



2016 SSC CGL 29 Aug Morning Shift

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Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Foot : Man :: Hoof : ?

- A Leg
- B Dog
- C Horse
- D Shoe

Answer: C

Explanation:

A hoof is a foot of a horse, similar as the relationship of the foot of a man.

=> Ans - (C)

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Question 2

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

ACEG : ZXVT :: IKMO : ?

- A MNOP
- B PQRS
- C RPNL
- D LNPR

Answer: C

Explanation:

Expression = ACEG : ZXVT

The pattern followed is that there are as many alphabets to the left of the first letter as there are to the right of the leftmost letter in right hand side

A is the first letter and Z is the last, C is 3rd from left end and X is 3rd from right end. E is 5th from left end and V is 5th from right end. Finally, G is 7th from left end and T is 7th from right end in English alphabetical series.

Similarly, for IKMO :

Now, I is 9th from left end, thus first letter will be 9th from right end = R

K is 11th from left end, second letter will be 11th from right end = P

M is 13th from left end, third letter will be 13th from right end = N

O is 15th from left end, fourth letter will be 15th from right end = L

Thus, missing term = **RPNL**

=> Ans - (A)

Question 3

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

68 : 130 :: 222 : ?

- A 345
- B 365
- C 355
- D 350

Answer: D

Explanation:

Expression = 68 : 130 :: 222 : ?

The pattern followed is $n^3 + n$

$$4^3 + 4 = 68$$

$$5^3 + 5 = 130$$

$$6^3 + 6 = 222$$

Similarly, $7^3 + 7 = 350$

=> Ans - (D)

Question 4

For the following questions

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

- A MARCH
- B MAY
- C JUNE
- D DECEMBER

Answer: C

Explanation:

In March, May and December, there are 31 days, while there are 30 days in June.

=> Ans - (C)

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Question 5

For the following questions

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

- A CZHK
- B SENO
- C XUBU
- D MLAG

Answer: C

Explanation:

In all the terms, except the third one, no letter is repeated, but in third option 'U' is repeated twice.

=> Ans - (C)

Question 6

For the following questions

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

A 1 : 8

B 27 : 64

C 125 : 218

D 343 : 512

Answer: C

Explanation:

The pattern followed is = $n^3 : (n + 1)^3$

$$1 : 8 = 1^3 : 2^3$$

$$27 : 64 = 3^3 : 4^3$$

125 : 218 ; 218 is not a perfect cube

$$343 : 512 = 7^3 : 8^3$$

=> Ans - (C)

Question 7

Arrange the following words as per order in the dictionary

1. Follicle 2. Folk 3. Follow 4. Foliage

A 4, 2, 1, 3

B 3, 4, 2, 1

C 4, 3, 1, 2

D 2, 4, 3, 1

Answer: A

Explanation:

As per order in the dictionary

= Foliage -> Folk -> Follicle -> Follow

≡ 4, 2, 1, 3

=> Ans - (A)

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Question 8

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

8, 15, 28, 53, ?

- A 106
- B 100
- C 108
- D 102

Answer: D

Explanation:

The pattern followed is :

$$8 \times 2 - 1 = 15$$

$$15 \times 2 - 2 = 28$$

$$28 \times 2 - 3 = 53$$

$$53 \times 2 - 4 = 102$$

=> 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.

WFB, TGD, QHG, ?

- A NIL
- B NIK
- C NLK
- D NJL

Answer: B

Explanation:

Expression : WFB, TGD, QHG, ?

The pattern followed is that the first letter in each term is written backwards with a gap of 2 letters between them according to the English alphabetical series. For the second letter, it is a series of consecutive alphabets.

1st letter : W (-3 letters) = T (-3 letters) = Q (-3 letters) = N

2nd letter : F (+1 letters) = G (+1 letters) = H (+1 letters) = I

3rd letter : B (+2 letters) = D (+3 letters) = G (+4 letters) = K

Thus, missing term = **NIK**

=> Ans - (B)

Question 10

The average age of 19 boys in a class is 21 years. If the teacher's age is included, the average increases to 22 years. What is the teacher's age?

- A 39 years
- B 41 years
- C 40 years
- D 44 years

Answer: B

Explanation:

Average age of 19 boys = 21 years

=> Total age of 19 boys = $21 \times 19 = 399$ years

Let age of teacher = x years

Average of class including teacher = $\frac{399+x}{20} = 22$

=> $399 + x = 22 \times 20 = 440$

=> $x = 440 - 399 = 41$ years

=> Ans - (B)

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Question 11

A man is 3 years older than his wife and four times as old as his son. If the son becomes 15 years old after 3 years. Then what is the present age of the wife?

- A 60 years
- B 51 years
- C 48 years
- D 45 years

Answer: D

Explanation:

The son becomes 15 years old after 3 years, => Son's present age = $15 - 3 = 12$ years

=> Man's age = $12 \times 4 = 48$ years

Thus, wife's age = $48 - 3 = 45$ years

=> Ans - (D)

Question 12

From the given alternative words, select the word which can not be formed using the letter of the given word:

UNIVERSALISATION

- A NATION
- B CURTAIN
- C LIVER
- D AVIATION

Answer: B

Explanation:

The word UNIVERSALISATION does not contain any 'C', and thus the word 'Curtain' cannot be formed.

=> Ans - (B)

Question 13

If FRIEND is coded as HTKGP then REVEAL will be coded as:

- A TGXFCN
- B TGXNGC
- C TXGNCG
- D TGXGCN

Answer: D

Explanation:

FRIEND is coded as HTKGP

The pattern followed is :

F	R	I	E	N	D
(+2)	(+2)	(+2)	(+2)	(+2)	(+2)
H	T	K	G	P	F

Similarly, for REVEAL :

R	E	V	E	A	L
(+2)	(+2)	(+2)	(+2)	(+2)	(+2)
T	G	X	G	C	N

=> Ans - (D)

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Question 14

Which of the following interchange of signs would make the equation correct?

$$5 + 3 \times 8 - 12 \div 4 = 3$$

- A + and \div
- B + and \times
- C - and \div
- D + and -

Answer: C

Explanation:

Expression : $5 + 3 \times 8 - 12 \div 4 = 3$

(A) : $5 \div 3 \times 8 - 12 + 4 = 3$

L.H.S. = $\frac{40}{3} - 8 = 5.33 \neq$ R.H.S.

(B) : $5 \times 3 + 8 - 12 \div 4 = 3$

L.H.S. = $15 + 8 - 3 = 20 \neq$ R.H.S.

(C) : $5 + 3 \times 8 \div 12 - 4 = 3$

L.H.S. = $5 + 2 - 4 = 3$ R.H.S.

