



## 2016 SSC CGL 02 Sep Morning Shift

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## Reasoning

### Instructions

For the following questions answer them individually

### Question 1

Select the related word/letters/numbers from the given alternatives:

Owl : Hoots :: Hen : ?

- A Chirps
- B Clucks
- C Coos
- D Cackles

Answer: B

### Explanation:

Hoot is the sound of of an owl, similarly sound made by hen is called clucks.

=> Ans - (B)

## SSC CGL Free Mock Test

### Question 2

Select the related word/letters/numbers from the given alternatives:

AKU : ? :: CMW : DNX

- A BGL
- B BLQ
- C BGQ
- D BLV

Answer: D

### Explanation:

Expression = AKU : ? :: CMW : DNX

The pattern followed is =

C (+10 letters) = M (+10 letters) = W

D (+10 letters) = N (+10 letters) = X

A (+10 letters) = K (+10 letters) = U

Similarly, B (+10 letters) = L (+10 letters) = V

=> Ans - (D)

### Question 3

Select the related word/letters/numbers from the given alternatives:

5 : 100 :: 7 : ?

- A 49
- B 196

C 91

D 135

**Answer: B**

**Explanation:**

Expression =  $5 : 100 :: 7 : ?$

The pattern followed is =  $n : (2n)^2$

Eg =  $5 : (2 \times 5)^2 = 5 : 100$

Similarly,  $(2 \times 7)^2 = (14)^2 = 196$

=> Ans - (B)

**Question 4**

**For the following questions**

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

A Time

B Skill

C Interest

D Knowledge

**Answer: A**

**Explanation:**

Clearly, time is different from the other three words. Skill, Interest and Knowledge are some traits associated with human beings.

=> Ans - (A)

## SSC CGL Previous Papers (DOWNLOAD PDF)

**Question 5**

**For the following questions**

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

A CPA

B REB

C QUD

D AOT

**Answer: D**

**Explanation:**

Except letter group AOT, in all other letter groups there is only one vowel. There are two vowels in AOT.

=> Ans - (D)

**Question 6**

**For the following questions**

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

- A 15 - 21
- B 32 - 41
- C 22 - 27
- D 31 - 35

**Answer: A**

**Explanation:**

In the number pair '15-21', both the numbers are multiples of 3.

=> Ans - (A)

**Question 7**

Arrange the following words as per order in the dictionary and then choose the one which comes last.

1. Qualify
2. Quarter
3. Quarrel
4. Quaver

- A Qualify
- B Quarter
- C Quarrel
- D Quaver

**Answer: D**

**Explanation:**

The first 3 letters of the words are same, thus the 4th letter will determine the order of dictionary.

Order of 4th letter of each word according to the dictionary = l, r, r, v

Thus, the last word = Quaver

=> Ans - (D)

## SSC CGL Tier-2 Previous Papers PDF

**Question 8**

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

DF, GJ, KM, NQ, RT, ?

- A EI
- B UX
- C UV
- D XY

**Answer: B**

**Explanation:**

Expression : DF, GJ, KM, NQ, RT, ?

In groups of 2, consecutive English alphabets are written. In every odd terms, one letter is missing and in every even terms, 2 letters are missing.

Now, in 6th term, 2 letters will be omitted.

Thus, after 'T' = **UX**

=> Ans - (B)

#### Question 9

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

2, 7, 14, 23, 34, ?

A 47

B 39

C 42

D 46

**Answer: A**

#### Explanation:

Consecutive odd numbers starting from 5 are added.

$$2 + 5 = 7$$

$$7 + 7 = 14$$

$$14 + 9 = 23$$

$$23 + 11 = 34$$

$$34 + 13 = 47$$

=> Ans - (A)

#### Question 10

A and B are standing at place "P". They start moving in the opposite directions at the speed of 5 Kmph and 4 Kmph respectively. What will be the distance between them after 3 hours

A 3 kms

B 21 kms

C 18 kms

D 27 kms

**Answer: D**

#### Explanation:

Speed of A = 5 kmph and B = 4 kmph

Since they move in opposite directions, => Relative speed =  $5 + 4 = 9$  kmph

Distance covered in 3 hours = speed  $\times$  time

$$= 9 \times 3 = 27 \text{ km}$$

=> Ans - (D)

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#### Question 11

If Usha is taller than Nisha; Nisha is taller than Asha; Alka is taller than Usha. Harsha is shorter than Asha; then who among them is the tallest?

- A Usha
- B Alka
- C Nisha
- D Asha

**Answer: B**

**Explanation:**

If Usha is taller than Nisha and Nisha is taller than Asha,

=> Usha > Nisha > Asha

Alka is taller than Usha and Harsha is shorter than Asha,

=> Alka > Usha > Nisha > Asha > Harsha

Thus, Alka is the tallest.

=> Ans - (B)

**Question 12**

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

**DHARAMSALA**

- A MASALA
- B ARAMANA
- C RAMA
- D SAHARA

**Answer: B**

**Explanation:**

The word DHARAMSALA does not contain any 'N', and thus the word 'Aramana' cannot be formed.

=> Ans - (B)

**Question 13**

If in a code GONE is written as ILPB then how may CRIB be written in that code?

- A EUKY
- B EKUY
- C EYUK
- D EOKY

**Answer: D**

**Explanation:**

GONE is written as ILPB

G	O	N	E
(+2)	(-3)	(+2)	(-3)
I	L	P	B

Similarly, for CRIB :

C	R	I	B
(+2)	(-3)	(+2)	(-3)
E	O	K	Y

=> Ans - (D)

## SSC CGL Important Questions PDF

### Question 14

figure

- A 295
- B 290
- C 209
- D 105

Answer: A

### Question 15

If  $12 \times 16 = 188$  and  $14 \times 18 = 248$ , then find the value of  $16 \times 20 = ?$

- A 320
- B 360
- C 316
- D 318

Answer: C

### Explanation:

The pattern followed is that 4 is subtracted from the product of the numbers.

