

# 2017 SSC CGL 09 Aug Shift-2

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## Reasoning

#### Instructions

For the following questions answer them individually

#### **Question 1**

In the following question, select the related word from the given alternatives.

Calendar: Date::Index:?

- A Name of Author
- **B** Glossary
- **C** Contents
- **D** Summary

Answer: C

#### **Explanation:**

Calendar is used to check dates, in the same way index is used to check contents.

=> Ans - (C)

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#### Question 2

In the following question, select the related number from the given alternatives.

ACOUSTIC: 91:: RENOUNCE:?

- **A** 95
- **B** 99
- **C** 105
- **D** 109

Answer: A

#### **Explanation:**

The sum of numerical representation of the alphabets will be:

ACOUSTIC = 1 + 3 + 15 + 21 + 19 + 20 + 9 + 3 = 91

Similarly, RENOUNCE = 18 + 5 + 14 + 15 + 21 + 14 + 3 + 5 = 95

=> Ans - (A)

#### **Question 3**

In the following question, select the related number from the given alternatives.

243:819::163:?

- **A** 487
- **B** 563
- **C** 572
- **D** 593



#### **Explanation:**

Expression = 243:819::163:?

The pattern followed is =  $2 \times 4 \times 3 = 24$ 

Now, 
$$(24)^2 = 576$$

and 
$$576 + 243 = 819$$

Similarly, 
$$1 \times 6 \times 3 = 18$$

and 
$$(18)^2 = 324$$

Thus, 
$$324 + 163 = 487$$

#### **Question 4**

In the following question, select the odd word from the given alternatives.

- **A** Badminton
- **B** Table Tennis
- C Cricket
- **D** Hockey

Answer: A

#### **Explanation:**

In table-tennis, cricket and hockey, a ball is used, while in badminton a shuttlecock is used.

=> Ans - (A)

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#### **Question 5**

In the following question, select the odd letters from the given alternatives.

- A ACFJ
- **B** RTWA
- C NPSV
- **D** HJMQ

Answer: C

#### **Explanation:**

$$= A (+2) = C (+3) = F (+4) = J$$

(B): RTWA

$$= R (+2) = T (+3) = W (+4) = A$$

(C): NPSV

$$= N (+2) = P (+3) = S (+3) = V$$

(D): HJMQ

#### Question 6

In the following question, select the odd number group from the given alternatives.



#### Answer: A

#### **Explanation:**

The pattern followed is that =  $n, n^2, 2.5n^2$ 

(A): 
$$4, 4^2, 2.5 \times 4^2 = 4, 16, 40$$

(B) : 
$$6, 6^2, 2.5 \times 6^2 = 6, 36, 90$$

(C): 
$$8, 8^2, 2.5 \times 8^2 = 8, 64, 160$$

(D): 
$$12, 12^2, 2.5 \times 12^2 = 12, 144, 360$$

#### **Question 7**

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



2. Desecrate

3. Decorous

4. Desipicable

5. Destitute



**B** 15243

C 32451

**D** 45231

Answer: A

#### **Explanation:**

As per the dictionary,

= Decollete -> Decorous -> Desecrate -> Desipicable -> Destitute

 $\equiv 13245$ 

=> Ans - (A)

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#### **Question 8**

In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?



Answer: B

#### **Explanation:**

Expression: a \_ bc \_ a \_ bcdabc \_ da \_ cd \_

In groups of five, the first four letters of English alphabets are repeated with each letter written twice in every group.

=> aabcd abbcd abccd abcdd

#### Question 9

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

1357, 3085, 5282, 8026, ?

Answer: D

#### **Explanation:**

Cubes of successive integers starting from 12 is added to each number.

$$1357 + (12)^3 = 3085$$

$$3085 + (13)^3 = 5282$$

$$5282 + (14)^3 = 8026$$

$$8026 + (15)^3 = 11401$$

#### Question 10

5 year hence, ratio of ages of A and B will be 7 : 5 and difference between their ages will be 4 years. What are present ages (in years) of A and B respectively?



#### Answer: C

#### **Explanation:**

Let ages of A and B five years later be 7x and 5x years respectively.

