SSC CGL 4 June 2019 Shift-3

Reasoning

Question 1

If FLOWER is coded as 14 and DISTASTE is coded as 18, then how will BUREAUCRAT be coded as?

A 22

B 18

C 20

D 28

Answer: A

Explanation:
As per the given pattern in the question,

We can see that FLOWER have the 6 letters, hence $6 \times 2 + 2 = 14$

And DISTASTE have 8 letters, hence $8 \times 2 + 2 = 18$

Similarly, BUREAUCRAT have 10 letters, hence $10 \times 2 + 2 = 22$
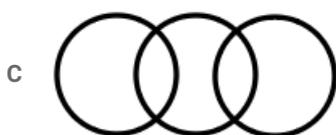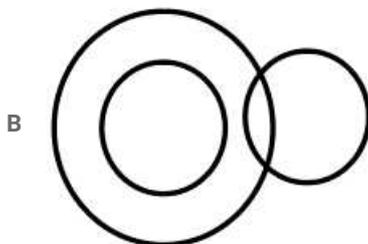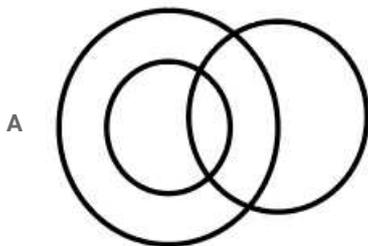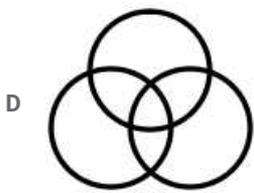
Will be the correct answer.

SSC CGL Free Mock Test

Question 2

Select the Venn diagram that best illustrates the relationship between the following classes.
Graduates, Literates, Hardworking

A

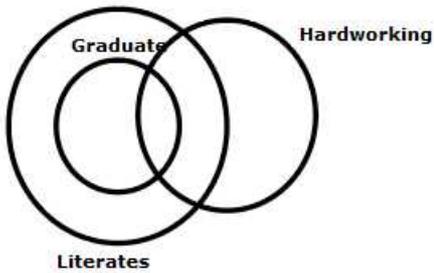
B

C

D

Answer: A

Explanation:
As per the given terms in the question,

Graduates, Literates, Hardworking

Every person who is graduates will come under the literates, but it is not compulsory that every hardworking person will be literates or graduates.

Hence, below Venn diagram will be the correct answer.

Question 3

Three of the following four numbers are alike in a certain way and one is different. Pick the number that is different from the rest.

A   123

B   789

C   457

D   567

Answer: C

Explanation:
As per the given option,

We can see that the three continuous natural number is given in the option but in the option it is not following the same pattern as per the other options

Hence option C is the different from the others.
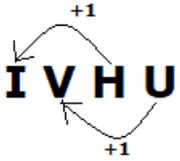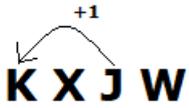
Question 4

Three of the following four letter-clusters are alike in a certain way and one is different. Pick the odd one out.

A   MZLY

B   KXJW

C   GESO

D   IVHU

Answer: C

Explanation:
As per the given terms in the question,

+1
M Z L Y
+1

+1
K X J W

+1
İ V H U
+1
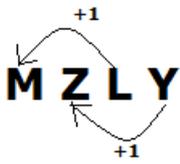
But option C is not following the given pattern.

Question 5

Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.
DKFM : FIHK :: BLGP : ?

A DNER

B CKHO

C ZNEN

D DJIN

Answer: D

Explanation:
As per the given pattern in the question,

Once it is jumping with +2 letter forward and then it is returning in the next term -2 letter backward, as per the English letter pattern.

The pattern is mentioned below.

DKFM : FIHK :: BLGP :DJIN

Question 6

The sequence of folding a piece of square paper (figures X and Y) and the manner in which the folded paper has been cut (figure Z) are shown. How will the paper appear when unfolded ?

A

B

C

D
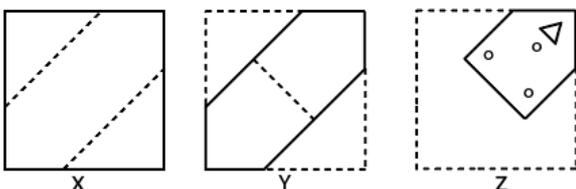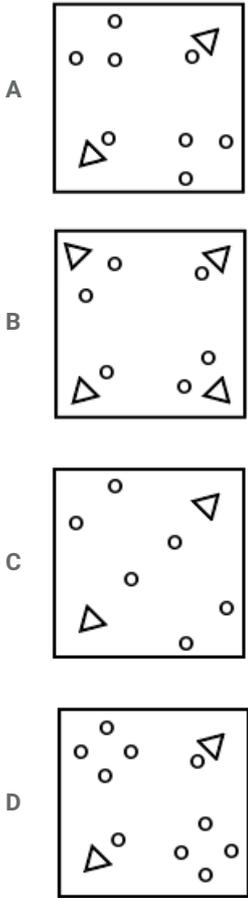
Answer: D

Explanation:

As per the given question,

When we will open the folding, then we will get the below pattern,

X   Y   Z
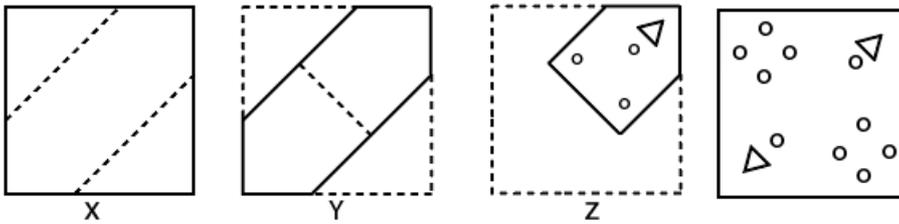
Question 7

P is the father of Q and R is the son of S. T is the brother of P. Q is the sister of R. How is S related to T?

A   Brother-in-law

B   Daughter

C   Sister-in-law

D   Brother

   Answer: C

Explanation:

As per the question,
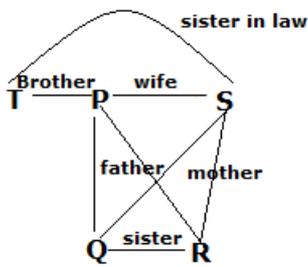
We can conclude that S is the sister in law of T.

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Question 8

Three of the following four word pairs are alike in a certain way and one is different. Pick the odd word out.

A Bangladesh : Taka

B South Korean : Rupiya

C Russia : Ruble

D Malaysia : Ringgit

Answer: B

Explanation:
As per the given terms,

In all the given options,countries it's related currency is given.

But in the option B, it's not the currency of that that particular country.