=> Ans - (C)

Question 15

Select the correct combination of mathematical signs to replace * signs and to balance the equation.

$$48 * 4 * 6 * 3 * 30$$

A -, +, =, x

B ÷, =, x, +

C ÷, +, x, =

D -, =, x, +

Answer: C

Explanation:

Expression = $48 * 4 * 6 * 3 * 30$

(A) : -, +, =, x

$$\equiv 48 - 4 + 6 = 3 \times 30$$

$$\text{L.H.S.} = 50 \neq \text{R.H.S.} = 90$$

(B) : ÷, =, x, +

$$\equiv 48 \div 4 = 6 \times 3 + 30$$

$$\text{L.H.S.} = 12 \neq \text{R.H.S.} = 48$$

(C) : ÷, +, x, =

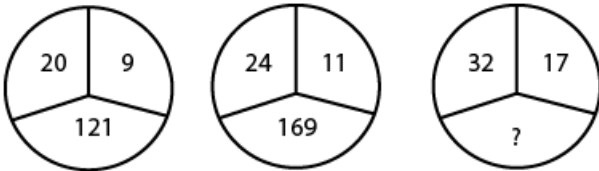
$$\equiv 48 \div 4 + 6 \times 3 = 30$$

$$\text{L.H.S.} = 12 + 18 = 30 \text{ R.H.S.}$$

=> Ans - (C)

Question 16

Find the missing number from the alternatives



A 125

B 175

C 225

D 250

Answer: C

Explanation:

The pattern followed is that the number at the bottom is the square of the difference of other 2 numbers.

$$\text{Eg} = (20 - 9)^2 = (11)^2 = 121$$

$$\text{and } (24 - 11)^2 = (13)^2 = 169$$

$$\text{Similarly, } (32 - 17)^2 = (15)^2 = 225$$

=> Ans - (C)

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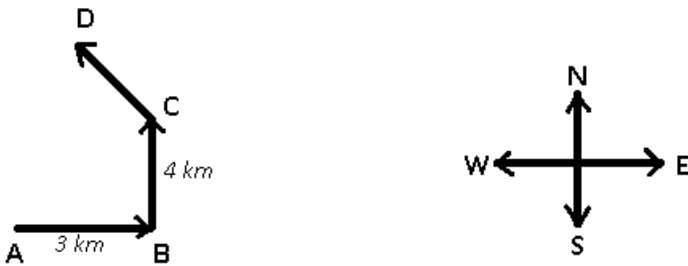
Question 17

Starting from a point, a person travels 3 km towards east and turns left and travels 4 km. Then again he turns to left by 45° and moves straight. Which direction is he facing now?

- A North-East
- B North-West
- C South-East
- D South-West

Answer: B

Explanation:



Let the person starts from point A, he walks 3 km east and reaches B, then he turns left and travels north for 4 km and finally stops at point D.

Thus, he is facing North-West direction.

=> Ans - (B)

Question 18

Consider the given statement/s to be true and decide which of the given conclusions/assumptions can definitely be drawn from the given statement.

Statement: If he works hard he will be successful in life.

Conclusions: I. He is a hard worker.

Conclusions: II. Hard work pays

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

Answer: C

Explanation:

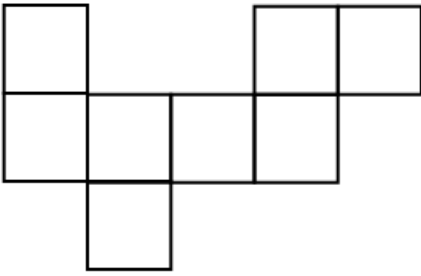
The statement indicates that if a person works hard, he will be successful. This does not mean that everyone works hard, thus conclusion I does not follow. But, it definitely states that hard work pays.

Thus, only II follows

=> Ans - (C)

Question 19

How many rectangles can you see in the figure?



- A 9
- B 8
- C 10
- D 7

Answer: C

Explanation:

Rectangles formed with 2 squares (vertically) = 3

Rectangles formed with 2 squares (horizontally) = 4

Rectangles formed with 3 squares = 2

Rectangles formed with 4 squares = 1

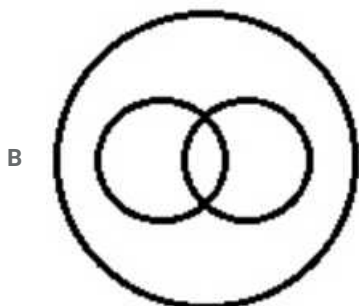
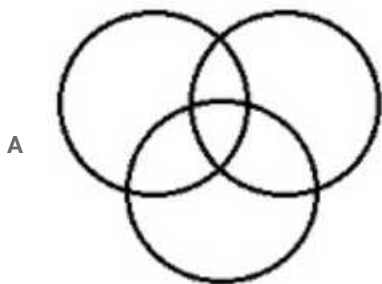
Total rectangles = $3 + 4 + 2 + 1 = 10$

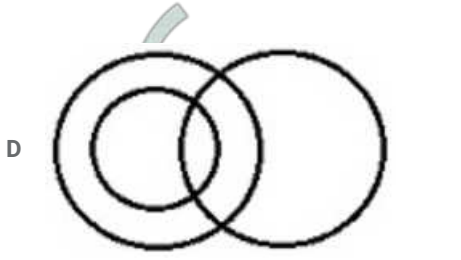
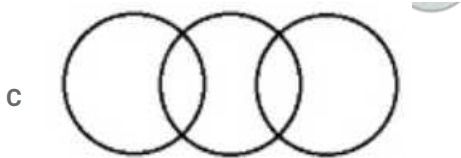
=> Ans - (C)

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Question 20

Identify the diagram that best represents the relationship among classes given below
Tennis fans, Cricket players, Students





Answer: A

Explanation:

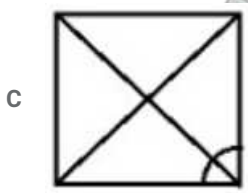
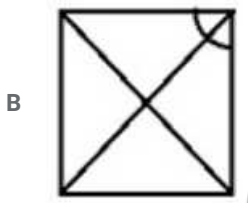
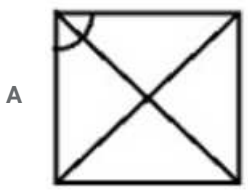
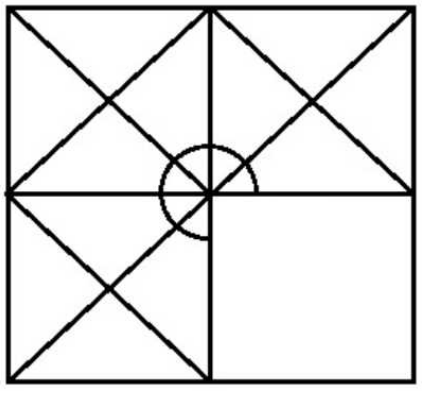
A student can be both a tennis fan and a cricket player. Similarly, a tennis fan can be both a student and a cricket player.

Thus, all of the three are interrelated and first option best describes above relationship.

=> Ans - (A)

Question 21

Which answer figure will complete the pattern in the question figure?



