



2016 SSC CGL 04 Sep 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.

Play : Actor :: Concert:?

- A Symphony
- B Musician
- C Piano
- D Percussion

Answer: B

Explanation:

An actor performs in a play, similar to which a musician performs at a concert.

=> Ans - (B)

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Question 2

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

EGIK : FILO :: FHJL : ?

- A JGMP
- B JGPM
- C GJMP
- D GMJP

Answer: C

Explanation:

Expression = EGIK : FILO :: FHJL : ?

The pattern followed is =

E	G	I	K
(+1)	(+2)	(+3)	(+4)
F	I	L	O

Similarly, for FHJL :

F	H	J	L
(+1)	(+2)	(+3)	(+4)
G	J	M	P

=> Ans - (C)

Question 3

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

583 : 295 :: 486 : ?

- A 291

- B 378
- C 487
- D 581

Answer: B

Explanation:

Expression = $583 : 295 :: 486 : ?$

Sum of the digits of the numbers are same

Eg = $5 + 8 + 3 = 16$ and $2 + 9 + 5 = 16$

Similarly, $4 + 8 + 6 = 18$

Among the options, number whose sum of digits is $18 = 378 = 3 + 7 + 8 = 18$

=> Ans - (B)

Question 4

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

- (A) Fire
- (B) Light
- (C) Gas
- (D) Water

- A A
- B B
- C C
- D D

Answer: D

Explanation:

Except water, all given options are source of light, hence water is the odd one.

=> Ans - (D)

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Question 5

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

- (A) ECBY
- (B) RTUX
- (C) GEDA
- (D) WUTQ

- A A
- B B
- C C
- D D

Answer: B

Explanation:

(A) : E (-2 letters) = C (-1 letter) = B (-3 letters) = Y
(B) : R (+2 letters) = T (+1 letter) = U (+3 letters) = X
(C) : G (-2 letters) = E (-1 letter) = D (-3 letters) = A
(D) : W (-2 letters) = U (-1 letter) = T (-3 letters) = Q
=> Ans - (B)

Question 6

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

- (A) 52-61
- (B) 43-54
- (C) 72-83
- (D) 18-29

- A A
- B B
- C C
- D D

Answer: A

Explanation:

Difference between each pair :

- (A) : $61 - 52 = 9$
 - (B) : $54 - 43 = 11$
 - (C) : $83 - 72 = 11$
 - (D) : $29 - 18 = 11$
- => Ans - (A)

Question 7

Arrange the following words as per order in the dictionary.

1. Fraudulent
2. Fraught
3. Fraternity
4. Franchise
5. Frantic

- A 5,4,1,2,3
- B 4,5,3,1,2
- C 4,3,5,1,2
- D 3,4,5,2,1

Answer: B

Explanation:

As per the dictionary,

- = Franchise -> Frantic -> Fraternity -> Fraudulent -> Fraught
≡ 4,5,3,1,2
=> Ans - (B)

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Question 8

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

H _ J H _ I J H H I _ H H _ J H

A I H J I

B H I H I

C I H I J

D H J H J

Answer: A

Explanation:

Expression : H _ J H _ I J H H I _ H H _ J H

In a group of 4 letters, the term 'HIJH' is repeated.

= HIJH HIJH HIJH HIJH

=> Ans - (A)

Question 9

Which number will complete the series?

63, 72, 81, 90, __, 108

A 80

B 99

C 100

D 117

Answer: B

Explanation:

The pattern followed is :

$$63 + 9 = 72$$

$$72 + 9 = 81$$

$$81 + 9 = 90$$

$$90 + 9 = \mathbf{99}$$

$$99 + 9 = 108$$

=> Ans - (B)

Question 10

Rajiv is the brother of Arun. Sonia is the sister of Sunil. Arun is the son of Sonia. How is Rajiv related to Sunil?

A nephew

B son

C brother

D father

Answer: A

Explanation:

Rajiv is the brother of Arun and Arun is the son of Sonia,

=> Rajiv and Arun are Sonia's sons.

Sonia is the sister of Sunil,

=> Sunil is the uncle of Rajiv and Arun.

Thus, Rajiv is Sunil's nephew.

=> Ans - (A)

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Question 11

A mother is five times older than her daughter. After 5 years, she would be 3 times older than her daughter. Find the mother's present age.

A 20 years

B 22 years

C 25 years

D 29 years

Answer: C

Explanation:

Let daughter's present age = x years

=> Mother's present age = $5x$ years

According to ques, after 5 years,

$$\Rightarrow (5x + 5) = 3(x + 5)$$

$$\Rightarrow 5x + 5 = 3x + 15$$

$$\Rightarrow 5x - 3x = 15 - 5$$

$$\Rightarrow 2x = 10$$

$$\Rightarrow x = \frac{10}{2} = 5$$

\therefore Mother's present age = $5 \times 5 = 25$ years

=> Ans - (C)

Question 12

From the given alternative words, select the word which cannot be formed using the letters of the given word:

PRONOUNCEMENT

A MOUNT

B CEMENT

C PAVEMENT

D NOUN

Answer: C

Explanation:

The word PRONOUNCEMENT does not contain any 'A' or 'V', and thus the word 'Pavement' cannot be formed.

=> Ans - (C)

Question 13

If **SYSTEM** is written as **RXRSDL**. How can **CORRECT** be written in that code?

A BNQQDBS

B BQQNDBS

C BNQQBDS

D BNQDQBS

Answer: A

Explanation:

SYSTEM is written as RXRSDL

The pattern followed is :

S	Y	S	T	E	M
(-1)	(-1)	(-1)	(-1)	(-1)	(-1)
R	X	R	S	D	L

Similarly, for CORRECT :

C	O	R	R	E	C	T
(-1)	(-1)	(-1)	(-1)	(-1)	(-1)	(-1)
B	N	Q	Q	D	B	S

=> Ans - (A)

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Question 14

If **A** means +, **B** means ×, **C** means ÷, **D** means −, then the value of given equation will be?