Question 9

Select the option in which the given figure is embedded.
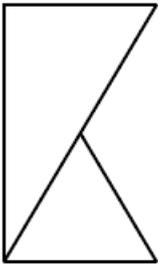
Rotation not allowed

A

B

C

D
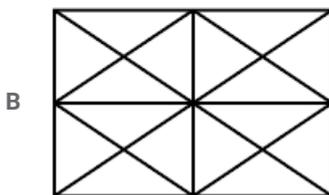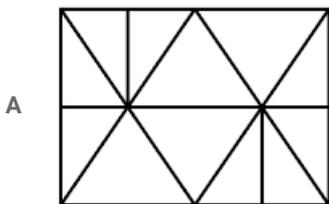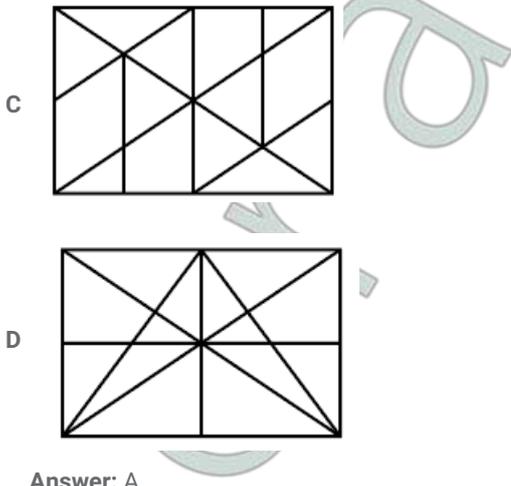
Answer: A

Explanation:
As per the given pattern,

We can conclude that the given pattern available in the mentioned image.
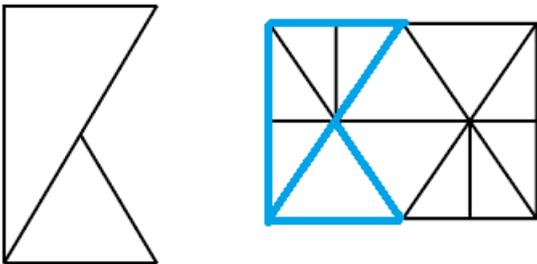
Question 10

Select the figure that will come next in the following figure series.

A

B

C

D
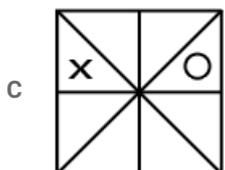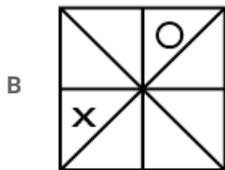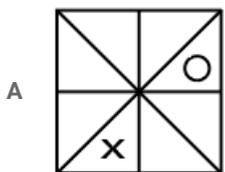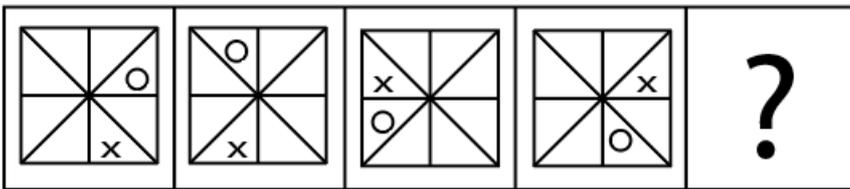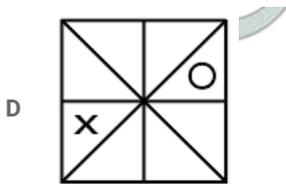
Answer: D

Explanation:

As per the given pattern,

We can see that x is moving clock wise with 1box jump, then 2 box then 3 box as so on but O is moving anti clock wise with 1 box jump in each move.

Hence the next patter will be as per the given,
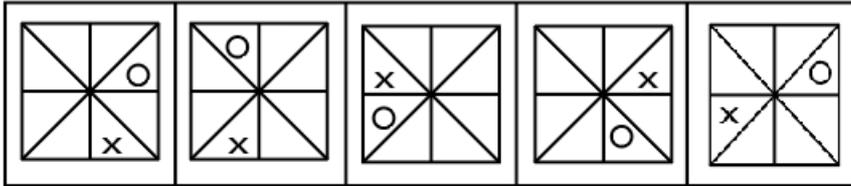
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Question 11

Select the word-pair in which the two words are related in the same way as are the two words in the following word-pair.
Frown : Displeasure

A   Grief : Sorrow

B   Madness : Illness

C   Laugh : Comedy

D   Smile : Ecstasy

   Answer: D

Explanation:
As per the given question,

Frown is a kind of face expression by which people are representing the displeasure.

Similarly

Smile is a kind of expression by which people are representing the Ecstasy(great happiness)

Question 12

How many triangles are there in the following figure?
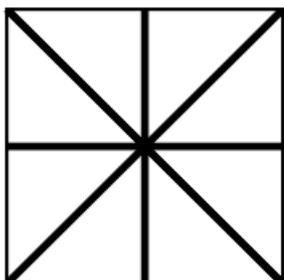
A   18

B 12

C 14

D 16

   Answer: D

Explanation:
As per the given question,

Number of triangle =n+1=2+1=3
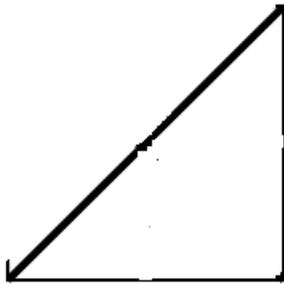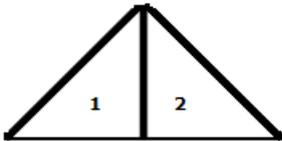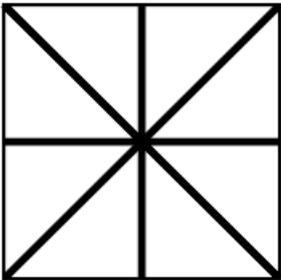
   There is 4 such triangles

Hence total number of triangles $= 3 \times 4 + 4 = 16$

Question 13

Select the option that is related to the third term in the same way as the second term is related to the first term.
29 : 13 :: 37 : ?

A 15

B 21

C 17

D 14

   Answer: C

Explanation:
As per the given question,

29 : 13 :: 37 : ?

As $29 = 13 \times 2 + 3$

Similarly

$37 = 17 \times 2 + 3$

Question 14

Select the set in which the numbers are related in the same way as are the numbers of the following set.
(9, 15, 27)

A (6, 9, 18)

B (15, 25, 35)

C (21, 35, 56)

D (12, 20, 36)

Answer: D

Explanation:
As per the given question,

(9, 15, 27) - $3 \times 3, 3 \times 5, 3 \times 9$

Similarly

(12, 20, 36) - $4 \times 3, 4 \times 5, 4 \times 9$

Question 15

In a code language if FRIDGE is written as GTLHLK, then in the same language how will you write the word KETTLE?

A WQLGXK

B LGWXQK

C GLXWQK

D XKWQLG

Answer: B

Explanation:
As per the question,

It is following the given terms,
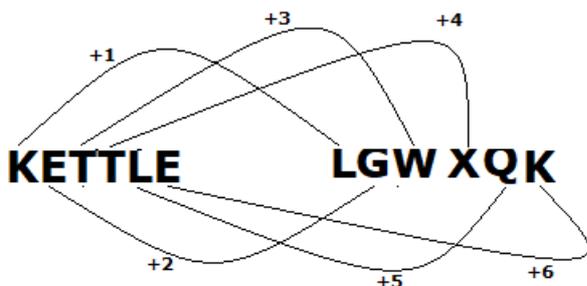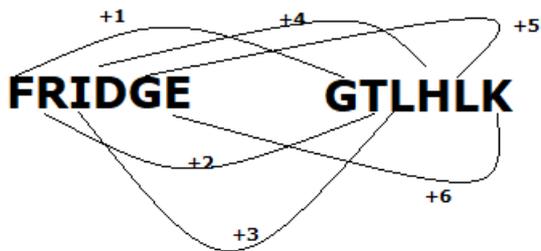
Question 16

Three of the following four letter-clusters are alike in a certain way and one is different. Pick the odd one out.

A TUWZ

B MNPS

C DEGJ

D PQTX

   Answer: D

Explanation:
From the given options in the question,

(TUWZ) $T\xrightarrow{+1} U\xrightarrow{+2} W\xrightarrow{+3} Z$

(MNPS) $M\xrightarrow{+1}N\xrightarrow{+2}P\xrightarrow{+3}S$

(DEGJ) $D\xrightarrow{+1}E\xrightarrow{+2}G\xrightarrow{+3}J$

But option D is not following the given pattern. Hence option D is the correct answer.