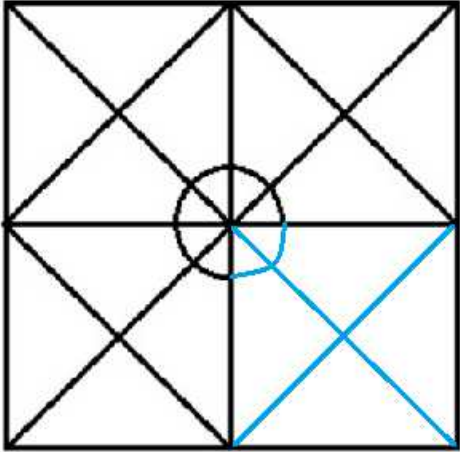
D



Answer: A

Explanation:

When we complete the above figure, we get :

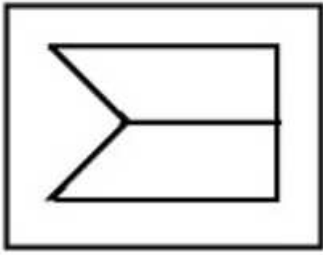


Now, the first figure resembles the above missing part in blue colour.

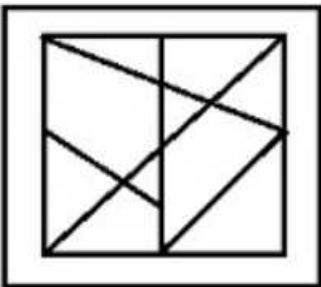
=> Ans - (A)

Question 22

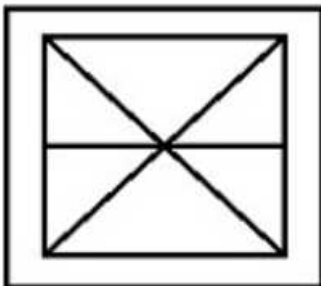
From the given answer figures, select the one in which the question figure is hidden/embedded.



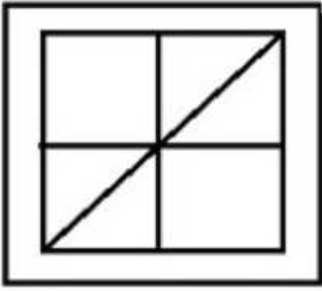
A



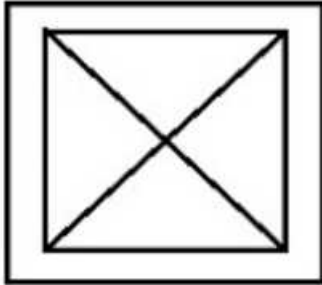
B



C



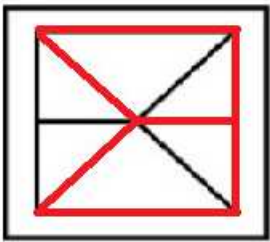
D



Answer: B

Explanation:

The question figure is embedded in the following figure :

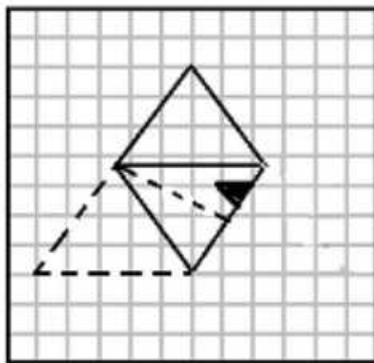
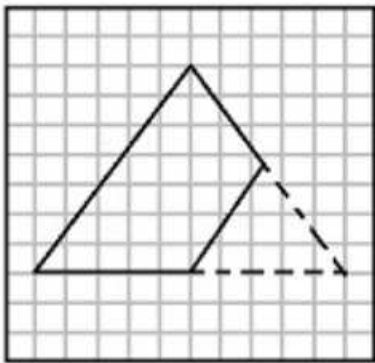


=> Ans - (B)

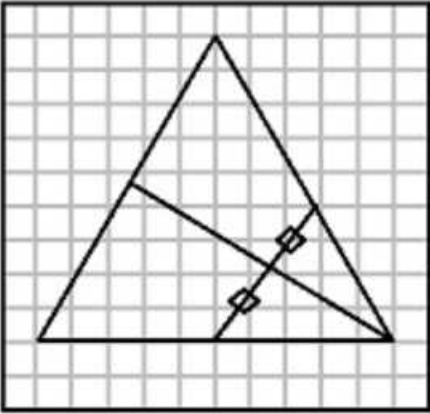
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Question 23

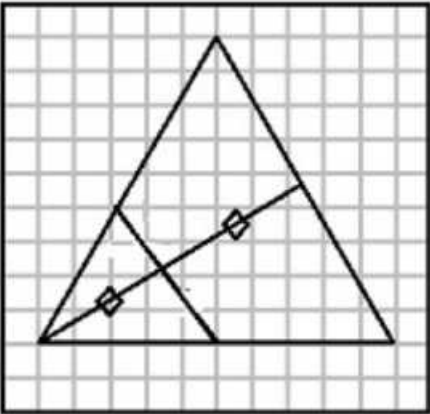
A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



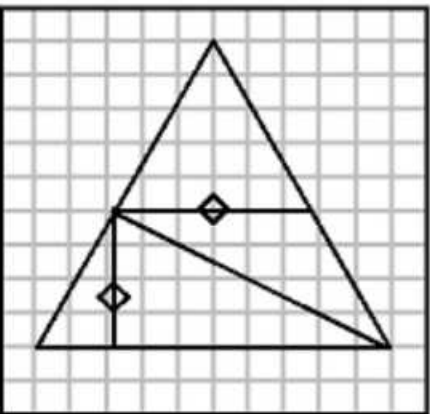
A



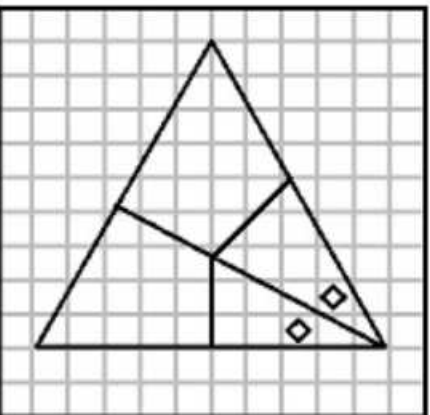
B



C



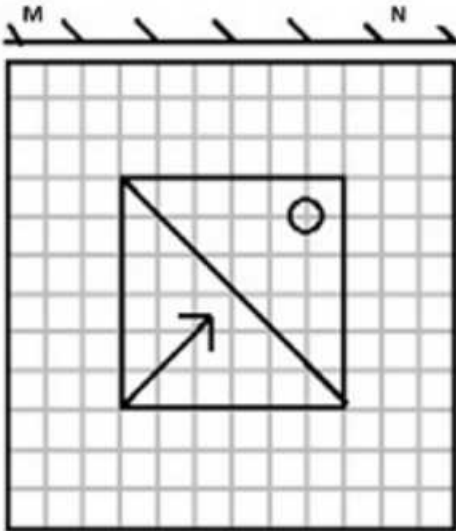
D



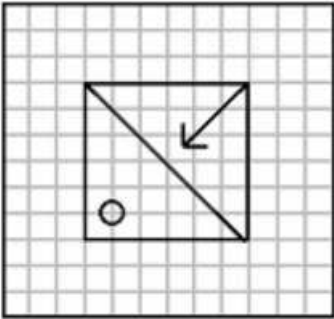
Answer: A

Question 24

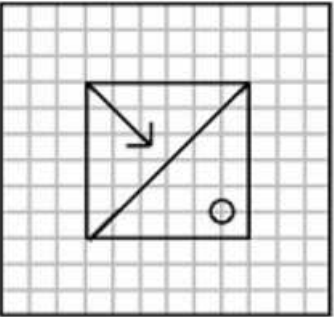
If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?