9A2B6D4C2

A 16

B 19

C 27

D 30

Answer: B

Explanation:

Expression : $9A2B6D4C2$

$$\equiv 9 + 2 \times 6 - 4 \div 2$$

$$= 9 + 12 - 2 = 19$$

=> Ans - (B)

Question 15

If, $4x3=14$; $5x4=18$; $6x5=22$; Then find the value of $7x6=?$

- A 20
- B 26
- C 30
- D 42

Answer: B

Explanation:

The sum of the numbers is multiplied by 2.

Eg : $(4 + 3) \times 2 = 7 \times 2 = 14$

and $(5 + 4) \times 2 = 9 \times 2 = 18$

and $(6 + 5) \times 2 = 11 \times 2 = 22$

Similarly, $(7 + 6) \times 2 = 13 \times 2 = 26$

=> Ans - (B)

Question 16

Select the missing number from the given responses:

7	56	8
9	45	?
11	99	9

- A 6
- B 9
- C 5
- D 4

Answer: C

Explanation:

In the first row, the number at the middle is obtained by taking the product of the other two.

Eg : $7 \times 8 = 56$

and $11 \times 9 = 99$

Similarly, $9 \times x = 45$

=> $x = \frac{45}{9} = 5$

=> Ans - (C)

General Science Notes for SSC CGL

Question 17

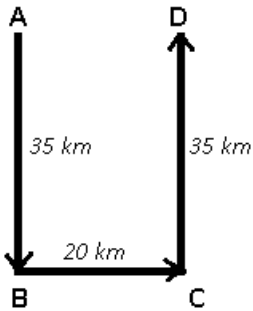
Rita travelled 35 Km from a point towards South and then turned left and travelled 20 Km and finally turned left again and travelled 35 Km. In which direction is she from the starting point?

- A East
- B West
- C North

D South

Answer: A

Explanation:



Let Rita started from point A and travelled south for 35 km to reach B, then she turned left and travelled towards east for 20 km and finally stopped at point D after travelling 35 km towards North.

Thus, Rita is 20 km to the **east** of her initial position.

=> Ans - (A)

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: To achieve economic development, people should work hard.

Conclusions: I: Economic development is directly related to people's hardwork.

II: Working hard by all the people is impossible

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

Answer: A

Explanation:

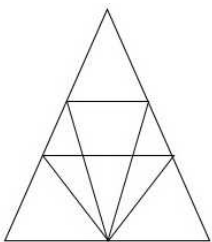
The statement clearly indicates that people should work hard to achieve economic development, thus both of them are directly related, hence first conclusion definitely follows. But, there is no information about whether all people can work hard or not in the givens statement, hence it does not follow.

Thus, only I follows

=> Ans - (A)

Question 19

Find the number of triangles in the figure.



A 12

B 18

C 22

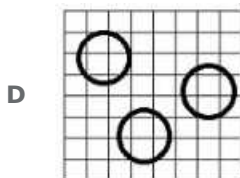
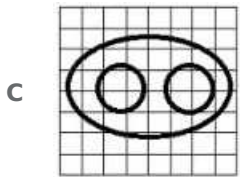
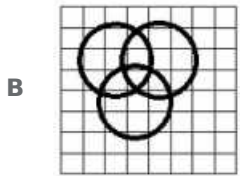
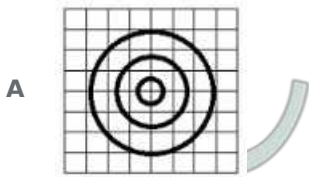
D 26

Answer: B

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Question 20

Which of the answer figures best represents the relation between:
Shirt, Garments, Clothes



Answer: A

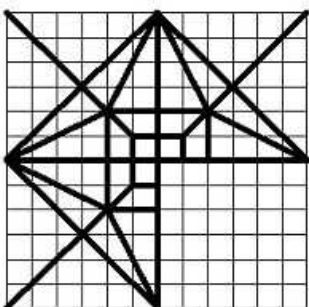
Explanation:

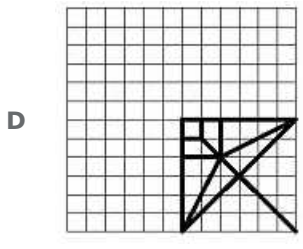
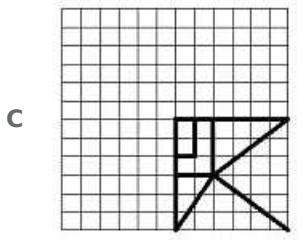
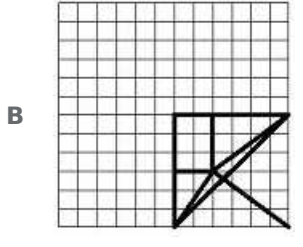
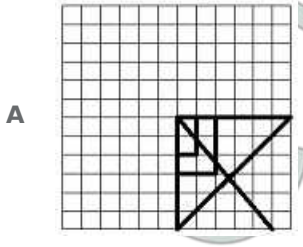
Shirts that we wear comes under the category of clothes and garments. Also, a garment is also a piece of clothing, thus the first figure best describes above relationship.

=> Ans - (A)

Question 21

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

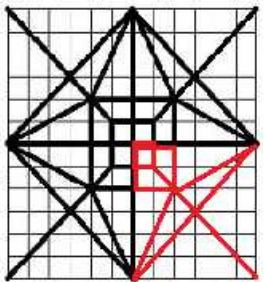




Answer: D

Explanation:

When we complete the above figure, we get :