SSC CGL Important Questions PDF

Question 17

What will be the value of the following equation if ' $\div$ ' means 'addition', '$+$' means 'subtraction', '$-$' means 'multiplication' and '$\times$' means 'division'?
$54 \times 6 - 7 \div 8 + 2 =?$

A 63

B 57

C 69

D 61

   Answer: C

Explanation:
As per the given question,

$54 \times 6 - 7 \div 8 + 2 =?$

As per the condition given in the question,

$\Rightarrow 54 \div 6 \times 7 + 8 - 2 =?$

$\Rightarrow 9 \times 7 + 8 - 2 =?$

$\Rightarrow 63 + 8 - 2 =?$

$\Rightarrow 71 - 2 =?$

$\Rightarrow 69$

Question 18

Select the correct mirror image of the given figure when the mirror is placed to the right of the figure.

(X)

A

B

C

D
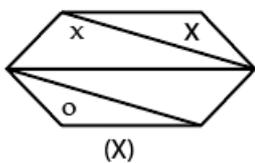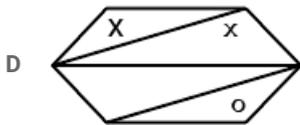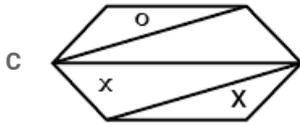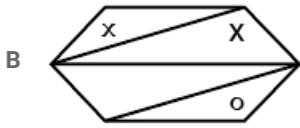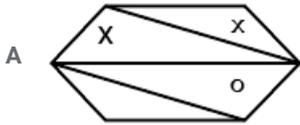
Answer: D

Explanation:

As per the given question,

The mirror image of the given image is
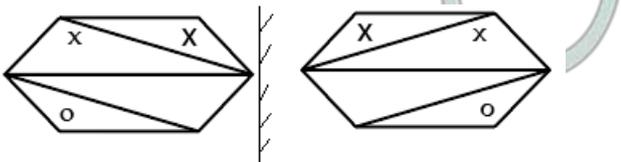
Question 19

Select the combination of letters that when sequentially placed in the gaps of the given letter series will complete the series.
cb_db_cba_bc_bad_c

A acdcb

B cabdc

C acbcd

D dcbcb

Answer: A

Explanation:

From the given question, we can see that

cb_db_cba_bc_bad_c having the 18 letters.

So if will divide it in the group of 6-6 letters

then cb_db_, so after this all the pattern is getting repeat, whence,

cb**a**db**c** cba**d**bc **c**bad**b**c

Hence, acdcb will be the correct word to be filled.

Question 20

Three of the following four words are alike in a certain way and one is different. Pick the odd word out.

A Benevolence

B Courtesy

C Indulgence

D Hindrance

Answer: D

Explanation:

From the given terms in the question,

Benevolence- The quality of being well meaning; kindness.

Courtesy-The showing of politeness in one's attitude and behavior towards others.

Indulgence -The action or fact of indulging.

Hindrance- The things that provides resistance, delay, or obstruction to something or someone.

We can conclude that, Hindrance have negative meaning. Rest of all the terms have the positive meaning, Hence it is different from the other options.

Question 21

Anange the following words in a logical and meaningful order.
1. Salary
2. Recruitment
3. Education
4. Promotion
5. School
6. Employment

A 5, 3, 2, 6, 1, 4

B 5, 3, 2, 6, 4, 1

C 5, 3, 4, 1, 2, 6

D 3, 5, 4, 2, 6, 1

Answer: A

Explanation:

From the given set of words in the question,

1. Salary
2. Recruitment
3. Education
4. Promotion
5. School
6. Employment

We need to put it in their logical order then we will found the given pattern.

 5. School 3. Education 2. Recruitment 6. Employment 1. Salary 4. Promotion

Hence the correct arrangement will be 5,3,2,6,1,4.

Question 22

Which two signs should be interchanged in the following equation to make it correct?
$15 - 9 \div 6 \times 10 + 5 = 25$

A $\times\ and\ -$

B $+ \ and \ -$

C $+ \ and \div$

D $\times \ and \div$

Answer: B

Explanation:

As per the given question,

$15 - 9 \div 6 \times 10 + 5 = 25$

Now exchanging the + to - and - to +

$15 + 9 \div 6 \times 10 - 5 = 25$

Hence option B is the correct answer.

General Science Notes for SSC CGL

Question 23

In a code language, SUNDAY is written as DNUAYS. How will MOTHER be written as in that language?

A HTEOMR

B HTOERM

C HOTERM

D THEORM

Answer: B

Explanation:

As per the given pattern in the question,

The related pattern in given below as per the question's statement.
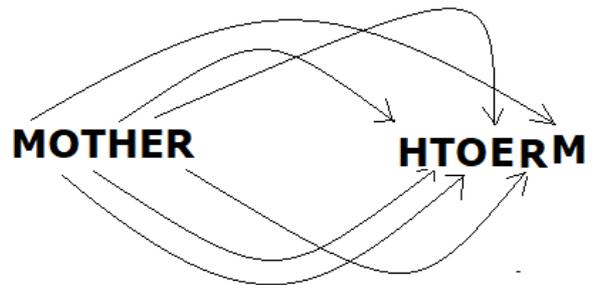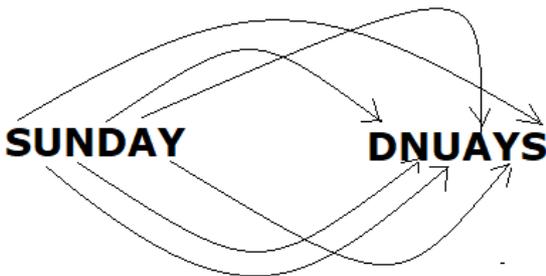
Question 24

Two rotated positions of a dice are given below. Which number will be at the top if '3' is at the bottom?
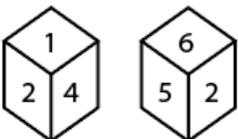
A 4

B 1

C 2

D 6

Answer: C

Explanation:
As per the given pattern in the question,
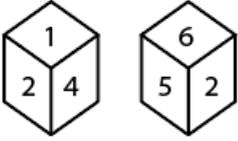
From the above we can see that in the first dice, 1 and 4 is the adjacent faces of the 2 and in the second

dice, 6 and 5 is the adjacent faces of the number 2 in the second dice.

Hence, the opposite face of the 3 will be face 2.

Question 25

Two statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
Statements:
Some mobiles are instruments.
All instruments are heavy items.
Conclusions:
I. Some mobiles are heavy items.
II. No mobile is a heavy item.
III. Some heavy items are instruments.

A All conclusions follow

B Only conclusion I follows

C Only conclusion III and either conclusion I or II follow

D Only conclusions I and III follow

Answer: D

Explanation:
From the given statement in the question,
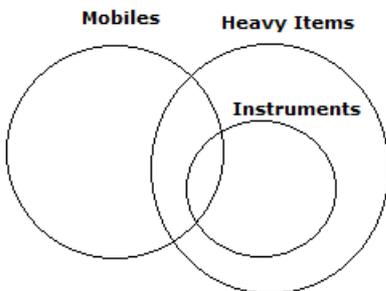
Only conclusion I and III are following the given statements.

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General knowledge

Instructions
For the following questions answer them individually

Question 26

I As of May 2019, which political party does actor Raj Babbar belong to?