Eg :  $(12 \times 16) - 4 = 192 - 4 = 188$

and  $(14 \times 18) - 4 = 252 - 4 = 248$

Similarly,  $(16 \times 20) - 4 = 320 - 4 = 316$

=> Ans - (C)

### Question 16

Find the odd number from the given alternatives.

- A 60
- B 62
- C 64
- D 66

Answer: C

### Explanation:

All the numbers except 64 are not perfect square, thus it is the odd one out.

=> Ans - (C)

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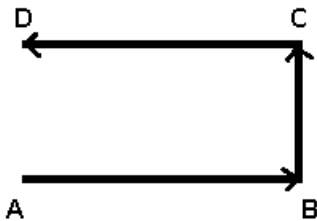
### Question 17

One morning, Raju walked towards the sun. After some time he turned left and again to his left. Which direction is he facing?

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

Answer: D

Explanation:



As the sun rises in the east, thus Raju is walking towards east, then he turns left and walks north and reach point C. Finally he again turns left and walks till he reach point D.

Thus, he is facing west direction.

=> Ans - (D)

### Question 18

One or two statements are given followed by two conclusions/assumptions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions/assumptions can definitely be drawn from the given statement. Indicate your answer.

Statements:

1. If people are intelligent, they should be creative.

Assumptions:

- I. Creativity and intelligence are related.
- II. Creative people are intelligent.

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

Answer: A

Explanation:

The statement indicates that, if people are intelligent, then they should be creative. So, intelligence and creativity are related with each other.

But it does not mean the reverse that creative people are intelligent.

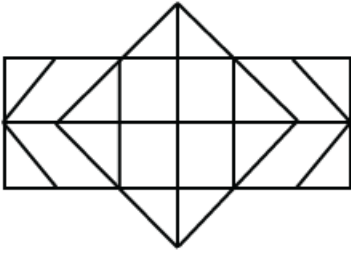
Thus, only conclusion I follows.



=> Ans - (A)

**Question 19**

How many rectangles are there in the given figure?



A 8

B 15

C 24

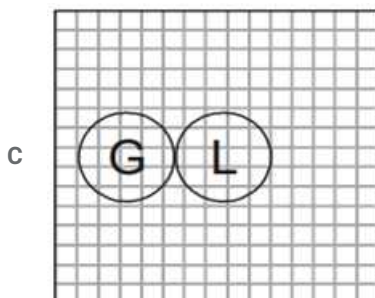
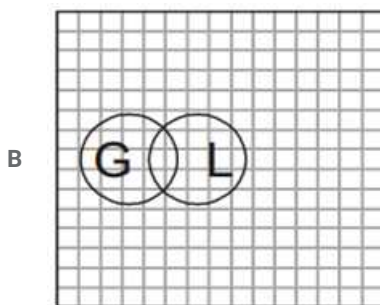
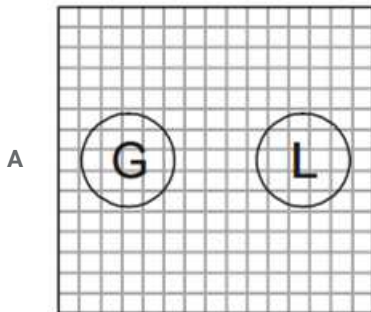
D 30

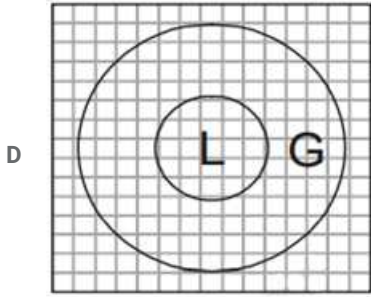
Answer: D

**General Science Notes for SSC CGL**

**Question 20**

In a village some of the goldsmiths are literates. Which diagram shows literate goldsmiths?

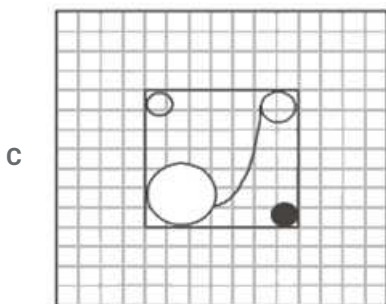
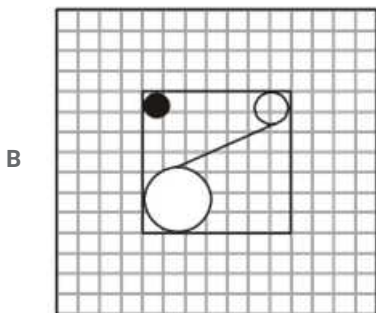
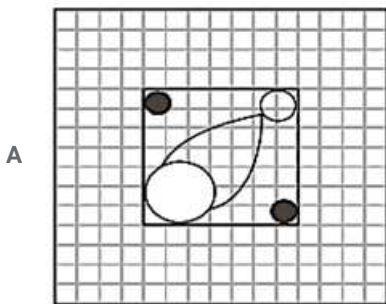
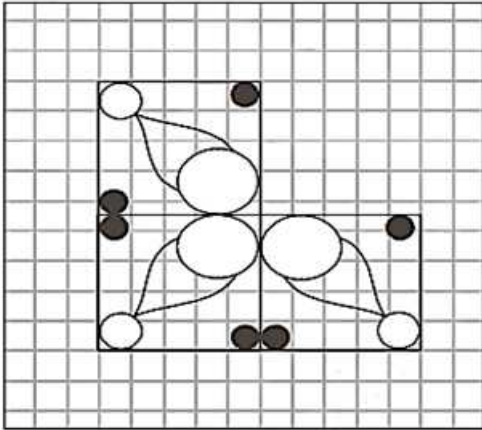