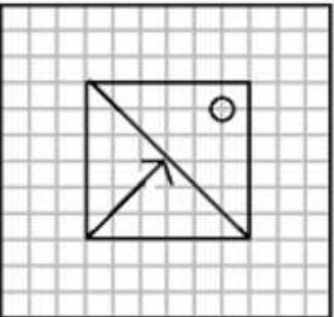
A



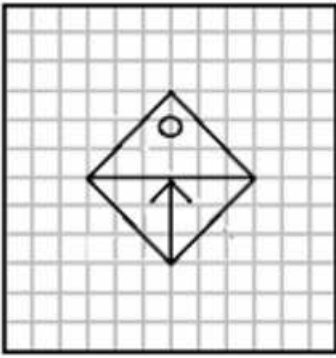
B



C



D



Answer: B

Explanation:

A horizontal mirror is placed, so the objects will turn upside down in the mirror image (e.g - an object at top right will appear at bottom right).

The left diagonal in the question figure will appear as right diagonal in the mirror image. The arrow is pointing at top right which will change to bottom right, thus only the second figure is valid.

=> Ans - (B)

Question 25

In the question, 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 in two matrices given below. 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, e.g., A can be represented by 02, 31, etc., and 'K' can be represented by 33, 78, etc.

Similarly you have to identify the set for the word 'REST'

Matrix - I

	0	1	2	3	4
0	T	R	A	F	E
1	O	C	M	P	O
2	E	S	R	T	A
3	M	A	N	P	C
4	E	T	F	N	R

Matrix - II

	5	6	7	8	9
5	E	S	A	F	R
6	A	R	O	S	C
7	T	O	E	P	S
8	S	M	T	A	N
9	R	C	T	F	E

A 22, 20, 79, 99

B 66, 77, 68, 23

C 44, 77, 24, 87

D 22, 77, 79, 76

Answer: B

Explanation:

(A) : 22, 20, 79, 99 = RESE

(B) : 66, 77, 68, 23 = REST

(C) : 44, 77, 24, 87 = REAT

(D) : 22, 77, 79, 76 = RESO

=> Ans - (B)

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General Awareness

Instructions

For the following questions answer them individually

Question 26

In a Parliamentary form of Government _____

- A The Legislature is responsible to the Judiciary
- B The Executive is responsible to the Legislature.
- C The Legislature is responsible to the Executive
- D The Judiciary is responsible to the Legislature

Answer: B

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Question 27

Which of the following statements is correct about the President of India ?

- A Addresses first session of Parliament after each General Election.
- B Addresses first session of Parliament at the beginning of each year
- C Addresses every session of Parliament
- D Never addresses Parliament

Answer: A

Question 28

Which of the following periodicals is not correctly matched with its editor?

- A Bande Mataram:Aurobindo Ghosh
- B New India:Bipin Chandra Pal
- C Yugantar:Bhupendranath Dutta
- D Sandhya:Barindra Ghosh

Answer: D

Question 29

Silk worms feed on

- A Basil leaves
- B Curry leaves
- C Rose leaves
- D Mulberry leaves

Answer: D

Explanation:

Silkworms can only survive on Mulberry leaves.

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Question 30

Who among the following has been appointed the new Coach of the Indian Cricket team by the BCCI recently?

- A Saurav Ganguly
- B Anil Kumble
- C Rahul Dravid
- D S. R. Kulkarni

Answer: B

Question 31

What is the product formed when sodium bicarbonate is heated by?

- A Sodium Carbonate
- B Sodium Hydroxide
- C Sodium Peroxide
- D Sodium Monoxide

Answer: A

Question 32

Mission Indradhanush - a programme introduced recently in the country by the NDA Government is related to:

- A Systematic immunization of children against disease
- B Providing insurance cover to farmers against crop failure
- C Development of fisheries in rural areas
- D Development of multiple cropping in hilly region

Answer: A

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Question 33

Who among the following Indians has been honoured by a special Oscar?

- A Mahesh Bhatt
- B Satyajit Ray
- C Mira Nair
- D G.P.Sippy

Answer: B

Question 34

What situation would result if Government expenditure exceeds the Government revenue on Current Account?

- A Deficit budgeting
- B Zero-based budgeting
- C Performance-based budgeting
- D Surplus budgeting

Answer: A

Question 35

Disguised unemployment in India is mainly related to

- A Agricultural sector
- B Rural Area
- C Factory sector
- D Urban Area

Answer: A

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Question 36

Which of the following is not guaranteed by Indian Constitution?

- A Right to Equality
- B Right of religious freedom
- C Right to Constitutional remedies
- D Right to free education for all

Answer: D

Question 37

A wide inlet of the sea usually concave in shape, is termed as a:

- A strait
- B Sound
- C Bay
- D Fjord

Answer: C

Question 38

Punjab has a large number of inundation canals drawing water from

- A Jhelum river
- B Chenab river
- C Beas river
- D Sutlej river

Answer: D

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Question 39

The sexual reproductive organs of aspergillus are :

- A Spermatium and Oogonium
- B Antheridium and Oogonium
- C Spermatium and Ascogonium
- D Antheridium and Ascogonium

Answer: D

Question 40

Stars twinkle but planets do not twinkle because

- A they emit light of a constant intensity
- B their distance from the earth does not change with time
- C they are very far away from the earth resulting in decrease in intensity of light
- D they are nearer to the earth and hence we receive a greater amount of light and therefore minor variations in intensity are not noticeable

Answer: D

Question 41

Which of the following is not true about X-rays?

- A have low penetrating power
- B travel with the speed of light
- C Can be reflected or refracted
- D can affect photographic plates

Answer: A

Explanation:

X-Rays have a high penetrating power

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Question 42

_____changes each time it is installed to avoid detection by antivirus software.

- A Polymorphic virus
- B worm
- C logic bomb
- D trojan horse

Answer: A

Question 43

Which one of the following weeds is effective in controlling water pollution caused by industrial effluents?

- A Parthenium
- B Elephant grass
- C Water hycinth
- D Mogar grass

Answer: A

Question 44

One of the following is also called as World Bank

- A IMF
- B IBRD
- C WTO
- D IDA

Answer: B

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Question 45

The book entitled, 'Playing it my way' has been authored by

- A Sachin Tendulkar
- B V V S Laxman
- C Saurav Ganguly
- D Chetan Chauhan

Answer: A

Question 46

Which of the following is an example of Cartel?

- A OPEC
- B IMF
- C WTO
- D UNO

Answer: A

Question 47

Sullage water is_____

- A Waste water released from kitchen
- B waste water released from toilets
- C waste water released from factories
- D waste water released from hospitals

Answer: A

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Question 48

Who was the first woman Chief Minister of Uttar Pradesh?