A   Samajwadi

B   Indian National Congress

C   Bahujan Samaj Party

D   Bharatiya Janta Party

   Answer: B

Question 27

Who bagged the 4th Carnot Prize 2018 for his contribution towards sustainable energy solutions?

A   Arun Jaitley

B   Harsh Vardhan

C   Hardeep Puri

D   Piyush Goyal

   Answer: D

Question 28

The period between _____ in India's history is known as the Delhi Sultanate period.

A   1206 A.D. and 1526 A.D.

B   1456 A.D. and 1675 A.D.

C   745 A.D. and 1245 A.D.

D   1105 A.D. and 1445 A.D.

   Answer: A

Question 29

Mihira Bhoja was the ruler of ....

A   Rashtrakuta

B   Chola

C   Pratihara

D   Chalukya

   Answer: C

Question 30

In the year 1978, the .... amendment eliminated the right to acquire, hold and dispose of property as a fundamental right.

A 41st

B 43rd

C 44th

D 42nd

  Answer: C

Question 31

The defending champions _____ won the 85th Ranji Trophy title in 2019.

A Mumbai

B Karnataka

C Saurashtra

D Vidarbha

  Answer: D

Question 32

Which of the following economic activities employs the maximum number of people in India?

A Tourism

B Manufacturing

C Agriculture

D Mining

  Answer: C

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Question 33

Baglihar Dam is constructed on which river?

A Chenab

B Ravi

C Sutlej

D Indus

  Answer: A

Question 34

who is the author of the book 'Rajatarangini'?

A   Banabhatta

B   Kalhana

C   Kalidasa

D   Somadeva

   Answer: B

Question 35

In which part of the Indian Constitution are centre-state relations mentioned?

A   Part IV (Article 227 to 234)

B   Part XI (Article 245 to 255)

C   Part X (Article 234 to 240)

D   Part XII (Article 265 to 277)

   Answer: B

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Question 36

Who was the first female chief justice of a state high court in India?

A   Syeda Tahira

B   Leila Seth

C   Ruma Pal

D   Fatima Bibi

   Answer: B

Question 37

The amount of light entering into eye can be controlled and regulated by ....

A   Iris

B   cornea

C   pupil

D   retina

   Answer: A

Explanation:
The iris opens and closes to **control the amount of light entering** the **eye** through the pupil. The pupil **is** the opening **in the** center of the iris where **light enters** the **eye**.

Question 38

'Mithun', a cattle breed is found in ....

A Tamilnadu

B Arunachal Pradesh

C Kerala

D Maharashtra

Answer: B

Question 39

Veer Kunwar Singh Jayanti is celebrated in _____ in order to recognise the achievements of Kunwar Singh during the Indian rebellion of 1857.

A Himachal Pradesh

B Bihar

C Uttarakhand

D Uttar Pradesh

Answer: B

Question 40

Which cells in our body are popularly called "soldiers of the human body"?

A Eosinophils

B White blood cells

C Red blood cells

D Basophils

Answer: B

Question 41

Which hormone leads to the expulsion of milk from the breast during suckling?

A Estrogen

B Oxytocin

C Prolactin

D progesterone

Answer: B

Explanation:
Suckling is the appropriate stimulus for the release of oxytocin from the posterior pituitary. Oxytocin increases intramammary pressure by inducing contraction of the myoepithelial cells and thus aids in **expelling** the **milk** from the mammary glands.

Question 42

The festival of Marabats and Badgyas celebrated in .... directly confronts social evils and criticise their perpetrators through a procession with effigies.

A   Jabalpur

B   Panaji

C   Nagpur

D   Hyderabad

   Answer: C

Question 43

The Nanda Devi Peak is located in _____.

A   Sikkim

B   Jammu and Kashmir

C   Uttarakhand

D   Assam

   Answer: C

Question 44

Which of the following is a communicable disease?

A   Measles

B   Scurvy

C   Asthma

D   Diabetes

   Answer: A

Question 45

In 2019, Kazakhstan renamed its capital Astana to _____.

A   NurNazar

B   Nursultan

C   Nazarbayev

D   Nurbayev

   Answer: B

Question 46

If there is a lack of money supply in comparison to the supply of goods and services, then the possible consequence would be _____.

A Hyperinflation

B Deflation

C Devaluation

D Inflation

Answer: B

Question 47

Which of the following has the highest protein content per gram?

A Apple

B Soyabean

C Wheat

D Groundnut

Answer: B

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Question 48

_____ won the inaugural Pro Volleyball League (PVL) title in 2019.

A Calicut Heroes

B Chennai Spart

C Ahmedabad Defenders

D Kochi Blue Spikers

Answer: B

Question 49

Vikramashila University was founded by ____ a Pala king.

A Rajendra Chola

B Pulakeshin I

C Mihira Bhoja

D Dharmapala

Answer: D

Question 50

21 March 2019 was celebrated by the UN as World Down Syndrome Day and the theme was _____.

A "Leave no one behind"

B "All is well"

C   "Together we grow"

D   "Live and let live"

   Answer: A

SSC CGL Free Mock Test

Quant

Instructions

For the following questions answer them individually

Question 51

On selling an article for ₹800, a person loses 20% of its selling price. At what price should he sell it to gain 25% on its cost price?

A   ₹1,280

B   ₹1,152

C   ₹1,250

D   ₹1,200

   Answer: D

Explanation:

As per the given question,

Let the cost price of the article =x Rs.

So, the loss amount $= \dfrac{800 \times 20}{100} = 160 Rs.$

Hence the cost price of the article $= 800 + 160 = 960 Rs.$

Hence to get 25%, profit, the selling price $= \dfrac{960 \times 25}{100} = 240$

So, the selling price of the article $= 960 + 240 = 1200 Rs.$

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Question 52

AB and CD are two parallel chords of a circle such that AB = 6 cm and CD = 2AB. Both chords are on the same side of the center of the circle. If the distance between them is equal to one-fourth of the length of CD, then the radius of the circle is:

A $3\sqrt{5}$ cm

B $4\sqrt{3}$ cm

C $4\sqrt{5}$ cm

D $5\sqrt{3}$ cm

   Answer: A

Explanation:

Given chords AB=6 cm, CD =12 cm and AB||CD

Draw OP⊥ AB. Let it intersect CD at Q and AB at P

∴ AP = PB = 3 cm and CQ = DQ = 6 cm [Since perpendicular draw from the center of the chord bisects the chord]

Let OD = OB = r

In right $\triangle OQD$, $r^2 = x^2 + 6^2$ [By Pythagoras theorem]

$\Rightarrow r^2 = x^2 + 36 - - - - - - - - - (i)$

In right $\triangle OPB$, $r^2 = (x+3)^2 + 3^2$ [By Pythagoras theorem]