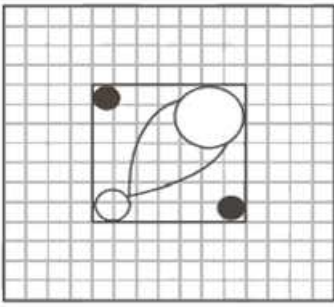
Answer: B

Question 21

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



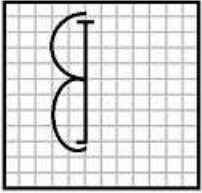
D



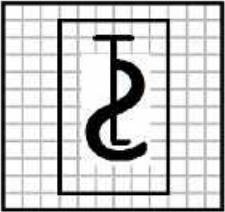
Answer: A

Question 22

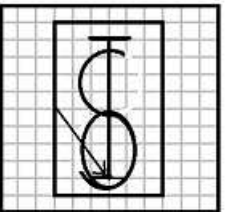
From the given answer figures, select the one in which the question figure is hidden/embedded.



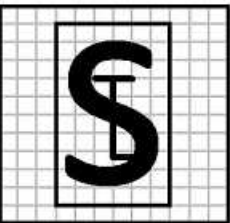
A



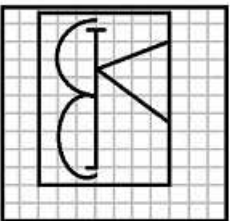
B



C



D



Answer: D

Explanation:

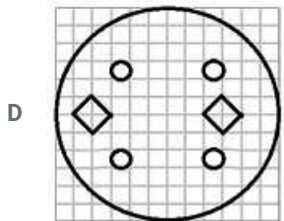
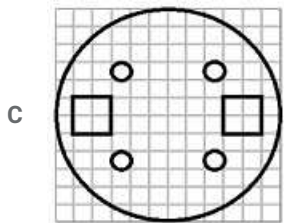
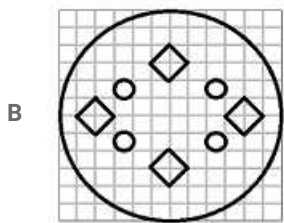
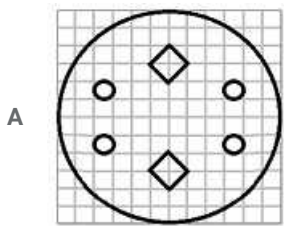
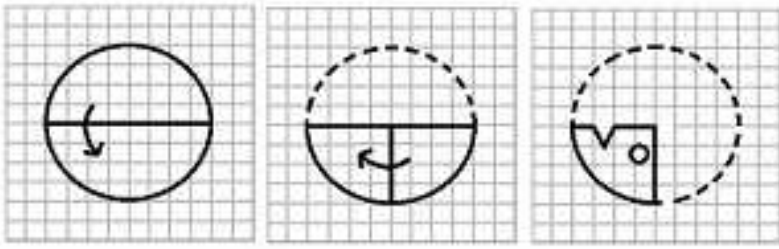
Clearly, in the question figure, figure shown is a reverse 'B', which is visible in the last option to the left of the triangle. First and third options are eliminated as they do not contain any 'B'.

=> Ans - (D)

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Question 23

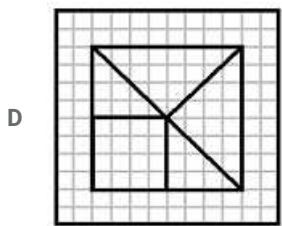
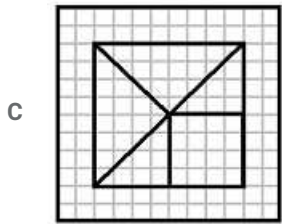
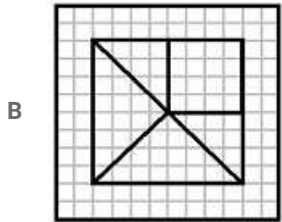
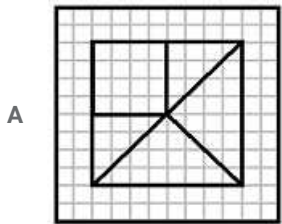
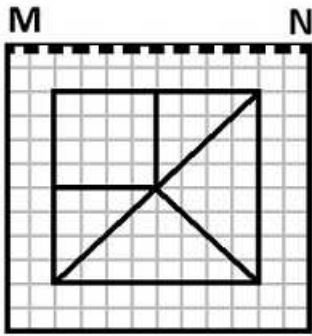
A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



Answer: D

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?



Answer: D

**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). So, the right diagonal in the question figure will appear as left diagonal in the mirror, hence first and third options are eliminated.

Also, the square at top left will appear at bottom left, which is only given in the last option.

=> Ans - (D)

Question 25

In this question, the sets of numbers given in the alternatives are represented. 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., O can be represented by 03,11, etc., and 'F' can be represented by 55, 68, etc. Similarly you have to identify the set for the word 'BEAD'

**Matrix - I**

	0	1	2	3	4
0	I	E	A	O	U
1	A	O	U	I	E
2	E	I	O	U	A
3	O	U	E	A	I
4	U	A	I	E	O

**Matrix - II**

	5	6	7	8	9
5	F	D	B	G	H
6	B	G	H	F	D
7	D	F	G	H	B
8	G	H	D	B	F
9	H	B	F	G	D

A 97, 32, 14, 56

B 88, 41, 20, 57

C 57, 32, 41, 87

D 75, 14, 20, 57

**Answer: C**

**Explanation:**

(A) : 97, 32, 14, 56 = FEED

(B) : 88, 41, 20, 57 = BAEB

(C) : 57, 32, 41, 87 = **BEAD**

(D) : 75, 14, 20, 57 = DEEB

=> Ans - (C)

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**General Awareness**

**Instructions**

For the following questions answer them individually

**Question 26**

Who among the following Sikh Gurus had laid the foundation of Amritsar?