- A Annie Besant
- B Mayawati
- C Vijayalakshmi Pandit
- D Sucheta Kriplani

Answer: D

Question 49

The most pure form of carbon among the options is

- A Anthracite
- B Lampblack
- C Graphite
- D Wood Charcoal

Answer: A

Question 50

Chalukya temples (Jain temples) at Dilwara are situated in

- A Madhya Pradesh
- B Uttar Pradesh

C Rajasthan

D Haryana

Answer: C

SSC CGL Free Mock Test

Mathematics

Instructions

For the following questions answer them individually

Question 51

The difference between the greatest and least five-digit numbers formed by the digits 2,5,0,6,8 is (repetition of digits are not allowed)

A 69552

B 65925

C 65952

D 63952

Answer: C

125 SSC CGL Mocks for just Rs. 199

Question 52

The price of a shirt after 15% discount, is Rs.119. What was the marked price of the shirt before discount

A Rs.129

B Rs.140

C Rs.150

D Rs.160

Answer: B

Explanation:

Selling price = Rs. 119

Discount % = 15%

=> Marked price of shirt = $119 \times \frac{100}{100-15}$

= $7 \times \frac{100}{5} = Rs. 140$

=> Ans - (B)

Question 53

If $\frac{a}{q-r} = \frac{b}{r-p} = \frac{c}{p-q}$, find the value of $pa+qp+rc$ is

A 0

B 1

C 2

D -1

Answer: A

Explanation:

a

Let $q - r = k$

pa

$$pq - pr = k$$

$$pa = k(pq - pr) = kpq - kpr$$

b

$$r - p = k$$

$$qb = k(qr - pq) = kqr - kpq$$

c

$$p - q = k$$

$$rc = k(rp - rq) = kpr - kqr$$

$$pa + qb + rc = kpq - kpr + kqr - kpq + kpr - kqr = 0$$

Question 54

The average of a,b,c is 20 and that of b,c,d is 25; if d=30, then the value of a is

A 25

B 45

C 30

D 15

Answer: D

Explanation:

Average of a,b,c = 20

$$\Rightarrow \text{Sum} = a + b + c = 3 \times 20 = 60 \text{ -----(i)}$$

$$\text{Similarly, sum of b,c,d} = b + c + d = 3 \times 25 = 75 \text{ -----(ii)}$$

Also, $d = 30$

Substituting it in equation (ii)

$$\Rightarrow b + c = 75 - 30 = 45$$

Again substituting above value in equation (i), we get :

$$\Rightarrow a + 45 = 60$$

$$\Rightarrow a = 60 - 45 = 15$$

\Rightarrow Ans - (D)

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Question 55

A store sells a watch for a profit of 25% of the cost. Then the percentage of profit against selling price is

- A 22%
- B 20%
- C 18%
- D 15%

Answer: B

Explanation:

Let cost of watch = Rs. $100x$

Profit % = 25%

$$\Rightarrow \text{Selling price} = 100x + \left(\frac{25}{100} \times 100x\right) = \text{Rs. } 125x$$

$$\therefore \text{Percentage of profit against selling price} = \frac{125x - 100x}{125x} \times 100$$

$$= \frac{1}{5} \times 100 = 20\%$$

\Rightarrow Ans - (B)

Question 56

If A is equal to 20% of B and B is equal to 25% of C; then what percent of C is equal to A?

- A 10
- B 15
- C 5
- D 20

Answer: C

Explanation:

Let C = $100x$

$$\Rightarrow B = \frac{25}{100} \times 100x = 25x$$

$$\Rightarrow A = \frac{20}{100} \times 25x = 5x$$

$$\therefore \text{Required \%} = \frac{5x}{100x} \times 100$$

$$= 5\%$$

\Rightarrow Ans - (C)

Question 57

A gun is fired at a distance of 1.7 km from Ram and he hears the sound after 25 seconds. The speed of sound in meter per second is

- A 60
- B 62
- C 64
- D 68

Answer: D

Explanation:

Distance of gun from Ram = 1.7 km = 1700 m

Time = 25 seconds

=> Speed of sound = distance/time

$$= \frac{1700}{25} = 68 \text{ m/s}$$

=> Ans - (D)

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Question 58

A sum of ₹ 3000 yields an interest of ₹ 1080 at 12% per annum simple interest in how many years ?

- A 4 Years
- B 3 Years
- C 5 years
- D 2½ Years

Answer: B

Explanation:

Principal sum = P = Rs. 3000

Let time period = t years and rate of interest = 12%

$$\text{Simple interest} = \frac{P \times r \times t}{100}$$

$$\Rightarrow \frac{3000 \times 12 \times t}{100} = 1080$$

$$\Rightarrow 360t = 1080$$

$$\Rightarrow t = \frac{1080}{360} = 3 \text{ years}$$

=> Ans - (B)

Question 59

The simplest value of $\frac{3\sqrt{8}-2\sqrt{12}+\sqrt{20}}{3\sqrt{18}-2\sqrt{27}+\sqrt{45}}$ is

- A 3/2
- B 2/3
- C 1/3
- D 2

Answer: B

Explanation:

$$\text{Expression : } \frac{3\sqrt{8}-2\sqrt{12}+\sqrt{20}}{3\sqrt{18}-2\sqrt{27}+\sqrt{45}}$$

$$= (3\sqrt{2^2 \times 2} - 2\sqrt{2^2 \times 3} + \sqrt{2^2 \times 5}) \div (3\sqrt{3^2 \times 2} - 2\sqrt{3^2 \times 3} + \sqrt{3^2 \times 5})$$

$$= (6\sqrt{2} - 4\sqrt{3} + 2\sqrt{5}) \div (9\sqrt{2} - 6\sqrt{3} + 3\sqrt{5})$$

$$= \frac{2(3\sqrt{2}-2\sqrt{3}+\sqrt{5})}{3(3\sqrt{2}-2\sqrt{3}+\sqrt{5})}$$

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

=> Ans - (B)

Question 60

If $(a + \frac{1}{a})^2 = 3$, the value of $a^3 + \frac{1}{a^3}$ is

A 0

B $3(a + \frac{1}{a})$

C $3(a^2 + \frac{1}{a^2})$

D 1

Answer: A

Explanation:

Given : $(a + \frac{1}{a})^2 = 3$

$$\Rightarrow (a + \frac{1}{a}) = \sqrt{3} \text{-----(i)}$$

Cubing both sides, we get :

$$\Rightarrow (a + \frac{1}{a})^3 = (\sqrt{3})^3$$

$$\Rightarrow a^3 + \frac{1}{a^3} + 3(a)(\frac{1}{a})(a + \frac{1}{a}) = 3\sqrt{3}$$

$$\Rightarrow a^3 + \frac{1}{a^3} + 3(\sqrt{3}) = 3\sqrt{3} \text{ [Using (i)]}$$

$$\Rightarrow a^3 + \frac{1}{a^3} = 3\sqrt{3} - 3\sqrt{3} = 0$$

\Rightarrow Ans - (A)

SSC CGL Tier-2 Previous Papers PDF

Question 61

If $\frac{a^2+b^2}{c^2} = \frac{b^2+c^2}{a^2} = \frac{c^2+a^2}{b^2} = \frac{1}{k}, (k \neq 0)$ then $k=?$

A 2

B 1

C 0

D 1/2

Answer: D

Explanation:

Given : $\frac{a^2+b^2}{c^2} = \frac{b^2+c^2}{a^2} = \frac{c^2+a^2}{b^2} = \frac{1}{k}, (k \neq 0)$

$$\Rightarrow a^2 + b^2 = \frac{c^2}{k} \text{-----(i)}$$

$$\text{Similarly, } b^2 + c^2 = \frac{a^2}{k} \text{-----(ii)}$$

$$\text{and } c^2 + a^2 = \frac{b^2}{k} \text{-----(iii)}$$

Adding equations (i),(ii) and (iii)

$$\Rightarrow 2(a^2 + b^2 + c^2) = \frac{a^2}{k} + \frac{b^2}{k} + \frac{c^2}{k} = \frac{a^2+b^2+c^2}{k}$$

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

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

=> Ans - (D)

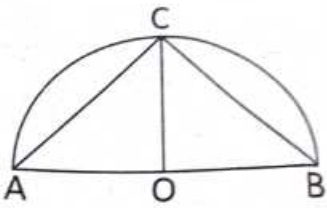
Question 62

The area of the largest triangle that can be inscribed in a semicircle of radius 6 m is

- A $36m^2$
- B $72m^2$
- C $18m^2$
- D $12m^2$

Answer: A

Explanation:



OA = OB = OC = 6 m (radii of semi circle)

$$\begin{aligned} \Rightarrow \text{Area of } \triangle ABC &= \frac{1}{2} \times (OC) \times (AB) \\ &= \frac{1}{2} \times 6 \times 12 \\ &= 6 \times 6 = 36 m^2 \end{aligned}$$

=> Ans - (A)

Question 63

The value of $\frac{\sin\theta}{1+\cos\theta} + \frac{\sin\theta}{1-\cos\theta}$ is

- A $2\sin\theta$
- B $2\cos\theta$
- C $2\sec\theta$
- D $2\operatorname{cosec}\theta$

Answer: D

Explanation:

$$\begin{aligned} \text{Expression : } &\frac{\sin\theta}{1+\cos\theta} + \frac{\sin\theta}{1-\cos\theta} \\ &= \frac{\sin\theta(1-\cos\theta) + \sin\theta(1+\cos\theta)}{(1+\cos\theta)(1-\cos\theta)} \\ &= \frac{(\sin\theta - \sin\theta\cos\theta) + (\sin\theta + \sin\theta\cos\theta)}{1-\cos^2\theta} \\ &= \frac{2\sin\theta}{\sin^2\theta} \\ &= \frac{2}{\sin\theta} = 2\operatorname{cosec}\theta \end{aligned}$$

=> Ans - (D)

Question 64

Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. The ratio between the capacity of a man and a woman is

- A 3:4
- B 4:3
- C 5:3
- D 5:7

Answer: B

Explanation:

20 women can do a work in 16 days.

(20 x 16) women can complete the work in 1 day

$$\therefore 1 \text{ woman's 1 day's work} = \frac{1}{320}$$

Similarly, (16 x 15) men can complete the work in 1 day

$$\therefore 1 \text{ man's 1 day's work} = \frac{1}{240}$$

$$\Rightarrow \text{Required ratio} = \frac{1}{240} : \frac{1}{320}$$

$$= \frac{1}{3} : \frac{1}{4} = 4 : 3$$

\Rightarrow Ans - (B)

Question 65

If $2x + \frac{2}{9x} = 4$, then the value of $27x^3 + \frac{1}{27x^3}$ is

- A 180
- B 198
- C 234
- D 252

Answer: B

Explanation:

$$\text{Given : } 2x + \frac{2}{9x} = 4$$

$$\Rightarrow x + \frac{1}{9x} = \frac{4}{2} = 2$$

Multiplying both sides by 3,

$$\Rightarrow 3x + \frac{1}{3x} = 6 \text{ -----(i)}$$

Cubing both sides, we get :

$$\Rightarrow \left(3x + \frac{1}{3x}\right)^3 = (6)^3$$

$$\Rightarrow 27x^3 + \frac{1}{27x^3} + 3\left(3x\right)\left(\frac{1}{3x}\right)\left(3x + \frac{1}{3x}\right) = 216$$

$$\Rightarrow 27x^3 + \frac{1}{27x^3} + 3(6) = 216 \text{ [Using (i)]}$$

$$\Rightarrow 27x^3 + \frac{1}{27x^3} = 216 - 18 = 198$$

\Rightarrow Ans - (B)

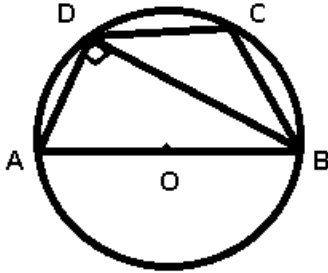
Question 66

In a cyclic quadrilateral ABCD $\angle BCD=120^\circ$ and AB passes through the centre of the circle. Then $\angle ABD = ?$

- A 30°
- B 40°
- C 50°
- D 60°

Answer: A

Explanation:



Given : ABCD is a cyclic quadrilateral and $\angle BCD=120^\circ$

To find : $\angle ABD = \theta = ?$

Solution : Sum of opposite angles of a cyclic quadrilateral = 180°

$$\Rightarrow \angle BCD + \angle BAD = 180^\circ$$

$$\Rightarrow \angle BAD = 180 - 120 = 60^\circ$$

Also, the angle subtended by an arc at the centre is double the angle subtended by it at any point on the circle.

$$\Rightarrow \angle ADB = \frac{\angle AOB}{2} = \frac{180}{2} = 90^\circ$$

Now, in $\triangle ABD$,

$$\Rightarrow \angle BAD + \angle ADB + \angle ABD = 180^\circ$$

$$\Rightarrow 60^\circ + 90^\circ + \theta = 180^\circ$$

$$\Rightarrow \theta = 180 - 150 = 30^\circ$$

\Rightarrow Ans - (A)

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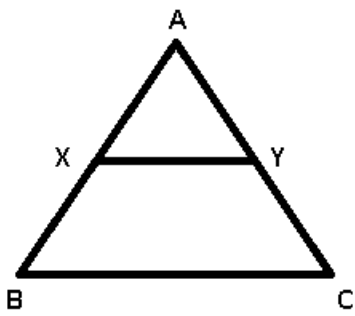
Question 67

The midpoints of AB and AC of a triangle ABC are X and Y respectively. If $BC+XY=12$ units, then $BC-XY$ is

- A 10 units
- B 8 units
- C 6 units
- D 4 units

Answer: D

Explanation:



Given : X and Y are mid points of AB and AC respectively of triangle ABC and $BC + XY = 12$ units -----(i)

$$\Rightarrow \frac{AX}{AB} = \frac{AY}{AC} = \frac{XY}{BC} = \frac{1}{2} \text{ -----(ii)}$$

To find : $BC - XY = ?$

Solution : From equation (ii), let $BC = 2z$ and $XY = z$

Substituting it in equation (i), $\Rightarrow 2z + z = 3z = 12$

$$\Rightarrow z = \frac{12}{3} = 4 \text{ units}$$

$\Rightarrow BC = 8$ units and $AX = 4$ units

$\therefore BC - XY = 8 - 4 = 4$ units

\Rightarrow Ans - (D)