$\Rightarrow r^2 = x^2 + 6x + 9 + 9 = x^2 + 6x + 18 - - - - - - (ii)$

From (1) and (2) we get

$\Rightarrow x^2 + 36 = x^2 + 6x + 18$

$\Rightarrow 6x = 18$

$\Rightarrow x = 3$

Put x = 3 in (1), we get

$\Rightarrow r^2 = 3^2 + 36 = 9 + 36 = 45$

$\Rightarrow r = \sqrt{45} = 3\sqrt{5}$

Question 53

If $\sec\theta - \tan\theta = P$, then $\operatorname{cosec}\theta = ?$

A $\quad \frac{2P}{1-P^2}$

B $\quad \frac{1-P^2}{1+P^2}$

C $\quad \frac{P^2+1}{1-P^2}$

D $\quad \frac{2P}{1+P^2}$

Answer: C

Explanation:
As per the given question,

$\Rightarrow \sec\theta - \tan\theta = P$

$\Rightarrow \frac{1}{\cos\theta} - \frac{\sin\theta}{\cos\theta} = P$

$\Rightarrow \frac{1-\sin\theta}{\cos\theta} = P$

Squaring both side of the given equation,

$\Rightarrow \frac{(1-\sin\theta)^2}{(\cos\theta)^2} = P^2$

$\Rightarrow \frac{(1-\sin\theta)^2}{1-\sin^2\theta} = P^2$

$$\frac{(1 - \sin\theta)^2}{}$$

$$\Rightarrow (1 - \sin\theta)(1 + \sin\theta) = P^2$$

$$\Rightarrow \frac{(1 - \sin\theta)}{(1 + \sin\theta)} = P^2$$

$$\Rightarrow 1 - \sin\theta = P^2(1 + \sin\theta)$$

$$\Rightarrow 1 - \sin\theta = P^2 + P^2\sin\theta$$

$$\Rightarrow \sin\theta(P^2 + 1) = 1 - P^2$$

$$\Rightarrow \sin\theta = \frac{1 - P^2}{(P^2 + 1)}$$

Hence $\cosec\theta = \frac{P^2 + 1}{1 - P^2}$

Question 54

The Table shows the production of different types of cars (in thousands).

Years → / Cars ↓	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

The ratio of the total production of type A cars in 2015 and type B cars in 2014 taken together to the total production of type C cars in 2017 and type E cars in 2015 taken together is:

A 16:19

B 4:5

C 104:105

D 34:39

Answer: C

Explanation:
From the given data in the question,

Total production of type A car in 2015 and type B car in 2014=56+48 =104

Total production of type C car in 2017 and type E car in 2015=57+48 =105

Hence the required ratio$= \frac{104}{105}$

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Question 55

The ratio of the efficiencies of A, B and C is 7 : 5 : 4. Working together, they can finish a work in 35 days. A and B work together for 28 days. The remaining work will be completed (in days) by C alone:

A 56

B 63

C 49

D 60

 Answer: A

Explanation:

As per the given question,

Ratios in the efficiencies of A, B and C are $7 : 5 : 4$

So, A can finish the work in $= \dfrac{x}{7}$ days

B can finish the work in $= \dfrac{x}{5}$ days

C can finish the work in $= \dfrac{x}{4}$ days

So, If they are working together, then they can finish the work in one days $\dfrac{7}{x} + \dfrac{5}{x} + \dfrac{4}{x} = \dfrac{1}{35}$

$\dfrac{16}{x} = \dfrac{1}{35}$

$x = 16 \times 35$

Now, If A and B are working together, then they can finish the work in one day $= \dfrac{7}{x} + \dfrac{5}{x} = \dfrac{12}{x}$

They worked together for 28 days, Hence they will finish the total work $=\dfrac{12\time 28}{16\times 35}=\dfrac{3}{5}$

Hence the remaining work $=1-\dfrac{3}{5}=\dfrac{2}{5}$

C alone can finish the work in $=\dfrac{x}{4}=\dfrac{16\times 35}{4}=140$ days

Hence C alone can finish the remaining work $=\dfrac{140\times 2}{5}=28\times 2= 56$ days.

Question 56

If $$a^2 + b^2 + 64c^2 + 16c + 3 = 2(a + b)$$, then the value of $$4a^7 + b^7 + 8c^2$$ is:

A $$3\frac{7}{8}$$

B $$4\frac{7}{8}$$

C $$4\frac{1}{8}$$

D $$5\frac{1}{8}$$

 Answer: D

Explanation:

From the given equation,

$$a^2 + b^2 + 64c^2 + 16c + 3 = 2(a + b)$$

$$\Rightarrow a^2 + b^2 + 64c^2 + 16c + 3 -2a-2b= 0$$

$$\Rightarrow a^2-2a+1 + b^2-2b+1 + (8c)^2 + 16c +1= 0$$

$$\Rightarrow (a-1)^2+ (b-1)^2 + (8c+1)^2= 0$$

It will be 0, if every terms individually equal to 0.

So, a=1, b=1, $$c=\dfrac{-1}{8}$$

Now, substituting the values in the equation $$4a^7 + b^7 + 8c^2$$

$$\Rightarrow 4(1)^7 + (1)^7 + 8(\dfrac{-1}{8})^2$$

$$\Rightarrow 4 + 1 + (\dfrac{1}{8})$$

$$\Rightarrow \dfrac{41}{8}=5\dfrac{1}{8}$$

Question 57

The value of $$2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7}\ of\ 2\frac{1}{3}\right) \times \left[\left(2\frac{6}{7}\ of\ 4\frac{1}{5} \div \frac{2}{3}\right) \times \frac{5}{9}\right]$$ is:

A $$\frac{1}{4}$$

B   4

C $$\frac{1}{23}$$

D   5

   Answer: D

Explanation:
Given that,

$$2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7} of 2\frac{1}{3}\right) \times \left[\left(2\frac{6}{7} of 4\frac{1}{5} \div \frac{2}{3}\right) \times \frac{5}{9}\right]$$

$$\Rightarrow 2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7} of 2\frac{1}{3}\right) \times \left[\left(\frac{20}{7} of \frac{21}{5} \div \frac{2}{3}\right) \times \frac{5}{9}\right]$$

$$\Rightarrow 2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7} of 2\frac{1}{3}\right) \times \left[\left(\frac{20\times 21}{7\times 5} \div \frac{2}{3}\right) \times \frac{5}{9}\right]$$

$$\Rightarrow 2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7} of 2\frac{1}{3}\right) \times \left[\left(\frac{20\times 21\times 3}{7\times 5\times 2}\right) \times \frac{5}{9}\right]$$

$$\Rightarrow 2\frac{7}{8} \div \left(3\frac{5}{6} \div \frac{2}{7} of 2\frac{1}{3}\right) \times 10$$

$$\Rightarrow 2\frac{7}{8} \div \left(\frac{23}{6} \div \frac{2}{7} of \frac{7}{3}\right) \times 10$$

$$\Rightarrow 2\frac{7}{8} \div \left(\frac{23}{6} \div \frac{2}{3}\right) \times 10$$

$$\Rightarrow \frac{23}{8} \div \left(\frac{23\times 3}{6\times 2}\right) \times 10$$

$$\Rightarrow \frac{23}{8} \div \left(\frac{23}{4}\right) \times 10$$

$$\Rightarrow \frac{23\times 4}{8\times 23} \times 10$$

$$\Rightarrow 5$$

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Question 58

If x + y = 1 and xy(xy - 2) = 12, then the value of $$x^4 + y^4$$ is:

A   19

B   25

C   20

D   23

   Answer: B

Explanation:
Given that,

$$x + y = 1$$

$$\Rightarrow xy(xy-2)=12$$

$$\Rightarrow x^2 y^2-2xy=12$$

$$\Rightarrow x + y = 1$$

Now, squaring both side,

$$\Rightarrow (x + y)^2 = 1$$

$$\Rightarrow x^2+y^2+2xy = 1$$

$$\Rightarrow x^2+y^2 = 1-2xy$$

Again squaring both side,

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

$$\Rightarrow x^4+y^4+2x^2y^2 = 1+4x^2y^2-4xy$$

$$\Rightarrow x^4+y^4 = 1+4x^2y^2-4xy-2x^2y^2$$

$$\Rightarrow x^4+y^4 = 1+2x^2y^2-4xy$$

$$\Rightarrow x^4+y^4 = 1+2(x^2y^2-2xy)=1+2\times 12=25$$

Question 59

If the 8-digit number 179x091y is divisible by 88, the value of (5x — 8y) is:

A 4

B 7

C 9

D 5

Answer: A

Explanation:
Given that,

179x091y is divisible by 88.