According to ques, => 7x - 5x = 4

$$=> x = \frac{4}{2} = 1$$

Thus, A's present age = 7(2) - 5 = 9 years

B's present age = 5(2) - 5 = 5 years

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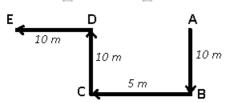
#### **Question 11**

From a point, Lokesh starts walking towards south and after walking 10 metres he turns to his right and walks 5 metres, then he turns right again and walks 10 metres. He finally turns to his left and walk 10 metres. In which direction is he with reference to the starting point?

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

Answer: C

**Explanation:** 



Let Lokesh's initial position be A and he went south to reach point B.

His final position is at point E.

Thus, E is to the west of A.

=> Ans - (C)

#### **Question 12**

In the following question, from the given alternative words, select the word which cannot be formed using the letters of the given word.

#### **ENCYCLOPEDIA**

- A CONE
- **B** CYCLE
- C NOISY
- **D** PEACE

Answer: C

#### **Explanation:**

The word ENCYCLOPEDIA does not contain any 'S', so the word 'Noisy' cannot be formed.

=> Ans - (C)

#### Question 13

In a certain code language, "RAIN" is written as "OHBQ". How is "SUMMER" written in that code language?

- **A** QFLNTT
- **B** QDLLTR
- C SFNNVT
- **D** SDNLVR

Answer: D

## **Explanation:**

"RAIN" is written as "OHBQ"

If we reverse the code, then pattern followed will be:

R	Δ	- 1	N
(-1)	(+1)	(-1)	(+1)
Q	В	Н	0

Similarly, for SUMMER:

S	U	М	М	E	R
(-1)	(+1)	(-1)	(+1)	(-1)	(+1)
R	V	L	N	D	S

=> SUMMER : SDNLVR

=> Ans - (D)

## SSC CGL Tier-2 Previous Papers PDF

#### **Question 14**

In the following question, correct the given equation by interchanging two numbers.

 $8 \times 3 \div 4 + 9 - 5 = 16$ 

- **A** 3 and 4
- **B** 4 and 8
- **C** 5 and 3
- **D** 5 and 9

Answer: C

#### **Explanation:**

Expression :  $8 \times 3 \div 4 + 9 - 5 = 16$ 

(A) : 
$$8 \times 4 \div 3 + 9 - 5 = 16$$

L.H.S. = 
$$10.67 + 4 = 14.67 \neq \text{R.H.S.}$$

(B) : 
$$4 \times 3 \div 8 + 9 - 5 = 16$$

L.H.S. = 
$$1.5 + 4 = 5.5 \neq \text{R.H.S.}$$

(C): 
$$8 \times 5 \div 4 + 9 - 3 = 16$$

L.H.S. = 
$$10 + 6 = 16$$
 R.H.S.

(D): 
$$8 \times 3 \div 4 + 5 - 9 = 16$$

L.H.S. = 
$$6-4=2 \neq \text{R.H.S.}$$

=> Ans - (C)

- **A** 12
- **B** 14
- **C** 16
- **D** 20

Answer: A

#### **Question 16**

In the following question. select the number which can be placed at the sign of question mark (?) from the given alternatives.

	2	
1	41	5
	ı	

	3	
4	159	6
	2	

	7	
5	?	3
	2	

- **A** 189
- **B** 227
- C 277
- **D** 339

Answer: B

#### **Explanation:**

The number in the middle is the sum of product of all the surrounding numbers and their sum.

Eg: 
$$(1 \times 2 \times 5 \times 3) + (1 + 2 + 5 + 3) = 30 + 11 = 41$$

and 
$$(4 \times 3 \times 6 \times 2) + (4 + 3 + 6 + 2) = 144 + 15 = 159$$

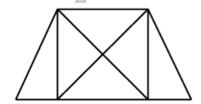
Similarly, 
$$(5 \times 7 \times 3 \times 2) + (5 + 7 + 3 + 2) = 210 + 17 = 227$$

=> Ans - (B)

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## Question 17

How many triangles are there in the given figure?



**A** 8

**B** 10

**C** 12

#### **Explanation:**

Smaller triangles = 6

Triangles formed by combination of 3 triangles = 2

Larger triangles (at the diagonals) = 4

Thus, total triangles = 6 + 2 + 4 = 12

=> Ans - (C)

#### **Question 18**

In the following question below are given some statements followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.

#### Statements:

- I. All rackets are bats.
- II. All bats are wickets.