A Guru Amar Das

B Guru Ram Das

C Guru Arjan Dev

D Guru Har Govind

**Answer: B**

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**Question 27**

In the 42nd Constitutional Amendment 1976, which word was added to the Preamble?

- A Democratic
- B Equality
- C Secular
- D Socialist

**Answer: C**

**Question 28**

**Which monument is known as "The National Monument of India"?**

- A India Gate
- B Gateway of India
- C Raj Ghat
- D Red fort

**Answer: A**

**Question 29**

**Which of the following country has recently declared 3 month emergency following a failed military coup?**

- A Sudan
- B Turkey
- C Maldives
- D Syria

**Answer: B**

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**Question 30**

**The award which, the famous writer and social activist Mahasweta Devi, who passed away recently, did not win**

- A Sahity Akademi Award
- B Jnanpith Award
- C Magsaysay Award
- D Padam Vibhushan

**Answer: D**

**Question 31**

**Which place is said to be the Manchester of South India?**

- A Coimbatore
- B Salem



C Thanjavur

D Madurai

Answer: A

Question 32

A galvanometer can be converted into a voltmeter by connecting with it a

A high resistance in parallel

B low resistance on parallel

C high resistance on series

D low resistance in series

Answer: C

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Question 33

In computer processing, \_\_\_\_\_ selects processes from the pool and loads them into memory for execution.

A Job Scheduler

B Resource Scheduler

C CPU Scheduler

D Process Scheduler

Answer: A

Question 34

Name the first cricketer to score 1000 runs in an innings in any competitive match

A Prithvi Shaw

B Pranav Dhanawade

C Virat Kohli

D Shikhar Dhawan

Answer: B

Question 35

The beach sands of Kerala are rich in

A Calcium

B Radium

C Thorium

D Manganese



Answer: C

## SSC CHSL Previous Question papers (download pdf)

### Question 36

During which operating conditions of an automobile, carbon monoxide content in exhaust gas is maximum?

- A Acceleration
- B Cruising
- C Idle running
- D Deacceleration

Answer: C

### Question 37

India's first Railway University will come up at

- A Vadodara, Gujarat
- B Bengaluru, Karnataka
- C Hyderabad, Andhra Pradesh
- D Lucknow, Uttar Pradesh

Answer: A

### Question 38

The Himalayas is the example of \_\_\_\_

- A Fold mountains
- B Block mountains
- C Ancient mountains
- D Residual mountains

Answer: A

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

### Question 39

The largest irrigation canal in India is \_\_\_\_\_

- A Yamuna canal
- B Indira Gandhi canal
- C Sirhand canal
- D Upper Bari Doab canal

Answer: B

**Question 40**

Even after sunset, the air near the Earth's surface continue to receive heat due to

- A Insolation
- B Terrestrial Radiation
- C Conduction
- D Convection

**Answer: B**

**Question 41**

At the Rio Olympics, who was the flagbearer of the Indian contingent?

- A Narsingh Yadav
- B Abhinav Bindra
- C Dipa Karmakar
- D Sania Mirza

**Answer: B**

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**Question 42**

A landscape which is caused due to the fissure in the earth along which one side has moved down with reference to the other is known as

- A Rift Valley
- B U Shaped Valley
- C V Shaped Valley
- D Hanging Valley

**Answer: A**

**Question 43**

The largest artery in human body is

- A Aorta
- B Capillary
- C Vena cava
- D Pulmonary vein

**Answer: A**

**Explanation:**

Aorta is the largest artery in the human body.

Question 44

An eudiometer measures

- A Atmospheric pressure
- B Time
- C Volume of gases
- D Vapour pressure

Answer: C

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Question 45

Trinitrotoluene is

- A used to melt metals
- B used to fuse two metals
- C used as an abrasive
- D used as an explosive

Answer: D

Question 46

In a cut motion, when the amount of demand is reduced by Rs 100/- , it is known as

- A Disapproval of policy cut
- B Economy cut
- C Vote on Account
- D Token cut

Answer: D

Question 47

The leading producers of asbestos in the world is

- A Australia
- B Russia
- C Canada
- D Armenia

Answer: B

Explanation:

Russia is the leading producer of Asbestos in the world.

## SSC CGL Previous Papers (DOWNLOAD PDF)

### Question 48

Beighton Cup is associated with which of the following?

- A Cricket
- B Hockey
- C Football
- D Volleyball

Answer: B

### Question 49

If Reserve Bank of India reduces the cash reserve ratio, it will :

- A increase credit creation
- B decrease credit creation
- C have no impact on credit creation
- D have no definite impact on credit creation

Answer: A

### Question 50

Nitrification is the biological process of converting

- A  $N_2$  into nitrate
- B  $N_2$  into nitrite
- C Ammonia into nitrite
- D Ammonia into  $N_2$

Answer: C

## SSC CGL Tier-2 Previous Papers PDF

### Mathematics

#### Instructions

For the following questions answer them individually

#### Question 51

If 20 men working 8 hours per day can complete a piece of work in 21 days. How many hours per day must 48 men work to complete the same job in 7 days?

