: C

Question 44

_____ is the 2016 Oscar Winner for Best Foreign Language Film.

A Son of Saul

B Embrace of the Serpent

C Mustang

D A War

Answer: A

Question 45

If a ball is thrown up, which of the following does not change?

A Acceleration

B Speed

C Potential energy

D Distance

Answer: A

Question 46

If a body is moving on a circular path, what is its average velocity if it completes one cycle in one second?

A Average velocity depends upon time taken to complete one cycle

B One

C Average velocity is same as average speed

D Zero

Answer: D

Question 47

What is the maximum number of Members of the Rajya Sabha?

A   150

B   200

C   250

D   300

Answer: C

Question 48

What does the wheel in the National Flag represent?

A   Speed

B   Truth

C   Growth

D   Future

Answer: B

Question 49

K Srikanth has won Arjuna Award for which sport in India?

A   Badminton

B   Billiards

C   Boxing

D   Chess

Answer: A

Question 50

Who is the author of the book "A Life Less Ordinary : A Memoir"?

A Salman Rushdie

B Arundhati Roy

C Baby Halder

D Rohinton Mistry

   Answer: C

Mathematics

Instructions
For the following questions answer them individually

Question 51

On dividing $24a^2b^2$ by $6b^2$, we will get

A $4b^2$

B $4a^2$

C $4a^2b^2$

D 4

   Answer: B

Explanation:
On dividing $24a^2b^2$ by $6b^2$

= $\frac{24.a^2.b^2}{6.b^2}$

= $4a^2$

=> Ans - (B)

Question 52

To travel 612 km, an Express train takes 9 hours more than Rajdhani. If the speed of the Express train is doubled, it takes 3 hours less than Rajdhani. The speed (in km/hr) of Rajdhani is

A 40.8

B 51

C 30.6

D 61

Answer: A

Explanation:

Let speed of Rajdhani train = x km/hr and Express train = y km/hr

Using, time = distance/speed

Acc. to ques, => $\frac{612}{y} - \frac{612}{x} = 9$

=> $\frac{1}{y} - \frac{1}{x} = \frac{9}{612} = \frac{1}{68}$ --------------(i)

If speed of express train is doubled = $2y$ km/hr

=> $\frac{612}{x} - \frac{612}{2y} = 3$

=> $\frac{1}{x} - \frac{1}{2y} = \frac{3}{612} = \frac{1}{204}$ --------------(ii)

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

=> $\frac{1}{y} - \frac{1}{2y} = \frac{1}{68} + \frac{1}{204}$

=> $\frac{1}{2y} = \frac{4}{204}$

=> $y = \frac{102}{4} = \frac{51}{2}$ km/hr

$\therefore$ Speed of Rajdhani = $\frac{1}{x} = \frac{2}{51} - \frac{1}{68}$

=> $\frac{1}{x} = \frac{1}{17} \times \frac{5}{12}$

=> $x = \frac{204}{5} = 40.8$ km/hr

Question 53

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

A cotA

B tanA

C sinA

D cosA

Answer: B

Explanation:

Expression : $\frac{1}{\sqrt{(Cosec^2 A - 1)}} = x$

Using $(cosec^2 A - cot^2 A = 1)$

$$= \frac{1}{\sqrt{cot^2 A}}$$

$$= \frac{1}{cot A} = tan A$$

=> Ans - (B)

Question 54

Pradeep has done 1/4th of a job in 14 days, Saquib completes the rest of the job in 56 days. In how many days can they together complete the job?

A 64 days

B 32 days

C 16 days

D 8 days

Answer: B

Explanation:

Let total work to be done = 56 units

Pradeep has done 1/4 of a job i.e. $\frac{56}{4} = 14$ units in 14 days

=> Pradeep's efficiency = $\frac{14}{14} = 1$ unit/day

Work left = 56 - 14 = 42 units which is done by Saquib in 56 days

=> Saqub's efficiency = $\frac{42}{56} = 0.75$ units/day

Pradeep and Saquib 1 day's work = 1 + 0.75 = 1.75 units/day

$\therefore$ Time taken by them together to complete the work = $\frac{56}{1.75} = 32$ days

Question 55

What is the value of cosec $\frac{3\pi}{4}$?

A $-\sqrt{2}$

B $\sqrt{2}$

C $\frac{2}{\sqrt{3}}$

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

Answer: B

Explanation:

Expression : cosec $\frac{3\pi}{4}$

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

= $cosec\frac{\pi}{4} = \sqrt{2}$

=> Ans - (B)

Question 56

What is the value of 2 consecutive natural numbers, sum of whose squares is 145?