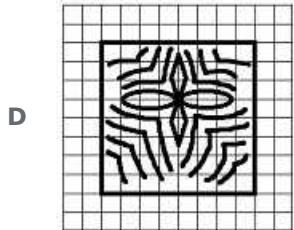
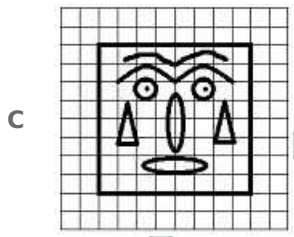
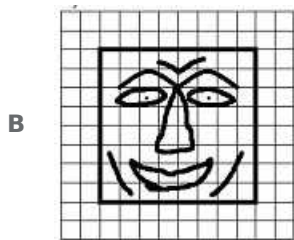
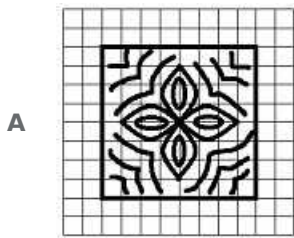
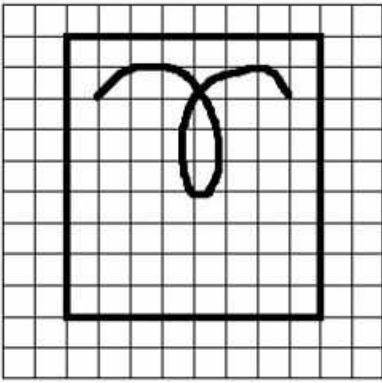


Now, the last figure resembles the above missing part in red colour.

=> Ans - (D)

Question 22

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

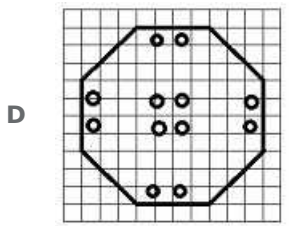
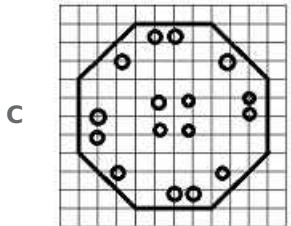
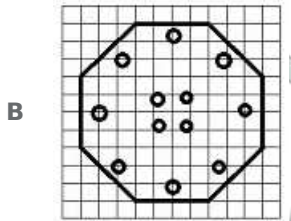
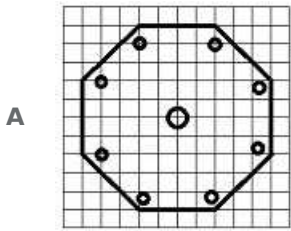
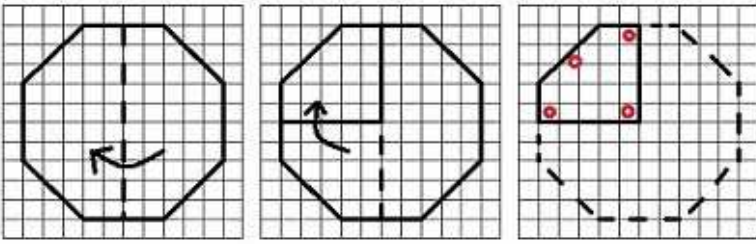


Answer: D

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Question 23

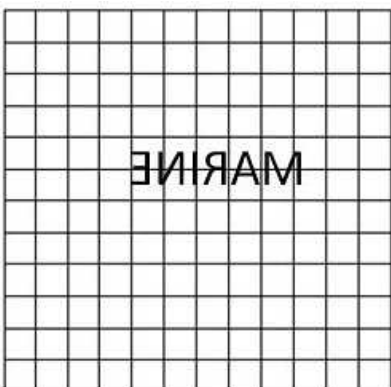
A piece of paper is folded and punched as shown below in question figures. From the given answer figures, indicate how it will appear when opened.

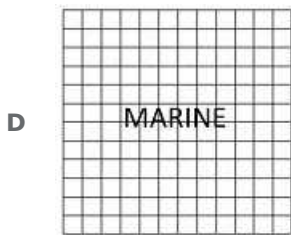
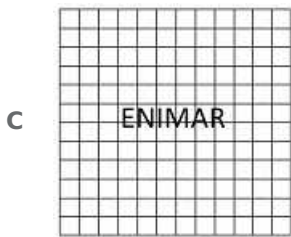
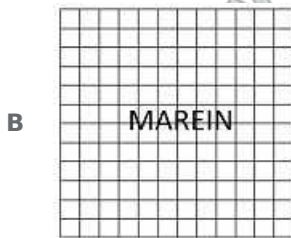
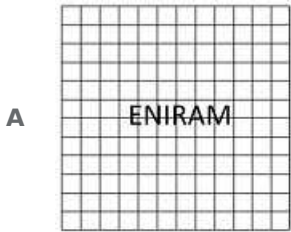


Answer: C

Question 24

The mirror image of a word is seen as given below. What is the actual word?





Answer: D

Explanation:

We know that, the words shown in a mirror are reversed. Thus, reverse of 'ENIRAM' is 'MARINE' as shown in last figure.

=> Ans - (D)

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., B can be represented by 00,13, etc, and A can be represented by 55,69, etc. You have to identify the set for the word 'LION'.

Matrix - I

	0	1	2	3	4
0	B	N	G	L	D
1	G	L	D	B	N
2	D	B	N	G	L
3	N	G	L	D	B
4	L	D	B	N	G

Matrix - II

	5	6	7	8	9
5	A	I	K	O	R
6	I	K	O	R	A
7	K	O	R	A	I
8	O	R	A	I	K
9	R	A	I	K	O

A 03, 55, 76, 33

B 11, 65, 77, 22

C 23, 79, 85, 43

D 11, 88, 99, 22

Answer: D

Explanation:

(A) : 03, 55, 76, 33 = LAOD

(B) : 11, 65, 77, 22 = LIRN

(C) : 23, 79, 85, 43 = GION

(D) : 11, 88, 99, 22 = **LION**

=> Ans - (D)

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Besides CO₂, the other green house gas is

A CH₄

B N₂

C Ar

D O₂

Answer: A

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Question 27

National Income of India is compiled by which institute?

A Finance Commission

B Indian Statistical Institute

C National Development Council

D Central Statistical Organization

Answer: D

Question 28

The power of the Supreme Court of India to decide disputes between the Centre and the States falls under its

A Advisory jurisdiction

B Original jurisdiction

C Appellate jurisdiction

D Jurisprudence

Answer: B

Question 29

The word 'Satyameva Jayate' have been derived from which Upanishad?