- A 12
- B 20
- C 10

D 15

Answer: C

Explanation:

$$M_1 = 20, D_1 = 21 \text{ and } H_1 = 8$$

$$M_2 = 48, D_2 = 7 \text{ and } H_2 = h$$

$$\text{Using, } M_1 D_1 H_1 = M_2 D_2 H_2$$

$$\Rightarrow 20 \times 21 \times 8 = 48 \times 7 \times h$$

$$\Rightarrow h = 20 \times \frac{21}{7} \times \frac{8}{48}$$

$$\Rightarrow h = 20 \times \frac{3}{6} = 10 \text{ days}$$

$\Rightarrow$  Ans - (C)

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Question 52

which from the following is correct meaning of mundane

- A humdrum
- B extraordinary
- C spiritual
- D imaginative

Answer: A

Question 53

A shop keeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of cost price to the printed price of the book is

- A 45:56
- B 50: 61
- C 99: 125
- D None of these

Answer: A

Explanation:

Let cost price = Rs.  $100x$  and marked price = Rs.  $100y$

$$\text{To find : } \frac{100x}{100y} = \frac{x}{y} = ?$$

Now, profit % = 12%

$$\Rightarrow S.P. = 100x \times \frac{112}{100} = Rs. 112x \text{ -----(i)}$$

Also, discount % = 10%

$$\Rightarrow S.P. = 100y \times \frac{90}{100} = Rs. 90y \text{ -----(ii)}$$

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

$$\Rightarrow 112x = 90y$$

$$\Rightarrow \frac{x}{y} = \frac{90}{112} = \frac{45}{56}$$

∴ Ratio of cost price to the printed price of the book = 45 : 56

⇒ Ans - (A)

#### Question 54

The number of pupils of a class is 55. The ratio of the number of male pupils to the number of female pupils is 5: 6. The number of female pupils is

A 11

B 25

C 30

D 35

Answer: C

#### Explanation:

Let number of male pupils =  $5x$

⇒ Number of female pupils =  $6x$

Total pupils =  $5x + 6x = 11x$

Also,  $11x = 55$

$$\Rightarrow x = \frac{55}{11} = 5$$

∴ Number of female pupils =  $6 \times 5 = 30$

⇒ Ans - (C)

## SSC CGL Important Questions PDF

#### Question 55

5% more is gained by selling a watch for Rs. 350 than by selling it for Rs. 340. The cost price of the watch is

A Rs. 110

B Rs. 140

C Rs. 200

D Rs. 250

Answer: C

#### Explanation:

Let cost price of watch = Rs.  $100x$

When selling price = Rs. 340

$$\Rightarrow \text{Profit \%} = \frac{340 - 100x}{100x} \times 100 = \frac{(340 - 100x)}{x}$$

$$\text{Similarly, Profit \% when SP = Rs. 350} = \frac{(350 - 100x)}{x}$$

According to ques,

$$\Rightarrow \left( \frac{350 - 100x}{x} \right) - \left( \frac{340 - 100x}{x} \right) = 5$$

$$\Rightarrow (350 - 100x) - (340 - 100x) = 5x$$

$$\Rightarrow 5x = 350 - 340 = 10$$

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

$$\therefore \text{Cost Price} = 100 \times 2 = \text{Rs. } 200$$

$\Rightarrow$  Ans - (C)

#### Question 56

If 60% of the students in a school are boys and number of girls is 812, how many boys are there in the school?

A 1128

B 1218

C 1821

D 1281

**Answer: B**

#### Explanation:

Let total students =  $100x$

$$\Rightarrow \text{Boys} = \frac{60}{100} \times 100x = 60x$$

$$\Rightarrow \text{Girls} = 100x - 60x = 40x$$

$$\text{Also, } 40x = 812$$

$$\Rightarrow x = \frac{812}{40} = 20.3$$

$$\therefore \text{Number of boys} = 60 \times 20.3 = 1218$$

$\Rightarrow$  Ans - (B)

#### Question 57

It takes eight hours for a 600 km journey, if 120 km is done by train and the rest by car. It takes 20 minutes more, if 200 km is done by train and the rest by car. The ratio of the speed of the train to that of the car is:

A 3:5

B 3:4

C 4:3

D 4:5

**Answer: B**

#### Explanation:

Let the speed of train =  $x$  km/hr and speed of car =  $y$  km/hr

Total distance = 600 km

Using, time = distance/speed

If 120 km is done by train and the rest by car,

$$\Rightarrow \text{Time} = \frac{120}{x} + \frac{480}{y} = 8$$

$$\Rightarrow \frac{15}{x} + \frac{60}{y} = 1$$

$$\Rightarrow \frac{1}{x} + \frac{4}{y} = \frac{1}{15} \text{ -----(i)}$$

$$\text{Similarly, } \frac{200}{x} + \frac{400}{y} = \frac{1}{\frac{8}{3}} = \frac{25}{3}$$

$$\Rightarrow \frac{24}{x} + \frac{48}{y} = 1$$

$$\Rightarrow \frac{1}{x} + \frac{2}{y} = \frac{1}{24} \text{ -----(ii)}$$

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

$$\Rightarrow \frac{2}{y} = \frac{1}{15} - \frac{1}{24} = \frac{3}{120}$$

$$\Rightarrow y = \frac{240}{3} = 80 \text{ km/hr}$$

Substituting it in equation (ii),  $\Rightarrow \frac{1}{x} = \frac{1}{24} - \frac{1}{40} = \frac{5-3}{120}$

$$\Rightarrow x = \frac{120}{2} = 60 \text{ km/hr}$$

$\therefore$  Ratio of the speed of the train to that of the car =  $\frac{x}{y}$

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

$\Rightarrow$  Ans - (B)

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### Question 58

figure

A 1

B -1

C 0

D 2

Answer: C

### Question 59

If  $m + n = 1$ , then the value of  $m^3 + n^3 + 3mn$  is equal to

A 0

B 1

C 2

D 3

Answer: B

#### Explanation:

Given :  $m + n = 1$  -----(i)

Cubing both sides

$$\Rightarrow (m + n)^3 = (1)^3$$

$$\Rightarrow m^3 + n^3 + 3mn(m + n) = 1$$

Using equation (i), we get :

$$\Rightarrow m^3 + n^3 + 3mn(1) = 1$$

$$\Rightarrow m^3 + n^3 + 3mn = 1$$

$\Rightarrow$  Ans - (B)