We know that $$88=11\times 8$$

The given number will be divisible by 88, if it is individually divisible by 11 and 8.

Divisibility by 8 - Any number is divisible by 8, if the last 3 digit of that number is divisible by 8.

So, last 3 digit is 91y,

91y will be divisible by 8 if, y=2,

Divisibility by 11- Any number is divisible by 11, if the difference between the sum of odd place digit and sum of even place digit is divisible by 11.

179x091y will be divisible by 11 if $$y+9+x+7-1-0-9-1=y+x+5=x+7$$

From the above, if x=4, then it will be divisible by 11.

Hence the value of x and y will be 4 and 2.

Hence,$$ (5x — 8y)=5\times4-8\times 2=20-16=4$$

Question 60

What will be the compound interest (nearest to ₹1) on a sum of ₹25,000 for 2 years at 12% p.a., if the interest is compounded 8-monthly ?

A ₹6,394

B ₹6,439

C ₹6,493

D ₹6,349

Answer: C

Explanation:
As per the given question,

Sum of amount =25000Rs.

Rate of interest=12%

Time =2 years

As per the question, interest is compounded 8-monthly, so rate of interest will be $$=\dfrac{12\times 8}{12}=8\%$$

So, total time $$= \dfrac{24}{8}=3$$

Hence, $$A=P(1+\dfrac{R}{100})^n$$

$$A=25000(1+\dfrac{8}{100})^3=25000\times\dfrac{27}{25}\times\dfrac{27}{25}\times\dfrac{27}{25}=31492.8Rs.\cong 31493Rs$$

Hence the required compound interest $$=31493-25000=6493Rs.$$

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Question 61

If $$(27x^3 - 343y^3) \div (3x - 7y) = Ax^2 + By^2 + 7Cyx$$, then the value of (4A - B + 5C)is:

A 0

B 3

C 2

D 1

Answer: C

Explanation:
As per the given question,

$$(27x^3 - 343y^3) \div (3x - 7y) = Ax^2 + By^2 + 7Cyx$$

We know that $$a^3-b^3=(a-b)(a^2+b^2+ab)$$

Now, $$(27x^3 - 343y^3) \div (3x - 7y) = (3x)^3-(7y)^3$$

$$=(3x-7y)(9x^2+49y^2+21xy)\div (3x-7y)=(9x^2+49y^2+21xy)$$

Hence $$9x^2+49y^2+7\times 3 xy=Ax^2 + By^2 + 7Cyx$$

By comparing of left and right coefficient of respective elements.

A=9, B=49, C=3

Now substituting the values $$(4A - B + 5C)=4\times 9-49+5\times 3=36+15-49=51-49=2$$

Question 62

If $$a^2 + b^2 + c^2 =21$$, and $$a + b + c = 7$$, then $$(ab + bc + ca)$$ is equal to:

A 12

B 28

C 14

D 8

Answer: C

Explanation:

As per the question, it is given that

$$a^2 + b^2 + c^2 =21$$

$$a + b + c = 7$$

We know that $$(a+b+c)^2=a^2+b^2+c^2+2(ab+bc+ca)$$

Now, substituting the values,

$$\Rightarrow 7^2=21+2(ab+bc+ca)$$

$$\Rightarrow 2(ab+bc+ca)=49-21$$

$$\Rightarrow (ab+bc+ca)=\dfrac{49-21}{2}=\dfrac{28}{2}=14$$

Question 63

If x is added to each of 12, 28, 21 and 45, the numbers so obtained, in this order, are in proportion. What is the mean proportional between (x +3) and (4x+ 1)?

A 15

B 18

C 10

D 12

Answer: A

Explanation:

As per the given condition in the question,

$$\dfrac{12+x}{28+x}=\dfrac{21+x}{45+x}$$

$$\Rightarrow (12+x)(45+x)=(28+x)(21+x)$$

$$\Rightarrow 12\times 45 +12x+45x+x^2=28\times 21+28x+21x+x^2$$

$$\Rightarrow 57x-49x=588-540$$

$$\Rightarrow 8x=48$$

Hence x=6.

Mean proportional of the (x +3) and (4x+ 1) $$=\sqrt{(x+3)(4x+1)}$$

Substituting the value of x

$$=\sqrt{(x+3)(4x+1)}=\sqrt{9\times25}=3\times5=15$$

Question 64

The income of A is 25% more than that of B and the income of C is 65% less than the sum of the incomes of A and B. Income of C is what percent less than the income of A?

A 28

B 32

C 35

D 37

Answer: D

Explanation:

As per the condition,

Let the income of B is x Rs.

So, income of A $$=\dfrac{125x}{100}=1.25x$$

The income of A and B taken together $$= x+1.25x=2.25x$$

Income of C$$=\dfrac{2.25x \times 35}{100}=0.7875x$$

Hence the required percentage $$=\dfrac{(1.25x-0.7875x)\times 100}{1.25x}=\dfrac{0.4625x\times 100}{1.25x}=37\%$$

Question 65

The Table shows the production of different types of cars (in thousands).

Years → Cars ↓	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

In the data related to the production of type D cars is represented by a pie chart, then the central angle of the sector representing production of cars in 2015 will be:

A $$72^\circ$$

B $$63^\circ$$

C $$81^\circ$$

D $$99^\circ$$

Answer: C

Explanation:

As per the given data in the question,
Total production of the type D car $$=25+45+40+55+35=200$$
Production of the type D car in 2015 $$=45$$
Hence the required angle $$=\dfrac{45}{200}\times 360=81^\circ$$

Question 66

The areas of the three adjacent faces of a cuboid are 32 $$cm^2$$, 24 $$cm^2$$ and 48 $$cm^2$$. What is the volume of the cuboid?

A   192 $$cm^3$$

B   256 $$cm^3$$

C   288 $$cm^3$$

D   128 $$cm^3$$

Answer: A

Explanation:

Let the sides of the cuboid is a, b and c.

As per the question, $$a\times b=32 cm^2$$---------(i)

$$b\times c=24 cm^2$$-------(ii)

$$c\times a=48 cm^2$$--------(iii)

Volume of the cuboid$$ = a\times b \times c $$

Now, multiplying equation (i), (ii) and (iii),

$$\Rightarrow a\times b \times b \times c \times c\times a=32\times 24\times 48$$

$$\Rightarrow a \times b\times c=\sqrt{32\times 24\times 48}$$

$$\Rightarrow V = a \times b\times c=\sqrt{32\times 24\times 48}=\sqrt{16\times 48\times 48}$$

$$\Rightarrow V=4\times 48=192cm^3$$

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Question 67

Three numbers are such that if the average of any two of them is added to the third number, the sums obtained are 168, 174 and 180 respectively. What is the average of the original three numbers ?

A 86

B 87

C 89

D 84

Answer: B

Explanation:

Let the numbers are x, y and z.