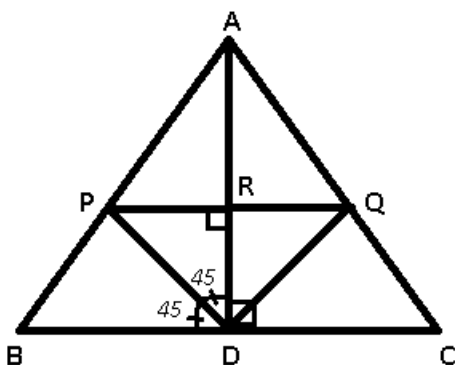
Question 68

In an isosceles $\triangle ABC$, AD is the median to the unequal side meeting BC at D. DP is the angle bisector of $\angle ADB$ and PQ is drawn parallel to BC meeting AC at Q. Then the measure of $\angle PDQ$ is

- A 130°
- B 90°
- C 180°
- D 45°

Answer: B

Explanation:



Given : ABC is an isosceles triangle and AD is the median and PD is the angle bisector.

To find : $\angle PDQ = ?$

Solution : The median of an isosceles triangle bisects the opposite side at right angle, $\Rightarrow \angle ADC = 90^\circ$

$$\therefore \text{PD is angle bisector, } \Rightarrow \angle PDR = \frac{90}{2} = 45^\circ \text{ -----(i)}$$

and DQ will bisect $\angle RDC$

$$\Rightarrow \angle RDQ = 45^\circ \text{ -----(ii)}$$

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

$$\Rightarrow \angle PDR + \angle RDQ = 45^\circ + 45^\circ$$

$$\Rightarrow \angle PDQ = 90^\circ$$

\Rightarrow Ans - (B)

Question 69

129 meter from the foot of a cliff on level of ground, the angle of elevation of the top of a cliff is 30° . The height of this cliff is

A $50\sqrt{3}$ metre

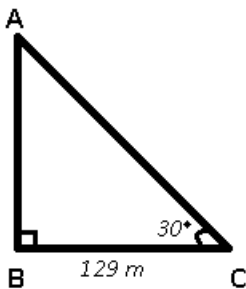
B $45\sqrt{3}$ metre

C $43\sqrt{3}$ metre

D $47\sqrt{3}$ metre

Answer: C

Explanation:



Given : $BC = 129$ m and $\angle ACB = 30^\circ$

To find : AB is the cliff = ?

Solution : In $\triangle ABC$,

$$\Rightarrow \tan(30^\circ) = \frac{AB}{BC}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{AB}{129}$$

$$\Rightarrow AB = \frac{129}{\sqrt{3}}$$

$$\Rightarrow AB = 43\sqrt{3} \text{ m}$$

\Rightarrow Ans - (C)

General Science Notes for SSC CGL

Question 70

The volume of metallic cylindrical pipe of uniform thickness is 748 c.c. Its length is 14 cm and its external radius is 9 cm. The thickness of the pipe is

A 0.5 cm

B 1.5 cm

C 1 cm

D 2 cm

Answer: C

Explanation:

Let internal radius = r cm and external radius = $R = 9$ cm

Length of pipe = $h = 14$ cm

$$\Rightarrow \text{Volume of pipe} = \pi(R^2 - r^2)h = 748$$

$$\Rightarrow \frac{22}{7} \times 14 \times (9^2 - r^2) = 748$$

$$\Rightarrow 44 \times (81 - r^2) = 748$$

$$\Rightarrow 81 - r^2 = \frac{748}{44}$$

$$\Rightarrow 81 - r^2 = 17$$

$$\Rightarrow r^2 = 81 - 17 = 64$$

$$\Rightarrow r = \sqrt{64} = 8 \text{ cm}$$

\therefore Thickness of pipe = $9 - 8 = 1$ cm

\Rightarrow Ans - (C)

Question 71

If $\tan\theta = \frac{8}{15}$, the value of $\sqrt{\frac{1-\sin\theta}{1+\sin\theta}}$ is

A 1/5

B 2/5

C 3/5

D 0

Answer: C

Explanation:

Given : $\tan\theta = \frac{8}{15}$

Using, $\sec^2\theta - \tan^2\theta = 1$

$$\Rightarrow \sec^2\theta = 1 + \left(\frac{8}{15}\right)^2 = 1 + \frac{64}{225}$$

$$\Rightarrow \sec^2\theta = \frac{225+64}{225} = \frac{289}{225}$$

$$\Rightarrow \sec\theta = \sqrt{\frac{289}{225}} = \frac{17}{15}$$

To find : $\sqrt{\frac{1-\sin\theta}{1+\sin\theta}}$

$$= \sqrt{\frac{1-\sin\theta}{1+\sin\theta}} \times \sqrt{\frac{1-\sin\theta}{1-\sin\theta}}$$

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

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

$$= \frac{1}{\cos\theta} - \frac{\sin\theta}{\cos\theta} = \sec\theta - \tan\theta$$

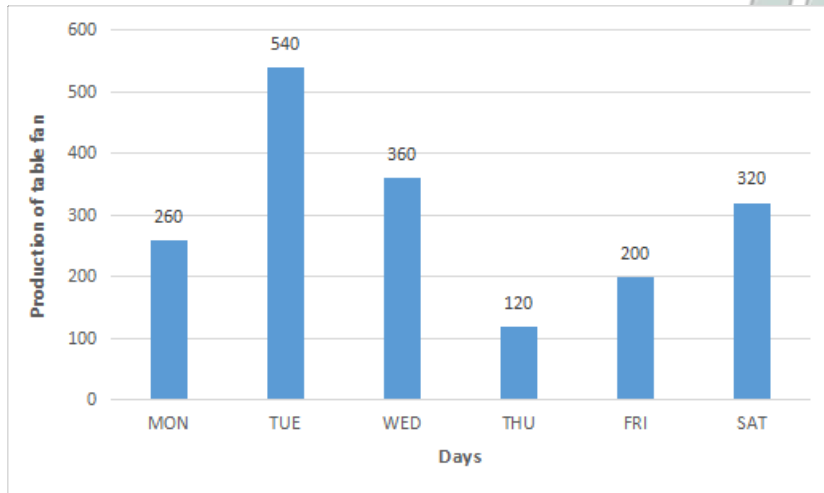
$$= \frac{17}{15} - \frac{8}{15} = \frac{17-8}{15}$$

$$= \frac{9}{15} = \frac{3}{5}$$

=> Ans - (C)

Instructions

The bar graph shows the production of table fans in a factory during one week. Study the bar graph and answer the question.