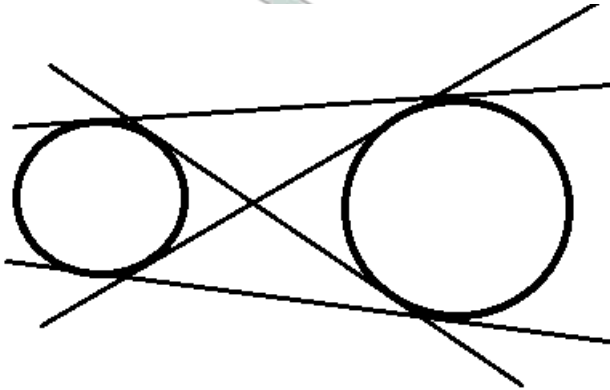
Question 60

The maximum number of common tangents that can be drawn to two disjoint circles is

- A 1
- B 2
- C 4
- D Infinitely many

Answer: C

Explanation:



The maximum number of common tangents that can be drawn to two disjoint circles = 4

=> Ans - (C)

## General Science Notes for SSC CGL

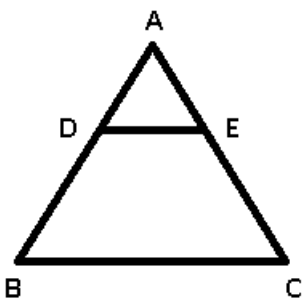
Question 61

In figure,  $DE \parallel BC$ . If  $DE = 3$  cm,  $BC = 6$  cm and area of  $\triangle ADE = 15$  sq cm, then the area of  $\triangle ABC$  is

- A 75 sq cm
- B 45 sq cm
- C 30 sq cm
- D 60 sq cm

Answer: D

Explanation:



It is given that  $DE = 3$  cm,  $BC = 6$  cm

Let area of  $\triangle ABC = x$  sq cm and area of  $\triangle ADE = 15$  sq cm

In  $\triangle ADE$  and  $\triangle ABC$

$$\angle DAE = \angle BAC \text{ (common)}$$

$$\angle ADE = \angle ABC \text{ (Alternate interior angles)}$$

$$\angle AED = \angle ACB \text{ (Alternate interior angles)}$$

$$\Rightarrow \triangle ADE \sim \triangle ABC$$

$$\Rightarrow \text{Ratio of Area of } \triangle ADE : \text{Area of } \triangle ABC = \text{Ratio of square of corresponding sides} = (DE)^2 : (BC)^2$$

$$\Rightarrow \frac{15}{x} = \frac{(3)^2}{(6)^2}$$

$$\Rightarrow \frac{15}{x} = \frac{9}{36}$$

$$\Rightarrow \frac{15}{x} = \frac{1}{4}$$

$$\Rightarrow x = 15 \times 4 = 60 \text{ cm}^2$$

$\Rightarrow$  Ans - (D)

### Question 62

If  $\cos^4\theta - \sin^4\theta = 1/3$ , then the value of  $\tan^2\theta$  is

A 1/2

B 1/3

C 1/4

D 1/5

Answer: A

Explanation:

$$\text{Given : } \cos^4\theta - \sin^4\theta = \frac{1}{3}$$

$$\Rightarrow (\cos^2\theta - \sin^2\theta)(\cos^2\theta + \sin^2\theta) = \frac{1}{3}$$

$$\Rightarrow (\cos^2\theta - \sin^2\theta)(1) = \frac{1}{3}$$

$$\Rightarrow \cos^2\theta - \sin^2\theta = \frac{1}{3} \text{ -----(i)}$$

$$\text{Also, } \cos^2\theta + \sin^2\theta = 1 \text{ -----(ii)}$$

Adding equations (i) and (ii),

$$\Rightarrow 2\cos^2\theta = 1 + \frac{1}{3} = \frac{4}{3}$$

$$\Rightarrow \cos^2\theta = \frac{2}{3}$$

$$\text{Similarly, } \sin^2\theta = \frac{1}{3}$$

$$\therefore \tan^2\theta = \frac{\sin^2\theta}{\cos^2\theta}$$

$$= \frac{\frac{1}{3}}{\frac{2}{3}} = \frac{1}{2}$$

$\Rightarrow$  Ans - (A)

### Question 63

If a perfect square, not divisible by 6, be divided by 6, the remainder will be

A 1, 3 or 5

B 1, 2 or 5

C 1, 3 or 4

D 1, 2 or 4

Answer: C

**Explanation:**

Let the perfect square numbers be 9, 16, 25, 49, 64, ...

If 9 is divided by 6, then remainder = 3.

If 16 is divided by 6, then remainder = 4.

If 25 is divided by 6, then remainder = 1.

If 64 is divided by 6, then remainder = 4.

If 81 is divided by 6, then remainder = 3.

Hence, If a perfect square, not divisible by 6, be divided by 6, the remainder will be 1, 3 or 4.

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**Question 64**

A batsman in his 12th innings makes a score of 120, and thereby increase his average by 5. The average score after 12th innings is

A 60

B 55

C 65

D 70

Answer: C

**Explanation:**

Let the initial average =  $x$

$\Rightarrow$  Runs scored in first 11 innings =  $11x$

Score in 12th innings = 120

According to ques, new average

$$\Rightarrow \frac{11x+120}{12} = (x+5)$$

$$\Rightarrow 11x + 120 = 12x + 60$$

$$\Rightarrow 12x - 11x = 120 - 60$$

$$\Rightarrow x = 60$$

$\therefore$  Average score after 12th innings =  $60 + 5 = 65$

$\Rightarrow$  Ans - (C)

**Question 65**

The value of  $\sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}}$  is

A 2

B 4

C  $\pm 2$

D -2

Answer: B

Explanation:

$$\begin{aligned} & \sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}} \\ &= \sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 2\sqrt{12}}}} \\ & \text{As per surds calculation we get} \\ &= \sqrt{-\sqrt{3} + \sqrt{3 + 8(\sqrt{4 + \sqrt{3}})}} \\ &= \sqrt{-\sqrt{3} + \sqrt{3 + 8(2 + \sqrt{3})}} \\ &= \sqrt{-\sqrt{3} + \sqrt{3 + 16 + 8\sqrt{3}}} \\ &= \sqrt{-\sqrt{3} + \sqrt{19 + 8\sqrt{3}}} \\ &= \sqrt{-\sqrt{3} + \sqrt{19 + 2\sqrt{48}}} \\ &= \sqrt{-\sqrt{3} + \sqrt{16 + \sqrt{3}}} \\ &= \sqrt{16} \\ &= 4 \end{aligned}$$