- A Akshi Upanishad
- B Mundaka Upanishad
- C Garuda Upanishad
- D Mahavakya Upanishad

Answer: B

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Question 30

When Granite rocks get metamorphosed, they form

- A Quartzite
- B Gneiss
- C Marble
- D Slate

Answer: B

Question 31

Which of the following is a commercial source of energy?

- A Agricultural waste
- B Dried dung
- C Sun
- D Natural gas

Answer: D

Question 32

Backward bending supply curve belongs to which market?

- A Capital
- B Labour
- C Money
- D Inventories

Answer: B

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Question 33

In IT, associative memory is called as

- A Virtual memory
- B Cache memory
- C Content addressable memory
- D Main memory

Answer: C

Question 34

Addition of suitable impurities into semiconductor, is called

- A Doping
- B Mixing
- C Forming
- D Diluting

Answer: A

Question 35

Kyoto Protocol is associated with

- A Species conservation
- B Climate change
- C Wetland Conservation
- D Medicinal plants

Answer: B

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Question 36

Ebrahim Alkazi is an eminent personality in which one of the following area?

- A Heart surgery
- B Civil aviation
- C Theatre
- D Painting

Answer: C

Question 37

Skoda, which launched sedan 'Rapid', is an automobile manufacturer based in

- A** Japan
- B** France
- C** South Korea
- D** Czech Republic

Answer: D

Question 38

Sattriya is a classical dance form of _____

- A** Manipur
- B** Uttar Pradesh
- C** Assam
- D** Andhra Pradesh

Answer: C

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Question 39

P. V. Sindhu defeated Wang Yihan to enter the semi final of womens' singles of badminton at the Rio Olympics. Wang Yihan belongs to _____

- A** Indonesia
- B** Taiwan
- C** China
- D** Japan

Answer: C

Question 40

If a budget is defeated in the legislature of a state then

- A** The Finance Minister alone has to resign
- B** The Finance Minister concerned has to be suspended
- C** The council of Ministers along with the Chief Minister has to resign
- D** Re-election have to be ordered

Answer: C

Question 41

Which one of the following papers was edited by Gandhiji in South Africa?

- A Indian Opinion
- B Harijan
- C Young India ■■
- D Indian Mirror

Answer: A

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Question 42

In which of the following cities India's first water metro project was recently launched?

- A Kolkata
- B Kochi
- C Vishakhapatnam
- D Mumbai

Answer: B

Question 43

Meibomian glands are located in

- A Eye
- B Ear
- C Nose
- D Skin

Answer: A

Question 44

In which city is India's first Post Office ATM opened?

- A Chennai
- B New Delhi
- C Hyderabad
- D Mumbai

Answer: A

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Question 45

Arsenic problem in India is primarily due to

- A Overexploitation of coal in Bihar and Bengal
- B Overexploitation of arsenopyrite in the hinterland
- C Overexploitation of ground water in the affected areas
- D Overexploitation of surface water in the affected areas

Answer: C

Question 46

Men's Singles Wimbledon Championship 2016, is bagged by

- A Andy Murray
- B Milos Ravnice
- C Roger Federer
- D Novak Djokovic

Answer: A

Question 47

Which of the following vitamins are water soluble?

- A Vit. A & Vit. B
- B Vit. B & Vit. C
- C Vit. C & Vit. D
- D Vit. A & Vit. K

Answer: B

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Question 48

In terms of economics, if it is possible to make someone better-off without making someone worse-off, then the situation is

- A Inefficient
- B Efficient
- C Optimal
- D Pareto-superior

Answer: D

Question 49

'Green House Effect' means

- A Pollution in houses in tropical region

- B Prevention of ultra-violet radiation by the ozone layer
- C Trapping of solar energy due to atmospheric gases
- D Damage to green painted buildings

Answer: C

Question 50

General Dyer, who was responsible for Jallianwala Bagh massacre, was shot dead by?

- A Hasrat Mohini
- B Vir Savarkar
- C Udham Singh
- D Jatin Das

Answer: C

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Mathematics

Instructions

For the following questions answer them individually

Question 51

X can do a piece of work in 'p' days and Y can do the same work in 'q' days . Then the number of days in which X and Y can together do that work is

- A $\frac{p+q}{2}$
- B $\frac{1}{p} + \frac{1}{q}$
- C $\frac{pq}{p+q}$
- D pq

Answer: C

Explanation:

Let total work to be done = pq units

X can do the work in ' p ' days

\Rightarrow X's efficiency = $\frac{pq}{p} = q$ units/day

Similarly, Y's efficiency = $\frac{pq}{q} = p$ units/day

\Rightarrow (X+Y)'s 1 day's work = $(p + q)$ units/day

\therefore Number of days in which X and Y can together do that work = $\frac{pq}{p+q}$ days

\Rightarrow Ans - (C)

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Question 52

A shopkeeper marks his goods 40% above the cost price and allows a discount of 25% on it. His gain % is

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

Answer: A

Explanation:

Let cost price = Rs. $100x$

Markup % = 40%

$$\Rightarrow \text{Marked Price} = 100x \times \frac{140}{100} = \text{Rs. } 140x$$

Discount % = 25%

$$\Rightarrow \text{Selling price} = 140x \times \frac{75}{100} = \text{Rs. } 105x$$

$$\therefore \text{Profit \%} = \frac{105x - 100x}{100x} \times 100$$

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

\Rightarrow Ans - (A)

Question 53

The ratio of the ages of two boys is 3:4. After 3 years, the ratio will be 4:5. The ratio of their ages after 21 years will be

- A 14:17
- B 17:19
- C 11:12
- D 10:11

Answer: D

Explanation:

Let the present ages of the two boys respectively be $3x$ and $4x$ years

Ratio after 3 years

$$\Rightarrow \frac{3x+3}{4x+3} = \frac{4}{5}$$

$$\Rightarrow 15x + 15 = 16x + 12$$

$$\Rightarrow 16x - 15x = 15 - 12$$

$$\Rightarrow x = 3$$

$$\therefore \text{Ratio of ages after 21 years} = \frac{3x+21}{4x+21}$$

$$= \frac{3(3)+21}{4(3)+21} = \frac{9+21}{12+21}$$

$$= \frac{30}{33} = \frac{10}{11}$$

\Rightarrow Ans - (D)