A 8, 9

B 6, 7

C 13, 14

D 9, 1

Answer: A

Explanation:

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

Sum of squares = $(x)^2 + (x + 1)^2 = 145$

=> $x^2 + x^2 + 2x + 1 = 145$

=> $2x^2 + 2x - 144 = 0$

=> $x^2 + x - 72 = 0$

=> $x^2 + 9x - 8x - 72 = 0$

=> $x(x + 9) - 8(x + 9) = 0$

=> $(x - 8)(x + 9) = 0$

=> $x = 8, -9$

Since, x is a natural number, it can't be negative.

∴ The natural numbers are 8 and 9

Question 57

$\left[\frac{SinA}{(1+CosA)}\right] + \left[\frac{(1+CosA)}{SinA}\right]$ **is equal to**

A 2secA

B 2cosecA

C 2tanA

D 2cotA

Answer: B

Explanation:

Expression : $\left[\frac{SinA}{(1+CosA)}\right] + \left[\frac{(1+CosA)}{SinA}\right]$

Taking L.C.M, we get :

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

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

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

$= \frac{2+2cosA}{sinA(1+cosA)} = \frac{2(1+cosA)}{sinA(1+cosA)}$

$= \frac{2}{sinA} = 2cosecA$

Question 58

If in a two digit number, the digit at unit place is z and the digit at tens place is 8, then the number is

A 80z + z

B 80 + z

C 8z + 8

D 80z + 1

Answer: B

Explanation:

Digit at unit's place = z

Digit at ten's place = 8

=> 2-digit number = $(10 \times 8) + (1 \times z)$

= 80 + z

=> Ans - (B)

Question 59

A shopkeeper by selling 17 Omega watches, earns a profit equal to the selling price of 7 Omega watches. What is his profit percentage?

A 41.1 percent

B 82.2 percent

C 58.82 percent

D 12.2 percent

Answer: C

Explanation:

Let Cost price of 1 watch = Rs. x

Let Selling price of 1 watch = Rs. y

Profit of 17 watches = Rs. 17 (y - x)

According to ques, => $17(y - x) = 7y$

=> $17y - 17x = 7y$

=> $17x = 17y - 7y = 10y$

=> $\frac{x}{y} = \frac{10}{17}$

∴ Profit % = $\frac{x}{y} \times 100$

= $\frac{10}{17} \times 100 = 58.82\%$

Question 60

The mean of marks secured by 30 students in division-A of class X is 67, 55 students of division-B is 63 and that of 40 students of division-C is 61. What is the mean of marks of the students of three divisions of Class X?

A 63.32

B 62.62

C 61.92

D 64.72

Answer: A

Explanation:

Total marks secured by 35 students in division A = 30 × 67 = 2010

Total marks secured by 45 students in division B = 55 × 63 = 3465

Total marks secured by 70 students in division C = 40 × 61 = 2440

=> Mean of marks of the students of three divisions of Class X = $\frac{(2010+3465+2440)}{(30+55+40)}$

= $\frac{7915}{125} = 63.32$

Question 61

ABCD is a parallelogram. Co-ordinates of A, B and C are (5,0), (-2,3) and (-1,4) respectively. What will be the equation of line AD?

A y = 2x - 5

B y = x + 5

C y = 2x + 5

D y = x - 5

    Answer: D

Explanation:
Coordinates of A (5,0) , B (-2,3) and C (-1,4). Let coordinates of D = (x,y)

ABCD is a parallelogram and AB is parallel to CD, thus slopes of AB and CD are equal.

=> $\frac{3-0}{-2-5} = \frac{4-y}{-1-x}$

=> $\frac{-3}{7} = \frac{4-y}{-1-x}$

=> $3 + 3x = 28 - 7y$

=> $3x + 7y = 25$ --------------(i)

Also, BC is parallel to AD

=> $\frac{3-4}{-2+1} = \frac{y-0}{x-5}$

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

Substituting value of 'y' in equation (i), we get : $3x + 7(x - 5) = 25$

=> $3x + 7x - 35 = 25$

=> $x = \frac{60}{10} = 6$

Putting it in equation (ii), => $y = 6 - 5 = 1$

Now, equation of line AD with coordinates (5,0) and (6,1)

=> $(y - 0) = \frac{1-0}{6-5}(x - 5)$

=> $y = x - 5$

Question 62

At what rate of compound interest per annum will a sum of Rs 50000 become Rs 73205 in 2 years?