Question 66

If  $X^4 + \frac{1}{X^4} = 119$ , then the value of  $X - \frac{1}{X}$  is

- A 6
- B 12
- C 11
- D 3

Answer: C

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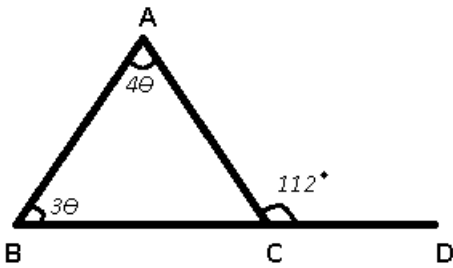
Question 67

The side BC of the  $\Delta ABC$  is extended to the point D. If  $\angle ACD = 112^\circ$  and  $\angle B = \frac{3}{4} \angle A$ , then the value of  $\angle B$  is

- A  $64^\circ$
- B  $48^\circ$
- C  $46^\circ$
- D  $50^\circ$

Answer: B

Explanation:



Given :  $\angle ACD = 112^\circ$  and  $\angle B = \frac{3}{4} \angle A$

Let  $\angle A = 4\theta$

$\Rightarrow \angle B = 3\theta = ?$

Solution : Using exterior angle property

$\Rightarrow \angle A + \angle B = \angle ACD$

$\Rightarrow 4\theta + 3\theta = 112^\circ$

$\Rightarrow 7\theta = 112^\circ$

$\Rightarrow \theta = \frac{112}{7} = 16^\circ$

$\therefore \angle B = 3 \times 16 = 48^\circ$

$\Rightarrow$  Ans - (B)

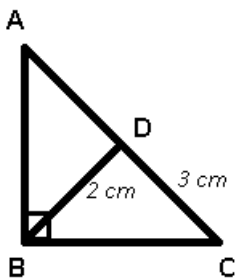
#### Question 68

$\triangle ABC$  is a right angled triangle, the radius of its circumcircle is 3 cm and the length of its altitude drawn from the opposite vertex to the hypotenuse is 2 cm. Then the area of the triangle is

- A 12 sq cm
- B 3 sq cm
- C 6 sq cm
- D 5 sq cm

Answer: C

Explanation:



$\triangle ABC$  is right angled at B and BD is perpendicular to AC and  $BD = 2$  cm

Circumcentre of a right angled triangle lies at the mid point of its hypotenuse

$\Rightarrow AD = CD$

Thus,  $AC = 2 \times CD = 6$  cm

$\therefore$  Area of  $\triangle ABC = \frac{1}{2} \times BD \times AC$

$= \frac{1}{2} \times 2 \times 6 = 6 \text{ cm}^2$

=> Ans - (C)

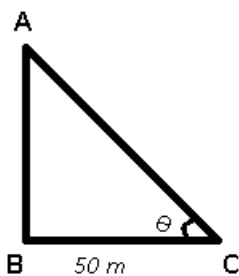
**Question 69**

The height of a tower is  $50\sqrt{3}$  m. The angle of elevation of a tower from a distance 50 m from its feet is

- A  $30^\circ$
- B  $45^\circ$
- C  $60^\circ$
- D  $90^\circ$

**Answer:** C

**Explanation:**



Given : AB is the tower =  $50\sqrt{3}$  m and BC = 50 m

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

Solution : In  $\triangle ABC$

$$\Rightarrow \tan(\theta) = \frac{AB}{BC}$$

$$\Rightarrow \tan(\theta) = \frac{50\sqrt{3}}{50}$$

$$\Rightarrow \tan(\theta) = \sqrt{3}$$

$$\Rightarrow \theta = \tan^{-1}(\sqrt{3})$$

$$\Rightarrow \theta = 60^\circ$$

=> Ans - (C)

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**Question 70**

The amount of Rs. 10,000 after 2 years, compounded annually with the rate of interest being 10% per annum during the first year and 12% per annum during the second year, would be (in rupees)

- A 11,320
- B 12,000
- C 12,320
- D 12,500

**Answer:** C

**Explanation:**

Principal amount = Rs. 10,000

Rate of interest = 10% for first year and 12% for second year

$$\Rightarrow \text{Amount after interest} = 10,000 \times \frac{110}{100} \times \frac{112}{100}$$

$$= 110 \times 112 = \text{Rs. } 12,320$$

$\Rightarrow$  Ans - (C)

#### Question 71

The value of  $\tan 80^\circ \tan 10^\circ + \sin^2 70^\circ + \sin^2 20^\circ$  is

A 0

B 1

C 2

D 3

Answer: C

Explanation:

$$\text{Expression: } \tan(80^\circ)\tan(10^\circ) + \sin^2(70^\circ) + \sin^2(20^\circ)$$

$$= \tan(80^\circ)\tan(90^\circ - 80^\circ) + \sin^2(70^\circ) + \sin^2(90^\circ - 70^\circ)$$

$$\text{Using, } \tan(90^\circ - \theta) = \cot\theta \text{ and } \sin(90^\circ - \theta) = \cos\theta$$

$$= \tan(80^\circ)\cot(80^\circ) + \sin^2(70^\circ) + \cos^2(70^\circ)$$

$$\text{Using, } (\sin^2\theta + \cos^2\theta = 1) \text{ and } \tan\theta\cot\theta = 1$$

$$= 1 + 1 = 2$$

$\Rightarrow$  Ans - (C)

#### Question 72

The table given below shows the per acre yield (in kg) of different countries. Study the graph carefully and answer the questions

India : 250

Sri Lanka : 117

China : 343

Brazil : 240

Iran : 156

The average yield of the given countries is

A 1106/5

B 1001/5

C 1105/5

D 1106/3

Answer: A

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Question 73

In the following information the production of rice per acre yield is given for few country

India : 250

Pakistan : 200

Bangladesh : 150

China : 300

Nepal : 100

By how much percentage is India's per acre yield more than that of Pakistan's?