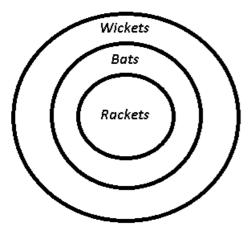
#### **Conclusions:**

- I. Some wickets are rackets.
- II. All wickets are rackets.
- A Only conclusion (I) follows.
- B Only conclusion (II) follows.
- C Neither conclusion (I) nor conclusion (II) follows.
- D Both conclusions follow.

Answer: A

#### **Explanation:**

The venn diagram representing above statements all rackets are bats and all bats are wickets is:



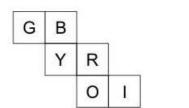
Clearly, all wickets are definitely not rackets, but some wickets are rackets.

Thus, only conclusion (I) follows.

=> Ans - (A)

#### **Question 19**

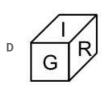
From the given options, which figure can be formed by folding the figure given in the question?











Answer: B

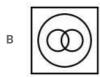
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#### **Question 20**

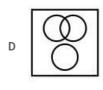
Identify the diagram that best represents the relationship among the given classes.

Staff, Manager, Worker









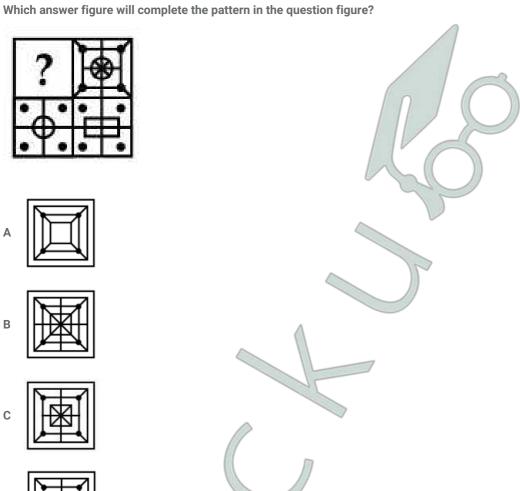
Answer: B

## Explanation:

All workers and managers are staff members, and some workers are also managers, hence the first figure best describes above relationship.

=> Ans - (B)

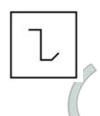
#### **Question 21**

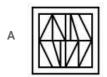


**Question 22** 

Answer: C

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









С



D



Answer: A

#### **Explanation:**

The question figure is embedded in the following figure:

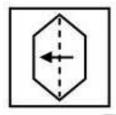


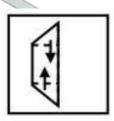
=> Ans - (A)

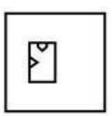
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#### **Question 23**

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







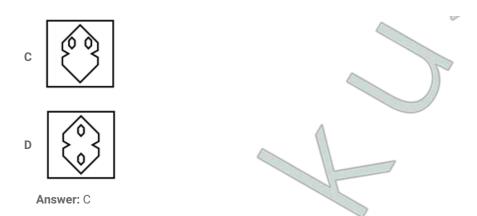
Α



В

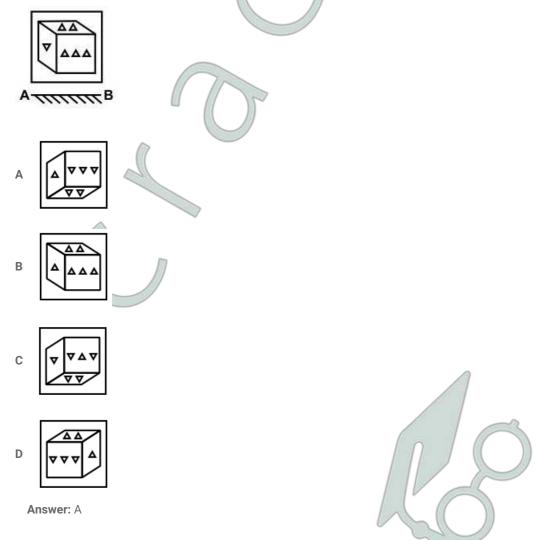






**Question 24** 

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



#### **Explanation:**

A horizontal mirror is placed, so the figure will be reversed, that is, the triangles pointing upwards will face down and vice-versa, and thus the second and third options are not possible.

Also, the triangle on the left will remain at the left hand side in the output, so the last option is also eliminated.