A 21 percent

B 19 percent

C 17 percent

D 15 percent

Answer: A

Explanation:

Let rate of interest = $r\%$

Sum = Rs. 50,000

Amount after 2 years = Rs. 73,205

Amount under compound interest = $P(1 + \frac{R}{100})^T$

=> $50000(1 + \frac{r}{100})^2 = 73205$

=> $(1 + \frac{r}{100})^2 = \frac{73205}{50000} = 1.4641$

=> $1 + \frac{r}{100} = \sqrt{1.4641} = 1.21$

=> $\frac{r}{100} = 1.21 - 1 = 0.21$

=> $r = 0.21 \times 100 = 21\%$

Question 63

A bag has Rs 30.8 in the form of 1 rupee, 50 paise and 10 paise coins in the ratio of 6:3:2. What is the number of 50 paise coins?

A 8

B 24

C 12

D 16

Answer: C

Explanation:

Let the number of 1 rupee, 50 paise and 10 paise coins be $6x, 3x, 2x$ respectively

Total amount in the bag = Rs 30.8

=> $(1 \times 6x) + (\frac{50}{100} \times 3x) + (\frac{10}{100} \times 2x) = 30.8$

=> $6x + \frac{3x}{2} + \frac{x}{5} = 30.8$

=> $\frac{60x + 15x + 2x}{10} = 30.8$

=> $77x = 30.8 \times 10 = 308$

=> $x = \frac{308}{77} = 4$

∴ Number of 50 paise coins = $3 \times 4 = 12$

Question 64

Reflection of the point (-3,6) in the x-axis is

A (3,6)

B (6,-3)

C (-3,-6)

D (-6,3

   Answer: C

Explanation:

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

=> Reflection of point (-3,6) = (-3,-6)

=> Ans - (C)

Question 65

The Simplified form of $\frac{(b^3 x^2 a^4 z^3) \times (b^4 x^3 a^3 z^2)}{(a^2 b^4 z^3)}$ **is**

A $b^2 x^4 a^6 z$

B $b^3 x^2 a^4 z^3$

C $b^3 x^5 a^5 z^2$

D $b^3 a^5 z$

   Answer: C

Explanation:

Expression : $\frac{(b^3 x^2 a^4 z^3) \times (b^4 x^3 a^3 z^2)}{(a^2 b^4 z^3)}$

= $(a)^{4+3-2} \times (b)^{3+4-4} \times (x)^{2+3} \times (z)^{3+2-3}$

= $(a)^5 (b)^3 (x)^5 (z)^2$

=> Ans - (C)

Question 66

Two students appeared for an examination. One of them secured 13 marks more than the other and his marks were 76% of the sum of their marks. The marks obtained by them are

A 19 and 6

B 34 and 21

C 102 and 89

D 92 and 79

   Answer: A

Explanation:

Let marks scored by 1st student = x

=> Marks scored by another student = $(x + 13)$

According to question, => $(x + 13) = \frac{76}{100} \times (x + x + 13)$

=> $x + 13 = \frac{19}{25} \times (2x + 13)$

=> $25x + 325 = 38x + 247$

=> $38x - 25x = 325 - 247 = 78$

=> $x = \frac{78}{13} = 6$

$\therefore$ Marks scored by other student = 6 + 13 = 19

Question 67

What least number must be added to 1039, so that the sum obtained is completely divisible by 29?

A 4

B 5

C 8

D 6

   Answer: B

Explanation:

Factorizing 1039 = 29 × 35 + 24

Thus, on dividing 1039 by 29, the remainder is 24

$\therefore$ The number that must be added to 1039 so that the sum obtained is completely divisible by 29

= 29 - 24 = 5

=> Ans - (B)

Question 68

If a merchant offers a discount of 4% on the list price, then she makes a loss of 10%. What % profit or % loss will she make if she sells at a discount of 20% of the list price?

A 25 percent loss

B 4 percent loss

C 50 percent profit

D 26 percent profit

Answer: A

Explanation:
Let list price = Rs. $100x$

After 4% discount, selling price = $\frac{96}{100} \times 100x$ = Rs. $96x$

Let Cost price = Rs. y

=> Loss % = $\frac{y-96x}{y} \times 100 = 10$

=> $\frac{y-96x}{y} = \frac{10}{100} = \frac{1}{10}$

=> $10y - 960x = y$

=> $10y - y = 960x$

=> $y = \frac{960x}{9} = 106.67x$

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

$\therefore$ Loss % = $\frac{106.67x-80x}{106.67x} \times 100$

$\approx 25\%$

Question 69

An angle is smaller than its supplementary by 30°. What is the measure of the angle?