As per the condition given in the question

$$\Rightarrow \dfrac{x+y}{2}+z=168$$ -------(i)

$$\Rightarrow \dfrac{y+z}{2}+x=174$$------(ii)

$$\Rightarrow \dfrac{z+x}{2}+y=180$$--------(iii)

From the equation (i), (ii) and (iii)

$$\dfrac{x+y+y+z+z+x}{2}+x+y+z=168+174+180$$

$$\Rightarrow 2(x+y+z)=522$$

$$\Rightarrow x+y+z=261$$

The average of the numbers $$=\dfrac{x+y+z}{3}$$

Now substituting the values, the required average $$=\dfrac{261}{3}=87$$

Question 68

The area of a triangle is 15 sq cm and the radius of its in circle is 3 cm. Its perimeter is equal to:

A 12 cm

B 20 cm

C 5 cm

D 10 cm

Answer: D

Explanation:

As per the given question,

Area of the triangle $$=15cm^2$$

Radius of the in circle=3cm
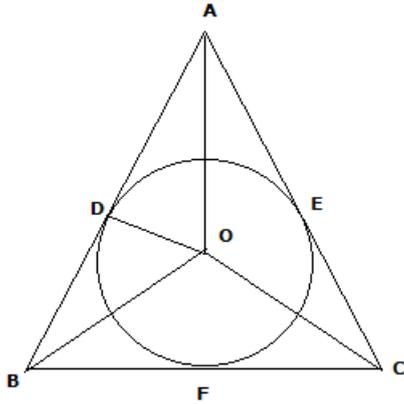
Let the side length of the AB, AC and BC are a, b and c.

From the above diagram, we can see that $$ar(\triangle ABC)=ar(\triangle AOB)+ar(\triangle AOC)+ar(\triangle BOC)$$

OD, OE and OF are the radius and the height of the inner triangle $$\triangle AOB, \triangle AOC$$ and $$\triangle BOC$$. so it will be equal.

Area of triangle = $$\dfrac{base\times height}{2}$$

So, $$15cm^2=\dfrac{a\times r}{2}+\dfrac{b\times r}{2}+\dfrac{c\times r}{2}$$

$$\Rightarrow 15cm^2\times 2=r(a+b+c)$$

$$\Rightarrow 3(a+b+c)=15cm^2\times 2$$

$$\Rightarrow (a+b+c)=\dfrac{15cm^2\times 2}{3}=10cm$$

Question 69

The value of $$\theta$$, when $$\sqrt3 \cos \theta + \sin \theta = 1 (0^\circ \leq \theta \leq 90^\circ)$$, is:

A $$90^\circ$$

B $$30^\circ$$

C $$60^\circ$$

D $$0^\circ$$

Answer: A

Explanation:

As per the given question,

$$\sqrt3 \cos \theta + \sin \theta = 1 (0^\circ \leq \theta \leq 90^\circ)$$

Dividing the 2 on both side of the equation,

$$\Rightarrow \dfrac{\sqrt3}{2}\times \cos \theta +\dfrac{1}{2}\times \sin \theta = \dfrac{1}{2}$$

Now, $$\cos 30 \cos \theta +\sin 30 \sin \theta = \cos 60$$

We know that $$\cos(\theta+\phi)=\cos \theta \cos \phi -\sin \phi \sin \theta$$

$$\Rightarrow \cos(\theta-30) = \cos 60$$

$$\Rightarrow \theta-30=60$$

$$\Rightarrow \theta=90^\circ$$

Hence $$\theta =90^\circ$$

Instructions

The Table shows the production of different types of cars (in thousands).

Years → Cars ↓	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

Question 70

The total production of type D cars during 2015 to 2017 is what percent less than the total production of type E cars during 2014, 2015, 2016 and 2018 taken together?

A 35

B 32

C 28

D 30

Answer: D

Explanation:

As per the given data in the question,

Total production of type D car in 2015 to 2017 $$=45+40+55=140$$

Total production of type E cars during 2014, 2015, 2016 and 2018 $$=40+48+52+60=200$$

Hence the required percentage $$=\dfrac{(260-140)\times 100}{260}=\dfrac{60\times 100}{200}=30\%$$

Question 71

The total production of type C cars in 2015 and type E cars in 2015 taken together is what percent of the total production of cars in 2014 and 2017 taken together ?

A 22

B 25

C 20

D 27

Answer: C

Explanation:

As per the question,

Total production of the type C car in 2015 and type E car in 2015 $$=42+48=90$$

Total production of cars in 2014 $$=64+48+33+25+40=210$$

Total production of cars in 2017 $$=63+64+57+55+61=300$$

Hence, total production of the cars in 2014 and 2017 taken together $$=300+210=510$$

Hence the required percentage $$=\dfrac{90\times 100}{510}=17.64\%$$

Nearest value is $$20\%$$

Instructions

For the following questions answer them individually

Question 72

A man purchases 100 copies of a book from the publisher and gets a discount of 25%. He buys 50 copies from a retailer at a discount of 10%. He got an overall discount of:

A 16.5%

B 17.5%

C 20%

D 35%

Answer: C

Explanation:

Let the marked price of the 1 book =x Rs.

The price of the book of 100 copies =100x

Price of the books of 100 copies after the discount $$=\dfrac{75 \times 100x}{100}=75x$$

Price of the book of 50 copies before discount =50x

Price of the book of 50 copies after 10% discount $$=\dfrac{90\times 50x}{100}=45x$$

Hence net price of 150 copies of the book after the discount =75x+45x=120x$$

The marked price of the book =150x

Hence the discount $$=\dfrac{(150x-120x)\times 100}{150x}=\dfrac{30x \times 100}{150x}=20\%$$

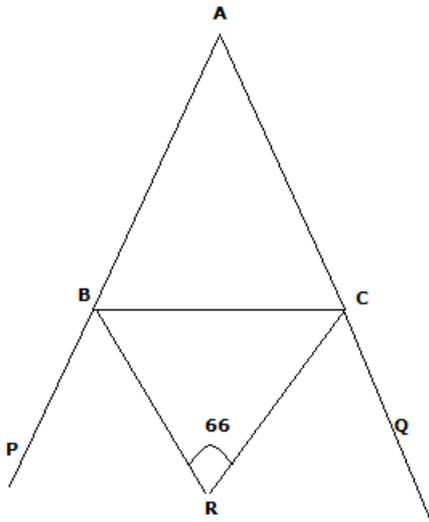# Free SSC Study Material (18,000 Solved Questions)

Question 73

In a $$\triangle$$ABC, the sides AB and AC are extended to P and Q, respectively. The bisectors of $$\angle$$PBC and $$\angle$$QCB intersect at a point R If $$\angle$$R = $$66^\circ$$, then the measure of $$\angle$$A is:

A $$36^\circ$$

B $$24^\circ$$

C $$48^\circ$$

D $$72^\circ$$

Answer: C

Explanation:

As per the given question,

Let $$\angle PBR=\angle RBC=x$$ and $$\angle QCR=\angle RCB=y$$

But $$\angle PBR +\angle RBC +\angle ABC=180^\circ$$

$$\angle ABC=180^\circ-2x$$--------(i) (sum of angle on the straight line)

And $$\angle ACB=180^\circ-2y$$--------(ii) (sum of angle on the straight line)

Now in $$\triangle RBC$$

$$\angle RBC+\angle BCR +\angle CRB=180^\circ$$

$$x+y +66=180^\circ$$

$$x+y =180^\circ-66^\circ=114^\circ -------------(iii)$$

Now in $$\triangle ABC$$

$$\angle A+\angle ACB +\angle ACB=180^\circ$$

$$\angle A=180^\circ-(180^\circ-2x)-(180^\circ-2y)$$

$$\angle A=+2x-180^\circ+2y$$

$$\angle A=+2x-180^\circ+2y$$

$$\angle A=2(x+y)-180^\circ ------------(iv)$$

Now from the equation (iii) and (iv)

$$\angle A=2(114)-180^\circ$$

$$\angle A=228^\circ-180^\circ=48^\circ$$

Question 74

Anu allows a discount on the marked price Of an article and still makes a profit Of 25%. If she gains ₹44.80 on the sale of the article, then the cost price of the article is:

A ₹188.80

B ₹192.80

C ₹184.20

D ₹179.20

Answer: D

Explanation:
Let the cost price of the article =x Rs.