Thus, first is the correct output.

=> Ans - (A)

#### **Question 25**

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'X' can be represented by 21, 44, etc., and 'R' can be represented by 67, 98, etc. Similarly, you have to identify the set for the word "CREEP".

	Matrix - I						
		0	1	2	3	4	
	0	Е	С	Р	X	Т	
	1	С	Р	Χ	Т	Ε	
	2	Р	Χ	Т	Ε	С	
	3	Χ	Т	Ε	С	Р	
	4	Т	Ε	С	Р	X	

Matrix - II							
	5	6	7	8	9		
5	R	L	Ν	0	М		
6	0	М	R	L	Ν		
7	L	Ν	0	М	R		
8	М	R	L	Ν	0		
9	N	0	М	R	L		

- A 10, 79, 23, 32, 42
- **B** 24, 55, 14, 41, 12
- C 33, 86, 32, 13, 43
- **D** 42, 98, 41, 00, 34

Answer: D

#### **Explanation:**

(A): 10, 79, 23, 32, 42 = CREEC

(B): 24, 55, 14, 41, 12 = CRETX

(C): 33, 86, 32, 13, 43 = CRETP

(D): 42, 98, 41, 00, 34 = **CREEP** 

=> Ans - (D)



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## **English**

#### Instructions

For the following questions answer them individually

#### **Question 26**

In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

The Tata group owns (a)/ many industries, that are spread (b)/ across the globe. (c)/ No Error (d)

- A The Tata group owns
- B many industries, that are spread
- C across the globe
- D No Error

Answer: B



# Question 27 In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'. She has not been (a)/ to the restaurant (b)/ much late. (c)/ No Error (d) A She has not been B to the restaurant C much late

#### **Ouestion 28**

No Error

Answer: C

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

He could excel in his board exams only after \_\_\_\_ very hard.

- A continuing
- **B** functioning
- **C** learning
- **D** toiling

Answer: D

#### **Question 29**

In the following question, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

He \_\_\_\_ his camera on the table.

- A laid
- B lain
- C lay
- **D** lie

Answer: A

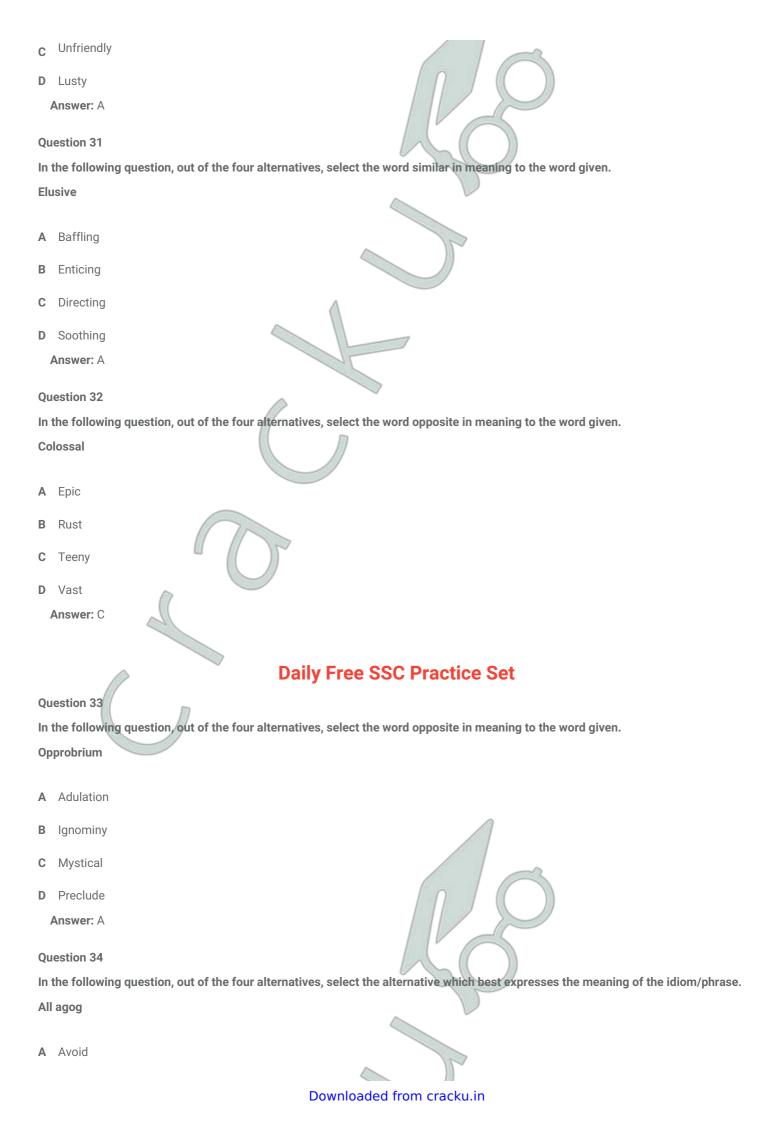
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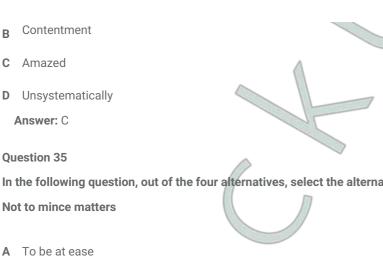
#### Question 30