A 75°

B 105°

C 60°

D 30°

Answer: A

Explanation:
Let the angle = θ

Its supplementary angle = $(\theta + 30°)$

Sum of an angle and its supplementary angle = 180°

=> $\theta + (\theta + 30°) = 180°$

=> $2\theta = 180° - 30° = 150°$

=> $\theta = \frac{150}{2} = 75°$

Question 70

A square is inscribed in a circle. If the side of the square is 14 cm, what is the area (in sq.cm) of the circle?

A 49π

B 77π

C 121π

D 98π

Answer: D

Explanation:
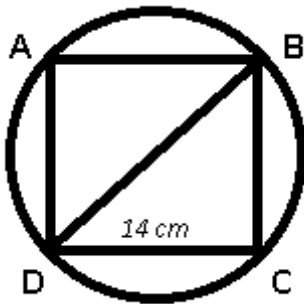
Square is inscribed in circle, thus diagonal of square = diameter of circle

Side of square = BC = CD = 14 cm

In △ BCD

=> $BD = \sqrt{(BC)^2 + (CD)^2}$

=> $BD = \sqrt{(14)^2 + (14)^2} = \sqrt{196 + 196}$

=> $BD = \sqrt{392} = 14\sqrt{2}$

=> Radius of circle $r = 7\sqrt{2}$ cm

∴ Area of circle = πr^2

= $\pi(7\sqrt{2})^2 = 98\pi cm^2$

Question 71

A wooden bowl is in shape of a hollow hemisphere of internal radius 7 cm and thickness 1 cm. What is the total surface area (in sq.cm) of the bowl? (Take: π = 22/7)

A 710.29

B 757.43

C 355.14

D 908.9

Answer: B

Explanation:
The hemispherical bowl has three surfaces to calculate : the interior hemisphere $(r_{int} = 7)$ cm , the exterior hemisphere $(r_{ext} = 7 + 1 = 8)$ cm and the annular(ring shaped) top edge (r_{ext}, r_{int})

Area of hemisphere = $2\pi r^2$ and area of annular = $\pi(r_{ext}^2 - r^2 int)$

Total surface area of hemisphere is the sum of these 3 areas

$= [2\pi(7)^2] + [2\pi(8)^2] + [\pi(8^2 - 7^2)]$

$= \pi(98 + 128 + 64 - 49) = 241\pi$

$= 241 \times \frac{22}{7} = 757.43 cm^2$

Question 72

Refer the below data table and answer the following Question.

	Weight (kg)	Height (m)
Ananya	59	1.63
Anchal	67	1.74
Anchita	66	1.66
Anisha	72	1.68

Who has the least weight to height ratio?

A Ananya

B Anchal

C Anchita

D Anisha

Answer: A

Explanation:
Ratio of weight to height

Ananya : $\frac{59}{1.63}$ = 36.2   **[LEAST]**

Anchal : $\frac{67}{1.74}$ = 38.5

Anchita : $\frac{66}{1.66}$ = 39.75

Anisha : $\frac{72}{1.68}$ = 42.85

=> Ans - (A)

Question 73

Refer the below data table and answer the following Question.

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

What was the revenue of the company if its expenditure was Rs 425 crore in the year when its % profit was the least?

A 510

B 467.5

C 552.5

D 42

Answer: B

Explanation:

Profit % was least in 2012 = 10%

Let revenue = Rs. x crore and expenditure = Rs. 425 crore

=> Profit % = $\frac{x-425}{425} \times 100 = 10$

=> $\frac{x-425}{425} = \frac{10}{100} = \frac{1}{10}$

=> $x - 425 = \frac{425}{10} = 42.5$

=> $x = 425 + 42.5 = 467.5$ crore

Question 74

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

Number of Children	Number of Houses
0	5
1	14
2	10
3	3

What is the average number of children per house?

A 1.34

B 1.59

C 1.84

D 1.08

Answer: A

Explanation:

Total number of houses = 5 + 14 + 10 + 3 = 32

Total children = $(0 \times 5) + (1 \times 14) + (2 \times 10) + (3 \times 3)$

= 14 + 20 + 9 = 43

∴ Average number of children per house = $\frac{43}{32} = 1.34$

=> Ans - (A)

Question 75

Refer the below data table and answer the following Question.