Question 72

The maximum production exceeds the minimum production by:

- A 400
- B 420
- C 500
- D 540

Answer: B

Explanation:

Maximum production of the week on Tuesday = 540

Minimum production of the week on Thursday = 120

=> Required difference = $540 - 120 = 420$

=> Ans - (B)

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Question 73

The average production of table fan in that week is

- A 370
- B 280
- C 300
- D 250

Answer: C

Explanation:

Total production of table fans during the week

= $260 + 540 + 360 + 120 + 200 + 320 = 1800$

=> Average production of table fans during the week = $\frac{1800}{6} = 300$

=> Ans - (C)

Question 74

Ratio of the total production of table fans in the factory from Monday to Wednesday to that from Thursday to Saturday is

A 19:26

B 26:19

C 29:16

D 16:29

Answer: C

Explanation:

Total production of table fans in the factory from Monday to Wednesday

$$= 260 + 540 + 360 = 1160$$

Total production of table fans in the factory from Thursday to Saturday

$$= 120 + 200 + 320 = 640$$

$$\Rightarrow \text{Required ratio} = \frac{1160}{640} = \frac{29}{16}$$

=> Ans - (C)

Question 75

The average production of table fans on Monday & Tuesdays exceeds the average production of table fans during the week by

A 150 fans

B 100 fans

C 140 fans

D 200 fans

Answer: B

Explanation:

Total production of table fans on Monday & Tuesdays = $260 + 540 = 800$

$$\Rightarrow \text{Average production of table fans on Monday & Tuesdays} = \frac{800}{2} = 400$$

Total production of table fans during the week = $260 + 540 + 360 + 120 + 200 + 320 = 1800$

$$\Rightarrow \text{Average production of table fans during the week} = \frac{1800}{6} = 300$$

\therefore Required difference = $400 - 300 = 100$ fans

=> Ans - (B)

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English

Instructions

For the following questions answer them individually

Question 76

In the following question, out of the four alternatives, choose the word which best expresses the meaning of the given word and click the button corresponding to it.

DECIMATED

- A CAPTURED
- B DESTROYED
- C DAMAGED
- D WORRIED

Answer: B

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Question 77

In the following question, out of the four alternatives, choose the word which is opposite in meaning to the given word and click the button corresponding to it.

INVINCIBLE

- A IMPREGNABLE
- B OMNIPRESENT
- C POWERLESS
- D POTENT

Answer: C

Question 78

Four words are given, out of which only one word is spelt correctly. Choose the correctly spelt word and click the button corresponding to it.

- A Diarrhoea
- B Diarhea
- C Diarrhea
- D Diarrohea

Answer: A

Question 79

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

It took her a long time(a)/to get off (b)/the death of her husband.(c)/No Error(d)

- A It took her a long time
- B to get off
- C the death of her husband

D No Error

Answer: B

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Question 80

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

It is best(a)/ to be silent(b)/ than to speak in anger.(c)/No Error(d)

A It is best

B to be silent

C than to speak in anger

D No Error

Answer: A

Question 81

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

His father is disgusted(a)/against him for his(b)/addiction to drink.(c)/No Error(d)

A His father is disgusted

B against him for his

C addiction to drink

D No Error

Answer: B

Question 82

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

The aim of a Peace Council is _____ rather than cure.

A salvation

B preservation

C maintenance

D cultivation

Answer: B

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Question 83

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

He gives everyone _____ the class opportunities for practice.

- A at
- B in
- C of
- D on

Answer: B

Question 84

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

Harish soon gained _____ in English.

- A provincialism
- B proficiency
- C efficiency
- D eminency

Answer: B

Question 85

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Beggar description

- A Cannot be described
- B Something described by a beggar
- C A poor account of something
- D A description of a beggar

Answer: A

Explanation:

'Beggar's description' is used to talk about something which is very difficult to describe.

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Question 86

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Drag one's feet

- A Make something more complicated

- B Expedite
- C Be reluctant to act
- D Stop working

Answer: C

Question 87

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Hope against hope

- A Think wishfully from time to time
- B Hoped with good reason
- C Nurture an impossible hope
- D Pretend to hope

Answer: C

Question 88

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

Lack of skill

- A Inertness
- B Insistence
- C Ineptness
- D Insolence

Answer: C

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Question 89

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

Stick with a thick end used in a mortar for pounding

- A Thistle
- B Stifle
- C Sceptre
- D Pestle

Answer: D

Question 90

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

An act when people vote in order to make a decision about a particular subject or policy rather than voting for a person

- A Election
- B Exit-poll
- C By-election
- D Referendum

Answer: D

Question 91

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

Jane had told me that she hasn't done her homework.

- A told
- B tells
- C was telling
- D no improvement

Answer: B

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Question 92

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

This survey is concerning your health as well as that of your family.

- A concerns with
- B is concerned with
- C concerns to
- D no improvement

Answer: B

Question 93

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

A city that is set on a hill cannot be hidden.

- A be hid
- B hide
- C be hiding
- D no improvement

Answer: D

Question 94

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

A black and white goat were grazing.

- A The white and the black goat
- B A black and a white goat
- C A black and is white goat
- D no improvement

Answer: B

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Question 95

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

I had took the papers to John's office.

- A will took the papers
- B taken the papers
- C took the papers
- D no improvement

Answer: C

Instructions

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives and click the button corresponding to it.

"Tryst with Destiny" was a speech delivered by Jawaharlal Nehru, the first Prime Minister of independent India, to the Indian Constituent Assembly in Parliament, on 14th August 1947. It is considered to be one of the greatest speeches of all times and to be a landmark oration that captures the essence of the triumphant culmination of the largely non-violent Indian independence struggle against the British Empire in India.

"Long years ago we made a tryst with destiny, and now the time comes when we shall redeem our pledge, not wholly or in full measure, but very substantially. Freedom and power bring responsibility. The responsibility rests upon the assembly, a sovereign body representing the sovereign people of India. The service of India means the service of the millions who suffer. It means the ending of poverty and ignorance and disease and inequality of opportunity. We cannot encourage communalism or narrow-mindedness, for no nation can be great whose people are narrow in thought or in action.

To the people of India, whose representatives we are, this is no time for petty and destructive criticism, no time for ill will or blaming others. We have to build the noble mansion of free India where all her children may dwell".

Question 96

To whom did Nehru deliver this famous speech?

- A Nehru delivered this speech to a massive Indian crowd in attendance.
- B Nehru delivered this speech to the members of the Constituent Assembly.
- C Nehru delivered this speech to the members of the Lok Sabha
- D Nehru delivered this speech to the members of the Rajya Sabha.

Answer: B

Question 97

Choose the answer which captures Nehru's belief.

- A Nehru believed that India could achieve perfection immediately.
- B Nehru said the India's struggle for freedom was new and sudden.
- C Nehru believed that India could take huge steps towards realising its dreams.
- D Nehru believed that India's dreams were too unrealistic.

Answer: C

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Question 98

The most dominant voice in the speech is

- A the voice of optimism
- B the voice of surrender
- C the voice of negligence
- D the voice of weakness

Answer: A

Question 99

Select the answer which best reflects Nehru's point of view.

- A Nehru believed that Communalism would not be a problem.
- B Nehru believed that Communalism would be a positive force.
- C Nehru believed that Communalism would be dangerous for India.
- D Nehru believed that Communalism would make any nation great.

Answer: C

Question 100

What mansion did Nehru want to see built?

- A Nehru believed that the expensive mansion of India should be built.
- B Nehru believed that the honorable mansion of India should be built.
- C Nehru believed that the simple mansion of India should be built.
- D Nehru believed that the huge mansion of India should be built.

Answer: B

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