Question 54

The cost price of 25 books is equal to the selling price of 20 books. The profit percent is

- A 20%
- B 22%
- C 24%
- D 25%

Answer: D

Explanation:

Let C.P. of 1 book = Rs. x and S.P. = Rs. y

\Rightarrow C.P. of 25 books = S.P. of 20 books

$\Rightarrow 25x = 20y$

$\Rightarrow 5x = 4y$

$\Rightarrow \frac{y}{x} = \frac{5}{4}$

Let $y = 5$ and $x = 4$

\therefore Profit % = $\frac{y-x}{x} \times 100$

= $\frac{5-4}{4} \times 100$

= $\frac{100}{4} = 25\%$

\Rightarrow Ans - (D)

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Question 55

One number is 25% of another number. The larger number is 12 more than the smaller. The large number is

- A 48
- B 16
- C 4
- D 12

Answer: B

Explanation:

Let the larger number be $4x$

\Rightarrow Smaller number = $\frac{25}{100} \times 4x = x$

According to ques,

$\Rightarrow 4x - x = 12$

$\Rightarrow 3x = 12$

$\Rightarrow x = \frac{12}{3} = 4$

\therefore Larger number = $4 \times 4 = 16$

\Rightarrow Ans - (B)

Question 56

A train 500 m long, running at a uniform speed, passes a station in 35 sec. If the length of the platform is 221 m, the speed of the train in km/hr is

- A 20.6
- B 74.16
- C 24.76
- D 78.54

Answer: B

Explanation:

Let speed of train = x m/sec

Length of train = 500 m and length of platform = 221 m

Using, speed = distance / time

$$\Rightarrow x = \frac{(500+221)}{35}$$

$$\Rightarrow x = \frac{721}{35} = \frac{103}{5} \text{ m/sec}$$

$$\therefore \text{Speed of train (in km/hr)} = \frac{103}{5} \times \frac{18}{5}$$

$$= 74.16 \text{ km/hr}$$

\Rightarrow Ans - (B)

Question 57

If the simple interest on Rs. 400 for 10 years is Rs. 280, then rate of interest per annum is

- A 7%
- B $7\frac{1}{2}\%$
- C $7\frac{1}{4}\%$
- D $8\frac{1}{2}\%$

Answer: A

Explanation:

Let rate of interest = $r\%$

Principal (P) = Rs. 400 and time period (t) = 10 years

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

$$\Rightarrow \frac{400 \times r \times 10}{100} = 280$$

$$\Rightarrow 40r = 280$$

$$\Rightarrow r = \frac{280}{40} = 7\%$$

\Rightarrow Ans - (A)

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Question 58

If $a+b=2c$, then the value of $\frac{a}{a-c} + \frac{c}{b-c}$ is equal to where $a \neq b \neq c$

- A -1
- B 1
- C 0
- D 1/2

Answer: B

Explanation:

Given : $a + b = 2c$

$\Rightarrow a + b = c + c$

$\Rightarrow a - c = c - b$ -----(i)

To find : $\frac{a}{a-c} + \frac{c}{b-c}$

$= \frac{a}{c-b} - \frac{c}{c-b}$ [Using equation (i)]

$= \frac{a-c}{c-b}$

$= \frac{c-b}{c-b} = 1$

\Rightarrow Ans - (B)

Question 59

If $x + \frac{1}{x} = 5$ then the value $\frac{x}{1+x+x^2}$

- A 1/5
- B 1/6
- C 5
- D 6

Answer: B

Explanation:

Expression : $x + \frac{1}{x} = 5$

$\Rightarrow \frac{x^2+1}{x} = 5$

$\Rightarrow x^2 + 1 = 5x$ -----(i)

To find : $\frac{x}{1+x+x^2}$

Substituting value from equation (i)

$= \frac{x}{x+5x} = \frac{x}{6x}$

$= \frac{1}{6}$

\Rightarrow Ans - (B)

Question 60

G and AD are respectively the centroid and median of the triangle ΔABC . The ratio AG:AD is

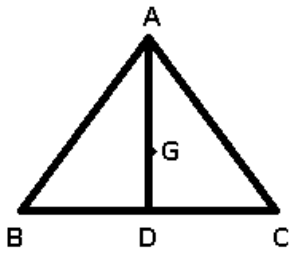
- A 3:2
- B 2:3

C 2:1

D 1:2

Answer: B

Explanation:



Given : AD is the median of $\triangle ABC$ and G is the centroid

To find : AG : AD

Solution : A centroid divides the median in the ratio 2 : 1

$$\Rightarrow \frac{AG}{GD} = \frac{2}{1}$$

$$\Rightarrow \frac{AG}{AG+GD} = \frac{2}{2+1}$$

$$\Rightarrow \frac{AG}{AD} = \frac{2}{3}$$

\Rightarrow Ans - (B)

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Question 61

A point P lying inside a triangle is equidistant from the vertices of the triangle. Then the triangle has P as its

A Centroid

B Incentre

C Orthocentre

D Circumcentre

Answer: D

Explanation:

A **Circumcentre** in a triangle is equidistant from the vertices of the triangle.