In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Monotonous

- A Dull
- **B** Timid





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

- To not confuse others
- To not interfere in others affairs
- To speak out politely

Answer: D

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**Question 36** 

Improve the bracketed part of the sentence.

The doctor (has advice) him to take proper diet.

- has advised
- had been advised
- was advised
- No improvement

Answer: A

**Question 37** 

Improve the bracketed part of the sentence.

(Being a pleasant evening), we went out for a long drive on a highway.

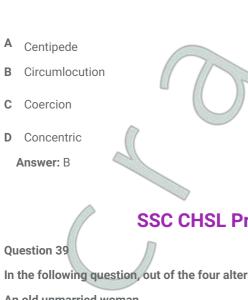
- As a pleasant evening
- It being a pleasant evening
- With a pleasant evening
- No improvement

Answer: B

**Ouestion 38** 

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

A roundabout way of speaking



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

An old unmarried woman

- Masochist
- Septuagenarian
- Sniper
- Spinster

Answer: D

#### **Question 40**

In the following question, four words are given out of which one word is incorrectly spelt. Select the incorrectly spelt word.

- Autumn
- Desperate
- Reciept
- Traffic

Answer: C

## **Question 41**

In the following question, four words are given out of which one word is incorrectly spelt. Select the incorrectly spelt word.

- Century
- Finance
- Remember
- Sponser

Answer: D



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#### **Question 42**

The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.

- P- However, our environment also need some help from all of us to get maintained as usual to nourish our lives forever and to never ruin our lives.
- Q- It gives us all things which we need to live our life on this planet.
- R- It provides us better medium to grow and develop.
- S- An environment includes all the natural resources which surround us to help in number of ways.
- A PQRS
- B OPSR
- C SRQP
- **D** QSPR

Answer: C

#### **Question 43**

The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.

- P- The starting point can be the experience of a minority within society generally or even the experience of a group of people within a progressive social movement which does not live up to its progressive agenda in every respect.
- Q- Within (or after) postmodernism a grand unifying theory no longer seems possible. This does not exclude the possibility or the necessity of dialogue.
- R- The starting points of social criticism can be very different and the different forms of socialism never has a monopoly on Social Criticism.
- S- Nevertheless most social critics still consider the Critique of capitalism to be central.
- A PRQS
- **B** RPQS
- C RQPS
- D PSRQ

Answer: B

#### **Question 44**

In the following question, a sentence has been given in Active/Passive voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active voice.

Rohan was not told about the e-mail.

- A Nobody told Rohan about the e-mail.
- B Somebody did not tell Rohan about the e-mail
- C The e-mail was not told about to Rohan.
- **D** There was nobody who could tell Rohan about the e-mail.

Answer: A

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#### **Question 45**

In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one which best expresses the same sentence in Indirect/Direct speech.

Ram said to Rohan, "Don't run so fast."

- A Ram advised Rohan don't run so fast.
- B Ram asked Rohan why is he running so fast.
- C Ram requested Rohan not to run so fast.
- D Ram told Rohan not to run so fast.

Answer: D

#### Instructions

In the following questions, the sentence given with blank to be filled in with an appropriate word. Select the correct alternative out of the four and indicate it by selecting the appropriate option.