As per the question, gain percentage =25%

Hence the selling price of the article $$=\dfrac{125x}{100}=1.25x$$

Gain amount $$=44.80Rs.$$

We know that gain= Selling price - Cost price

$$\Rightarrow 44.80=1.25x-x$$

$$\Rightarrow 0.25x=44.80$$

$$\Rightarrow x=\dfrac{44.80}{0.25}=179.20$$Rs

Question 75

ABCD is a cyclic quadrilateral in which $$\angle$$A = $$67^\circ$$ and $$\angle$$B = $$92^\circ$$. What is the difference between the measures of $$\angle$$C and $$\angle$$D?

A $$29^\circ$$

B $$27^\circ$$

C $$19^\circ$$

D $$25^\circ$$

Answer: D

Explanation:
As per the given question,

ABCD is a cyclic quadrilateral.

$$\angle A=67^\circ$$ and $$\angle B=92^\circ$$

But we know that the sum of opposite angle of the cyclic quadrilateral$$= 180$$

So, $$\angle B+\angle D=180^\circ$$----------(i)

and $$\angle C+\angle A=180^\circ$$----------(ii)

Now from the equation (i) and equation (ii),

$$\Rightarrow \angle C- \angle D \angle A-\angle B=0$$

$$\Rightarrow \angle C-\angle D +67^\circ-92^\circ=0$$

$$\Rightarrow \angle C- \angle D=25^\circ$$
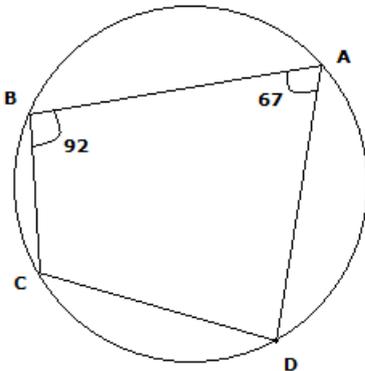
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Instructions

For the following questions answer them individually

Question 76

Select the most appropriate meaning of the given idiom.
actions speak louder than words

A take up a task that you cannot finish

B what you do is more important than what you say

C do something without planning

D look for solutions in the wrong place

Answer: B

Question 77

Select the correct active form of the given sentence.
The crop was adversely affected by the inadequate rainfall.

A The adversely rainfall has affected the inadequate crop.

B The inadequate rainfall was adversely affecting the crop.

C The inadequate rainfall adversely affected the crop.

D The inadequate crop adversely affected the rainfall.

Answer: C

Question 78

Select the antonym of the given word.
PARDON

A mercy

B punish

C kindness

D grace

Answer: B

Question 79

Given below are four jumbled sentences. Select the option that gives their correct order.
A. And 844 million don't have access to clean water close to home, according to the latest report by Water Aid.
B. Around 4 billion people in the world live in physically water-scarce areas.
C. It is because globally we use six times as much water today as we did 100 years ago.
D. The world's water crisis is getting worse.

A DACB

B BDCA

C CADB

D BADC

Answer: D

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Question 80

Select the word which methe same as the group of words given.
A person who draws or produces maps

A calligrapher

B cartographer

C lexicographer

D choreographer

Answer: B

Question 81

Select the word which means the same as the group of words given.
A cylindrical container bulging out in the middle, traditionally made of wooden staves for keeping oil, beer etc.

A bin

B bushel

C barrel

D bale

Answer: C

Instructions

In the following passage some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

Comprehension:
Eager to control the South Atlantic, the British Navy had tasked Admiral Byron (1)......... settling an island off the South American coast (2)........... ships could resupply, and then finding an alternative (3)............. to the East Indies. After rounding the tip of South America, Admiral Byron confronted the world's (4).............. body of water: the endless Pacific Ocean. After a month of empty blue horizon, a tiny island (5).................. Byron joyously described the island's "beautiful appearance — surrounded by a beach of the finest white sand — and covered with tall trees."

Question 82

Select the most appropriate option for blank No.1

A for

B from

C of

D with

Answer: D

Question 83

Select the most appropriate option for blank No.2.

A there

B when

C where

D wherever

Answer: C

Question 84

Select the most appropriate option for blank No.3

A route

B road

C path

D me

Answer: A

Question 85

Select the most appropriate option for blank No.4

A larger

B large

C more larger

D largest

Answer: D

Question 86

Select the most appropriate option for blank No.5

A came out

B appeared

C showed

D stood up

Answer: B

Instructions

For the following questions answer them individually

Question 87

Select the most appropriate option to substitute the underlined segment in the given sentence. If no substitution is required, select No improvement.
If I have money, I purchase this house.

A   I purchased

B   No improvement

C   I have purchased

D   I will purchase

   Answer: D

Question 88

Select the most appropriate meaning of the given idiom.
pull someone's leg

A   trust someone

B   joke with someone

C   get upset with someone

D   tell someone a secret

   Answer: B

Question 89

Select the most appropriate word to fill in the blank.
A number of Indian goods face a _____ competition from Chinese goods in terms of prices and looks.

A   angry

B   powerful

C   fierce

D   bold

   Answer: C

Question 90

Select the most appropriate option to substitute the underlined segment in the given sentence. If no substitution is required, select No improvement.
She read that novel since she got up in the morning.

A   No improvement

B   has been reading that novel

C   reads that novel

D   has read that novel

   Answer: B

Question 91

Select the most appropriate word to fill in the blank.
Many items made of ivory were _____ from a dealer in antiques by the custom authorities at the Delhi airport.

A   appropriated

B   confiscated

C   annexed

D   hijacked

   Answer: B

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Question 92

In the sentence identify the segment which contains the grammatical error.
She lost a big order from a known showroom in case of her own carelessness.

A   in case of

B   her own carelessness

C   She lost a big order

D   from a known showroom

   Answer: A

Question 93

Select the synonym of the given word.
INEPT

A   capable

B   fit

C   strong

D   clumsy

   Answer: D

Question 94

Select the wrongly spelt word.

A   exchange

B   exercise

C   exite

D exclaim

Answer: C

Question 95

Select the synonym of the given word.
INARTICULATE

A fluent

B inevitable

C eloquent

D incoherent

Answer: D

Question 96

Select the correct passive form of the given sentence.
Please show me my son's Mathematics notebook.

A I will please be shown my son's Mathematics notebook.

B I may please be shown my son's Mathematics notebook.

C My son's Mathematics notebook was please shown to me.

D My son may please be shown the Mathematics notebook.

Answer: B

Question 97

Select the wrongly spelt word.

A comparable

B commission

C committee

D consceince

Answer: D

Question 98

Select the antonym of the given word.
EXCEPTIONAL

A uncommon

B unthinkable

C unimaginable

D unremarkable

Answer: D

Question 99

In the sentence identify the segment which contains the grammatical error.
Torrential rains and winds of up to 170 km per hour swept away roads, homes and bridges and knocking down power and communication lines.

A knocking down

B homes and bridges

C swept away roads

D winds of upto

Answer: A

Question 100

Given below are four jumbled sentences. Select the option that gives their correct order.
A. An estimated 70% of this plastic which enters the sea sinks.
B. This is a problem that stretches far beyond India.
C. Eight million tonnes of plastic ends up in the world's oceans every year, causing damage to the fragile ecosystem.
D. And much of it is not biodegradable.

A CADB

B ABDC

C CDBA

D ADBC

Answer: A

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