- A 20%
- B 25%
- C  $33\frac{1}{3}\%$
- D 35%

Answer: B

Question 74

The bar graph given below shows the per acre yield (in kg) of different countries. Study the graph carefully and answer the questions  
Srilanka's yield (approximately) is what percent of total yield of all the countries?

- A 17.8%
- B 16.2%
- C 18.2%
- D 15.4%

Answer: B

Question 75

2017 (rice yield in lakh kgs)

Africa :	80
Brazil:	110
China:	250
India:	200
Bangladesh:	150
Sri lanka:	140

Writing the rice yields of all countries in ascending order, the difference between the sum of yields of first three countries to that of last three countries is

- A 200 kg
- B 210 kg
- C 270 kg
- D 600 kg

Answer: C



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.

**CUPIDITY**

- A FEAR
- B FRIENDSHIP
- C GREED
- D LOVE

**Answer: C**

**Explanation:**

CUPIDITY means greed for money or possessions.

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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.

**CAPTIVATE**

- A DISTRACT
- B OBSCURE
- C IMPRISON
- D RELEASE

**Answer: A**

**Explanation:**

Captivate means to attract and hold the interest of. Distract is the antonym of Captivate from the given options.

**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 Clandistine
- B Clandestine
- C Clandistene
- D Clandestene

Answer: B

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.

Can I have (a) / a loaf of bread (b) / and a jam jar? (c) / No error (d)

- A Can I have
- B a loaf of bread
- C and a jam jar?
- D No error

Answer: C

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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.

Now that I am back at work, (a) / I have beginning (b) / to feel much better. (c) / No error (d)

- A Now that I am back at work
- B I have beginning
- C to feel much better
- D No error

Answer: B

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.

The artist, plainly a better critic (a) / than painter, destroyed what (b) / he made over for ten years. (c) / No error (d)

- A The artist, plainly a better critic
- B than painter, destroyed what
- C he made over for ten years
- D No error

Answer: C

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.

Never give your friends \_\_\_\_\_ .

- A the cold arm

- B the cold elbow
- C the cold shoulder
- D the cold hand

Answer: C

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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.

My mother upset the kettle of boiling water and \_\_\_\_\_ her hand.

- A scalded
- B scolded
- C scorched
- D wounded

Answer: A

### 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.

His writings are \_\_\_\_\_ mistakes.

- A brooded with
- B burst into
- C replete with
- D boasted of

Answer: C

### 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.

Cut a sorry figure

- A Did not stand straight
- B Apologised for his remarks
- C Created a wrong impression
- D Made a poor impression

Answer: D

### Explanation:

To cut a sorry figure means to make a poor impression.

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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.

**To take to task**

- A Forgave him
- B Slapped him
- C Gave him extra work
- D Reprimanded him

**Answer: D**

### 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.

**Bring to light**

- A Introduced
- B Revealed
- C Seen
- D Brought to life

**Answer: B**

### 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.

**A job carrying no salary**

- A Honorary
- B Memento
- C Honorarium
- D Memorandum

**Answer: A**

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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.

**Act of stealing something in small quantities**

- A Pillage

B Plagiarise

C Proliferate

D Pilferage

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.

Pertaining to the west

A Celestial

B Occidental

C Oriental

D Terrestrial

Answer: B

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".

As soon as I arrived in home, I knew that something was wrong.

A arrived by home

B arrived home

C arrived my home

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".

Unfortunately I did not pass in the examination

A I did not pass over

B I did not overcome

C I did not pass

D No improvement

Answer: C

**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".

His powerful desire brought about his downfall.

- A His wishful desire
- B His desire for power
- C His eager desire
- D No improvement

**Answer: B**

**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".

Ramesh laid in the shade of a tree before he could walk further.

- A lied
- B lay
- C lain
- 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".

An education in handling money would imply the ability to oversee the consequences of over-spending or over-borrowing.

- A foresee
- B overlook
- C overvalue
- D No improvement

**Answer: A**

**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.

A knowledge of grammar is essential for good speaking and writing, by which one's mind is judged. Studying grammar means hard work: it must be learned as a whole, with no part omitted, and it demands much thought and patience. But, once acquired, it can give a life-time's pleasure and profit. Its study requires no physical hardship, no special room or expenses. If people spent only their leisure

time studying grammar they could master it in one year. The author learned it in less than a year. As a private soldier earning sixpence a day, he sat on his bed and studied. Unable to afford candle or oil, he read in winter by firelight (when it was his turn). If he could manage it thus, and with no outside encouragement, then any youth, however poor or busy, could do the same.

**Question 96**

**Why should we learn grammar?**

- A To develop speaking skills
- B To develop writing skills
- C To have a mastery over language
- D To acquire good speaking and writing skills

**Answer: D**

**Question 97**

**How does the world judge a man's mind?**

- A By his dress
- B By his manners
- C By his appearance
- D By his speech and writing

**Answer: D**

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**Question 98**

**How long would it take to gain mastery over grammar?**

- A One year
- B Six months
- C Two years
- D Ten months

**Answer: A**

**Question 99**

**What is the occupation of the writer?**

- A Teacher
- B Soldier
- C Artist
- D Clerk

**Answer: B**

Question 100

The learning of grammar should be

- A patient, thoughtful and holistic
- B thoughtful, patient and piecemeal
- C holistic, thoughtful and rapid
- D thoughtful, rapid and piecemeal

Answer: A

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