Language, they say, is the \_\_(1)\_\_\_ through which human beings perceive the world. If so, English is perhaps the most \_\_(2)\_\_\_ lens through which to see animals. It has \_\_\_(3)\_\_ a cross eyed view of birds, beasts, fish and fowl. The very word "animal" can \_\_(4)\_\_\_ the brutish and the sensual. Animal \_\_\_(5)\_\_ imply baseness and vulgarity.

#### **Question 46**

(1)

- A lens
- **B** resource
- **C** source
- **D** telescope

Answer: A

**Question 47** 

(2)

- A distorting
- **B** disturbing
- **C** popular
- **D** useful

Answer: A

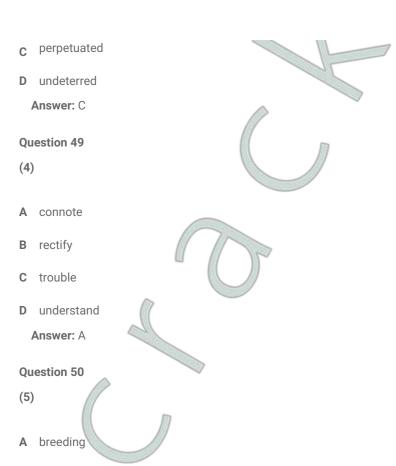


#### **Question 48**

(3)

- A accompanied
- **B** exercised





Answer: C

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**General Awareness** 

#### Instructions

gestures

instincts

species

For the following questions answer them individually

#### **Question 51**

In which market form, a market or an industry is dominated by a single seller?

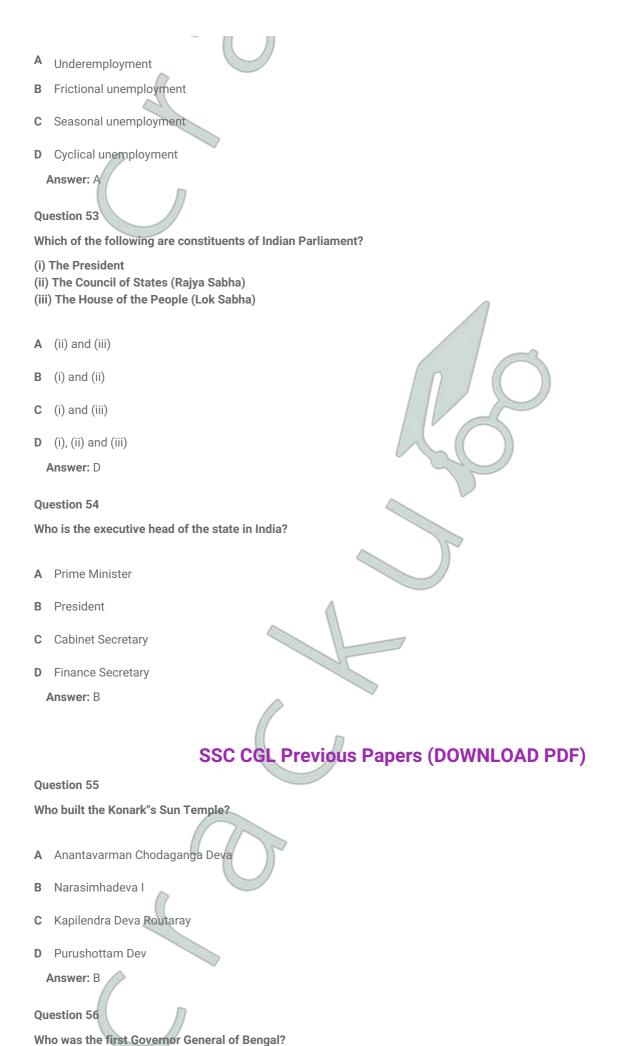
- A Oligopoly
- **B** Monopoly
- **C** Duopoly
- **D** Monopolistic Competition