\Rightarrow Ans - (D)

Question 62

If $\sin\theta + \cos\theta = 1$, then the $\sin\theta \cos\theta$ is equal to

A 0

B 1

C $1/2$

D $-1/2$

Answer: A

Explanation:

Given : $\sin\theta + \cos\theta = 1$

Squaring both sides,

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

$$\Rightarrow \sin^2\theta + \cos^2\theta + 2\sin\theta\cos\theta = 1$$

Using, $(\sin^2\theta + \cos^2\theta = 1)$

$$\Rightarrow 1 + 2\sin\theta\cos\theta = 1$$

$$\Rightarrow 2\sin\theta\cos\theta = 1 - 1 = 0$$

$$\Rightarrow \sin\theta\cos\theta = 0$$

\Rightarrow Ans - (A)

Question 63

If 7 times the seventh term of an Arithmetic Progression (AP) is equal to 11 times its eleventh term, then the 18th term of the AP will be

- A 1
- B 0
- C 2
- D -1

Answer: B

Explanation:

Let the first term of the AP be a and the common difference = d

$$7\text{th term} = A_7 = a + 6d$$

$$11\text{th term} = A_{11} = a + 10d$$

According to ques,

$$\Rightarrow 7 \times (a + 6d) = 11 \times (a + 10d)$$

$$\Rightarrow 7a + 42d = 11a + 110d$$

$$\Rightarrow 11a - 7a = 42d - 110d$$

$$\Rightarrow 4a = -68d$$

$$\Rightarrow a = -17d$$

$$\Rightarrow a + 17d = 0 = A_{18}$$

\Rightarrow Ans - (B)

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Question 64

The average age of eight teachers in a school is 40 years. A teacher among them died at the age of 55 years whereas another teacher whose age was 39 years joins them. The average age of the teachers in the school now is (in years)

- A 35
- B 36
- C 38

D 39

Answer: C

Explanation:

Average age of 8 teachers = 40 years

=> Total age of teachers = $40 \times 8 = 320$ years

A teacher at the age of 55 years died and a teacher aged 39 joined them

=> New total age = $320 - 55 + 39 = 304$

∴ Required average = $\frac{304}{8} = 38$ years

=> Ans - (C)

Question 65

If $\frac{a^2}{b+c} = \frac{b^2}{c+a} = \frac{c^2}{a+b} = 1$ then find the value of $\frac{2}{1+a} + \frac{2}{1+b} + \frac{2}{1+c}$

A 0

B 1

C 2

D 3

Answer: C

Explanation:

Given : $\frac{a^2}{b+c} = \frac{b^2}{c+a} = \frac{c^2}{a+b} = 1$

=> $\frac{a^2}{b+c} = 1$

=> $a^2 = b + c$

Adding 'a' on both sides, => $a(a + 1) = a + b + c$

=> $\frac{1}{a+1} = \frac{a}{a+b+c}$ -----(i)

Similarly, $\frac{1}{b+1} = \frac{b}{a+b+c}$ -----(ii)

and $\frac{1}{c+a} = \frac{c}{a+b+c}$ -----(iii)

To find : $\frac{2}{1+a} + \frac{2}{1+b} + \frac{2}{1+c}$

= $2\left(\frac{1}{a+1} + \frac{1}{b+1} + \frac{1}{c+1}\right)$

Substituting values from equations (i),(ii) and (iii), we get :

= $2\left(\frac{a}{a+b+c} + \frac{b}{a+b+c} + \frac{c}{a+b+c}\right)$

= $2 \times \left(\frac{a+b+c}{a+b+c}\right) = 2$

=> Ans - (C)

Question 66

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

A 3/4

B 4/5

C 5/8

D 7/8

Answer: D

Explanation:

$$\text{Expression : } 2x + \frac{2}{x} = 3$$

$$\Rightarrow 2\left(x + \frac{1}{x}\right) = 3$$

$$\Rightarrow x + \frac{1}{x} = \frac{3}{2} \quad \text{---(i)}$$

Cubing both sides, we get :

$$\Rightarrow \left(x + \frac{1}{x}\right)^3 = \left(\frac{3}{2}\right)^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3 \cdot x \cdot \frac{1}{x} \left(x + \frac{1}{x}\right) = \frac{27}{8}$$

Substituting value from equation (i)

$$\Rightarrow x^3 + \frac{1}{x^3} + 3\left(\frac{3}{2}\right) = \frac{27}{8}$$

$$\Rightarrow x^3 + \frac{1}{x^3} = \frac{27}{8} - \frac{9}{2}$$

$$\Rightarrow x^3 + \frac{1}{x^3} = \frac{27-36}{8} = \frac{-9}{8}$$

Adding 2 on both sides, we get :

$$\Rightarrow x^3 + \frac{1}{x^3} + 2 = 2 - \frac{9}{8}$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 2 = \frac{7}{8}$$

\Rightarrow Ans - (D)

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Question 67

Two equal circles of radius 3 cm each and distance between their centres is 10 cm. The length of one of their transverse common tangent is

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

Answer: D

Explanation:

If radius of two circles are r_1 and r_2 cm and distance between their centres = d cm

$$\text{Then length of direct common tangent} = \sqrt{(d)^2 - (r_1 - r_2)^2}$$

$$\text{and length of transverse common tangent} = \sqrt{(d)^2 - (r_1 + r_2)^2}$$

Here, $r_1 = r_2 = r = 3$ cm and distance between centres = $d = 10$ cm

$$\Rightarrow \text{Length of transverse common tangent} = \sqrt{(10)^2 - (3 + 3)^2}$$

$$= \sqrt{100 - 36} = \sqrt{64} = 8 \text{ cm}$$

\Rightarrow Ans - (D)

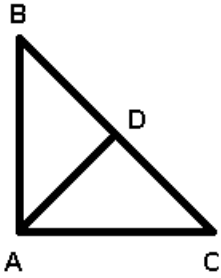
Question 68

In $\triangle ABC$ if the median $AD = \frac{1}{2} BC$ then $\angle BAC$ is

- A 90°
- B 45°
- C 60°
- D 75°

Answer: A

Explanation:



Given : AD is the median an $AD = \frac{1}{2} BC$

To find : $\angle BAC = ?$

Solution : Since, AD is the median of $\triangle ABC$, $\Rightarrow BD = CD = \frac{1}{2} BC$

$\Rightarrow AD = BD = CD$

Thus A, B and C are equidistant from D, which implies that D is the circumcentre of $\triangle ABC$

Also, in a right angled triangle, the circumcentre lies on the mid point of hypotenuse.