Partners	Present % Share
Anand	15
Basu	15
Chinmay	10
Dhiraj	15
Ejaz	45

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

A 300000 shares

B 270000 shares

C 285000 shares

D 255000 shares

Answer: C

Explanation:

Total shares = Rs. 6,00,000

Original shares with Ejaz = $\frac{45}{100} \times 600000 = 2,70,000$

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

=> Shares with Ejaz = 2,70,000 + 15,000 = 2,85,000

=> Ans - (C)

English

Instructions

For the following questions answer them individually

Question 76

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

Make something seem less important, significant, or trifling.

A superintend

B optimality

C trivialize

D dumb dow

   Answer: C

Question 77

Select the antonym of fidget

A composed

B restive

C twitchy

D ants

   Answer: A

Question 78

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

Against the cloc

A To do a job fast to finish it before a deadline

B Time is money

C Man is a victim of time

D It is useless to fight destin

   Answer: A

Question 79

Select the word with the correct spelling

A   karnages

B   halogram

C   demagogy

D   comand

   Answer: C

Question 80

Select the antonym of blan

A   blah

B   insipid

C   tame

D   livel

   Answer: D

Question 81

Improve the bracketed part of the sentence.

The parents gave their children some (advice) before they left for the picnic

A   advices

B   advise

C   advises

D   no improvement

   Answer: D

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'.

She was annoyed (A)/when she found that(B)/the chewing gum was stuck to her hair.(C)/No error(D

A A

B B

C C

D D

   Answer: D

Question 83

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'.

It is not easy for an actor(A)/to earn respect from both, the fans(B)/as well as critic.(D)/No error

A A

B B

C C

D D

   Answer: C

Question 84

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

A gesture expressing respect, such as a bow.

A Consensual

B Obeisance

C Perk

D Germinat

Question 85

Select the word with the correct spelling

A   preecher

B   hygenic

C   paralel

D   blottin

Answer: D

Question 86

Select the synonym of bedevilmen

A   delight

B   beset

C   facilitate

D   contentmen

Answer: B

Question 87

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.

Someone gave the old man a push

A   The old man got a push from someone.

B   Somebody had given a push to the old man.

C   The old man was being pushed by someone.

D   A push was given to the old man

Answer: D

Question 88

Rearrange the parts of the sentence in correct order.

The white American underclass is in thrall

P-and used heroin needles
Q-to a vicious, selfish culture
R-whose main products are miser

A   PQR

B   QRP

C   RPQ

D   RQP

Answer: B

Question 89

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.

She deserved the accolades as she _____ for it.

A   hardly worked

B   had hard worked

C   was working hard

D   had worked har

Answer: D

Question 90

Rearrange the parts of the sentence in correct order.

But the most important thing is,

P-I'll always be
Q-even if we're apart
R-with you

A   QPR

B   RPQ

C PQR

D PRQ

Answer: D

Question 91

Improve the bracketed part of the sentence.

The passengers (were waited) for the flight at the emigration lobby, for long

A had wait

B had been waited

C have been waiting

D no improvemen

Answer: C

Question 92

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.

Geetal said, " I bought a Honda City yesterday.

A Geetal said that I have bought a Honda City yesterday.

B Geetal told me that she had bought a Honda City yesterday.

C Geetal said she had bought a Honda City the previous day.

D Geetal said that she had bought a Honda City the previous day

Answer: D

Question 93

Select the synonym of deprive

A bestow

B confer

C dispossess

D   endo

   Answer: C

Question 94

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

Scapegoat

A   Animal sacrifice as an offering to God

B   The most useful animal or person

C   A lucky person who is forgiven for his crimes

D   A person who is blamed for the mistakes of other

   Answer: D

Question 95

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.

Let the cat out of the _____.

A   house

B   well

C   bag

D   car

   Answer: C

Instructions

In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

The _____ of gurudakshina is very ancient and it is _____ to the Indian culture and tradition. If you are absolutely _____ about India, then it's advisable that you first try to understand the meaning of a guru and the _____ of his presence in the lives of those around him. This, in turn, will help you to understand what guru dakshina is. In ancient India, a teacher or a guru was a spiritually _____ guide.

The _____ of gurudakshina is very ancient

Question 96

The _____ of gurudakshina is very ancient

A   habit

B   approach

C   perception

D   concept

   Answer: D

Question 97

it is _____ to the Indian culture

A   unique

B   rare

C   different

D   particular

   Answer: A

Question 98

If you are absolutely _____ about India

A   unknowing

B   unknowledgeable

C   naive

D   blind

   Answer: C

Question 99

the _____ of his presence in the lives of those around him.

A   connotation

B implication

C understanding

D significance

Answer: D

Question 100

a teacher or a guru was a spiritually _____ guide

A enlarged

B evolved

C grown

D enhance

Answer: B