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

\Rightarrow Ans - (A)

Question 69

If $\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta} = 3$ then the value of $\sin^4 \theta - \cos^4 \theta$ is

- A $4/3$
- B $3/4$
- C $5/3$
- D $3/5$

Answer: D

Explanation:

Given : $\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta} = 3$

$\Rightarrow \sin \theta + \cos \theta = 3 \sin \theta - 3 \cos \theta$

$\Rightarrow 3 \sin \theta - \sin \theta = 3 \cos \theta + \cos \theta$

$\Rightarrow 2 \sin \theta = 4 \cos \theta$

$\Rightarrow \frac{\sin \theta}{\cos \theta} = \frac{4}{2}$

$\Rightarrow \tan \theta = 2$

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

$\Rightarrow \sec^2 \theta = 1 + (2)^2 = 5$

$$\therefore \cos^2\theta = \frac{1}{5}$$

Similarly, $\sin^2\theta = \frac{4}{5}$

To find : $\sin^4\theta - \cos^4\theta$

$$= (\sin^2\theta - \cos^2\theta)(\sin^2\theta + \cos^2\theta) = (\sin^2\theta - \cos^2\theta) \quad [\because \sin^2\theta + \cos^2\theta = 1]$$

$$= \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

=> Ans - (D)

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Question 70

A sphere has the same curved surface area as a cone of vertical height 40 cm and radius 30 cm. The radius of the sphere is

- A $5\sqrt{5}$ cm
- B $5\sqrt{3}$ cm
- C $5\sqrt{15}$ cm
- D $5\sqrt{10}$ cm

Answer: C

Explanation:

Let radius of sphere = R cm

Height of cone = $h = 40$ cm and radius of cone = $r = 30$ cm

$$\Rightarrow \text{Slant height of cone} = l = \sqrt{h^2 + r^2}$$

$$\Rightarrow l = \sqrt{(40)^2 + (30)^2} = \sqrt{1600 + 900}$$

$$\Rightarrow l = \sqrt{2500} = 50 \text{ m}$$

Curved surface area of sphere = Curved surface area of cone

$$\Rightarrow 4\pi R^2 = \pi r l$$

$$\Rightarrow 4(r)^2 = 30 \times 50$$

$$\Rightarrow (r)^2 = \frac{1500}{4} = 375$$

$$\Rightarrow r = \sqrt{375} = 5\sqrt{15} \text{ cm}$$

=> Ans - (C)

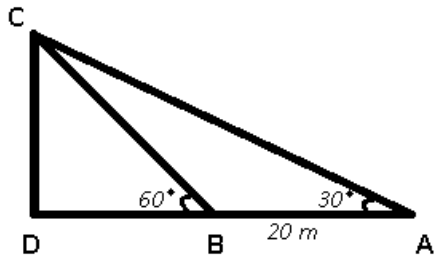
Question 71

The angle of elevation of the top of a tower from a point A on the ground is 30° . On moving a distance of 20 metres towards the foot of the tower to a point B, the angle of elevation increases to 60° . The height of the tower in metres is

- A $\sqrt{3}$
- B $5\sqrt{3}$
- C $10\sqrt{3}$
- D $20\sqrt{3}$

Answer: C

Explanation:



Given : CD is the tower and AB = 20 m

To find : CD = h = ?

Solution : Let DB = x m

In $\triangle BCD$,

$$\Rightarrow \tan(60^\circ) = \frac{CD}{DB}$$

$$\Rightarrow \sqrt{3} = \frac{h}{x}$$

$$\Rightarrow x = \frac{h}{\sqrt{3}} \text{ -----(i)}$$

Again, in $\triangle ACD$,

$$\Rightarrow \tan(30^\circ) = \frac{CD}{AD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{h}{x+20}$$

$$\Rightarrow x + 20 = \sqrt{3}h$$

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

$$\Rightarrow \sqrt{3}h - \frac{h}{\sqrt{3}} = 20$$

$$\Rightarrow \frac{2h}{\sqrt{3}} = 20$$

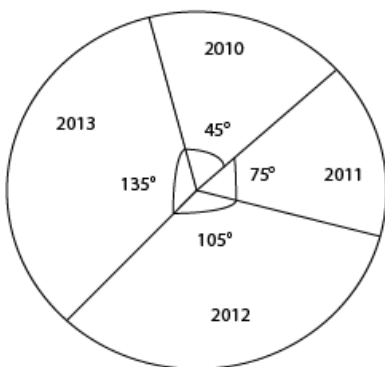
$$\Rightarrow h = 20 \times \frac{\sqrt{3}}{2}$$

$$\Rightarrow h = 10\sqrt{3} \text{ m}$$

\Rightarrow Ans - (C)

Instructions

Given here is a pie chart of the cost of gold in 2010, 2011, 2012 and 2013. Study the chart and answer the following questions



Question 72

If the price of gold in 2013 is Rs. 31,500 per 10 gram, then the price of gold in 2011 per 10 gram is

A Rs.17000

- B Rs.17500
- C Rs.18000
- D Rs.18500

Answer: B

Explanation:

Let price of gold in 2013 = Rs. $135x$

Also, price of gold in 2013 = Rs. 31,500

$$\Rightarrow 135x = 31500$$

$$\Rightarrow x = \frac{31500}{135} = \frac{700}{3}$$

\therefore Price of gold in 2011 = Rs. $75x$

$$= 75 \times \frac{700}{3} = \text{Rs. } 17,500$$

\Rightarrow Ans - (B)

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Question 73

The ratio of the price of gold in the two years 2010 and 2013 is

- A 1:2
- B 1:3
- C 1:4
- D 1:5

Answer: B

Explanation:

Price of gold in 2010 (°) = 45

Price of gold in 2013 (°) = 135

$$\Rightarrow \text{Required ratio} = \frac{45}{135} = \frac{1}{3}$$

\therefore The ratio of the price of gold in the two years 2010 and 2013 = 1 : 3

\Rightarrow Ans - (B)

Question 74

The percentage of increase in the price of gold from the year 2011 to 2013 is

- A 50%
- B 60%
- C 70%
- D 80%

Answer: D

Explanation:

Price of gold in 2011 (°) = 75

Price of gold in 2013 (°) = 135

=> Percentage increase in price from 2011 to 2013 = $\frac{135-75}{75} \times 100$

= $\frac{60}{3} \times 4 = 80\%$

=> Ans - (D)

Question 75

The ratio of percentage of increase in price of gold from 2011 to 2012 and 2012 to 2013 is

- A 6:5
- B 7:5
- C 8:5
- D 9:5

Answer: B

Explanation:

Price of gold in 2011 (°) = 75

Price of gold in 2012 (°) = 105

=> Percentage increase in price from 2011 to 2012 = $\frac{105-75}{75} \times 100$

= $\frac{30}{3} \times 4 = 40\%$

Similarly, percentage increase in price from 2012 to 2013 = $\frac{135-105}{105} \times 100$

= $\frac{200}{7} \%$

∴ Required ratio = $40 : \frac{200}{7}$

= $40 \times \frac{7}{200} = \frac{7}{5}$

=> 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.

EXAGGERATE

- A MAGNIFY
- B IMAGINE
- C REINFORCE
- D REITERATE

Answer: A

Explanation:

Explanation:

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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.

GREGARIOUS

- A UNSOCIABLE
- B UNSYMPATHETIC
- C UNGRATEFUL
- D UNATTRACTIVE

Answer: A

Explanation:

Explanation:

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 Serendipty
- B Serendipity
- C Serndipity
- D Sernidipity

Answer: B

Explanation:

Explanation:

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.

Considering the (A) / gravity of the problems (B) / an early reply has expected (C) / No Error (D)

- A A
- B B
- C C
- D D

Answer: C

Explanation:

Explanation:

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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.

The Statesman has the (A) / larger circulation (B) / of all English dailies (C) / No Error (D)

- A A
- B B
- C C
- D D

Answer: B

Explanation:

Explanation:

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.

I am very anxious (A) / to know how are you (B) / and mother are doing (C) / No Error (D)

- A A
- B B
- C C
- D D

Answer: B

Explanation:

Explanation:

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.

Everything ____ carefully checked.

- A has been
- B have been
- C are being
- D is been

Answer: A

Explanation:

Explanation:

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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.

I've ____ finished painting the house.

- A about
- B nearing
- C towards
- D almost

Answer: D

Explanation:

Explanation:

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.

She ____ made him angry.

- A have absolutely
- B has certainly
- C have certainly
- D has absolutely

Answer: B

Explanation:

Explanation:

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.

Burn your boats

- A Have a burning desire to win
- B Become extremely tired after working very hard
- C Do something that makes it impossible to return to the previous situation
- D Want to spend money as soon as you get it

Answer: C

Explanation:

Explanation:

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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.

Dressing-down

- A Apply bandage
- B Wear an expensive gown
- C Give a scolding
- D Pretend

Answer: C

Explanation:

Explanation:

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.

Null and void

- A Invalid
- B Observant
- C Uncontrolled
- D Homeless

Answer: A

Explanation:

Explanation:

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.

Write or carve words on stone or paper

- A Sketch
- B Imprint
- C Affix
- D Inscribe

Answer: D

Explanation:

Explanation:

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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.

Unable to pay one's debt

- A Insolvent
- B Impute
- C Indebt
- D Obligate

Answer: A

Explanation:

Explanation:

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.

Trouble and annoy continually

- A Complaint
- B Harass
- C Punish
- D Oppress

Answer: B

Explanation:

Explanation:

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".

The Chairman's harsh words like insult to injury to the embarrassed speaker.

- A added
- B evoked
- C invoked
- D No improvement

Answer: A

Explanation:

Explanation:

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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".

He is in of sorts today.

- A out
- B on
- C outside
- D No improvement

Answer: A

Explanation:

Explanation:

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".

She told to me the news.

- A said me
- B said to me
- C told me
- D No improvement

Answer: C

Explanation:

Explanation:

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".

The philanthropist bestowed a lakh to the orphanage.

- A granted
- B parted with
- C donated
- D No improvement

Answer: C

Explanation:

Explanation:

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".

There are a better ways of solving the problem.

- A There are different ways of solving a problem.
- B There is a better way of looking at the problem.
- C There are better ways of solving the problem.
- D No improvement

Answer: C

Explanation:

Explanation:

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.

In general it is better to use too little make-up than too much. The audience should not be aware that the actor's face is painted. For the actor who is playing his own age, the artist uses make-up to strengthen the features, particularly eyes and mouth, and to add lifelike colour to the face. Character make-up does these things in addition to transforming the face to another age, another type or another race. This transformation, particularly for young actors playing old characters, can be helped greatly by hats and hairdos.

Make-up consists of applying a base colour, then modelling the face by highlighting and shadowing (sinking the cheeks, for example, with a darker colour). Sometimes, modelling is done by applying false (putty or plastic) noses, enlarged eyebrows, or scars. Lines to suggest wrinkles are drawn on with a dark make-up pencil (brown or maroon, not black) or brush. Each line is highlighted with another line, either white or a light tint of the base colour. Lips are outlined and coloured, and a similar colour is applied to the cheeks. After make-up is complete, powder is applied.

Question 96

The artist uses make-up to strengthen the features, particularly eyes and mouth, and to add life like colours to the face for the actor who is playing ____ .

- A the lead role
- B the old man or woman
- C his own age
- D the role of the clown

Answer: C

Explanation:

Explanation:

Question 97

What do artists use to help young actors playing old men?

- A Wig and moustache
- B Hats and hairdos
- C Wheel chairs and walking sticks

D False noses, enlarged eyebrows or scars

Answer: B

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Question 98

What is the correct sequence for make-up?

A Modelling the face by highlighting and shadowing then applying a base colour

B Highlighting and shadowing, then applying a base colour and modelling the face

C Applying a base colour, then modelling the face by highlighting and shadowing

D Shadowing and modelling, then applying a base colour for highlighting

Answer: C

Question 99

Lines are drawn with a dark make-up pencil or brush to suggest ____ .

A dimples

B wrinkles

C smiles

D pimples

Answer: B

Question 100

When is powder usually applied?

A Before the make-up

B As make-up foundation

C After the make-up

D During the make-up

Answer: C

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