Answer: B

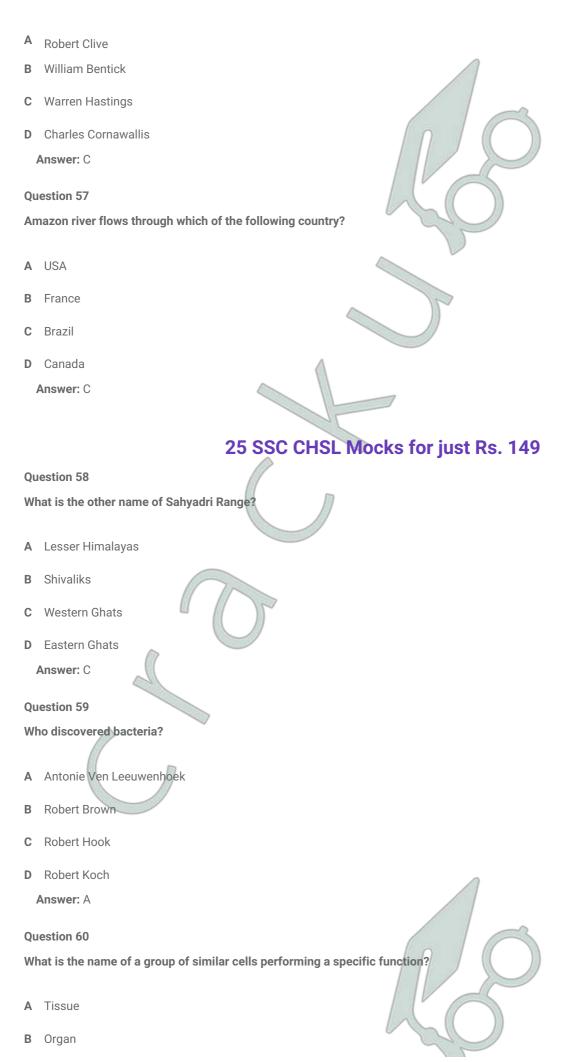
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#### **Question 52**

Which one of the following is also regarded as Disguised unemployment?



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C Organ system

D Cellular organization

Answer: A

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#### **Question 61**

Plant tissues are of how many types?

- **A** 3
- **B** 2
- **C** 5
- **D** 6

Answer: A

Question 62

It is difficult to fix a nail on a freely suspended wooden frame. Which law supports this statement?

- A Law of inertia
- B Newton's second law
- C Newton's third law
- D Pascal's law

Answer: C

#### Question 63

Which one of the following is not a property of electromagnetic waves?

- A Electromagnetic waves do not show interference and diffraction.
- B Oscillating electric field and magnetic field are perpendicular to each other.
- C Electromagnetic waves are transverse waves
- **D** Electromagnetic waves do not require a medium to propagate.

Answer: A

# **SSC CGL Important Questions PDF**

#### **Question 64**

What is a bug in computer terminology?

- A A virus
- **B** A program
- C An error in program



D Magnetic disk storage device
Answer: C
Question 65
A radio-active substance has a half life of six months. Three-fourth of the substance will decay in
A Six months
B Ten months
C Twelve Months
D Twenty four months
Answer: C
Question 66
pH of the human blood is
A Slightly Acidic
B Highly Acidic
C Slightly Basic
D Highly Basic
Answer: C
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Question 67 In which city is the Forest Research Institute of India located?
in which city is the Forest Research institute of india located?
A New Delhi
B Hyderabad
C Dehradun
<ul><li>C Dehradun</li><li>D Shimla</li></ul>
D Shimla
D Shimla Answer: C
D Shimla Answer: C Question 68
D Shimla Answer: C  Question 68  Deen Dayal Rasoi Yojana to provide food at only Rs. 5 has been launched on 6th April, 2017 by which state?
D Shimla Answer: C  Question 68  Deen Dayal Rasoi Yojana to provide food at only Rs. 5 has been launched on 6th April, 2017 by which state?  A Chattisgarh
D Shimla Answer: C  Question 68  Deen Dayal Rasoi Yojana to provide food at only Rs. 5 has been launched on 6th April, 2017 by which state?  A Chattisgarh  B Haryana

#### **Question 69**

What was invented by Zacharias Jansen?

- A Jet Engine
- **B** Radium
- **C** Microscope
- **D** Electric Lamp

Answer: C

## **General Science Notes for SSC CGL**

#### **Question 70**

In which of the following game, ball is not used?

- A Football
- **B** Cricket
- **C** Badminton
- **D** Tennis

Answer: C

#### **Question 71**

Match the following.

#### **Festival**

- 1. Gangaur
- 2. Ganesh Chaturthi
- 3. Durga Puja

#### State

- a. West Bengal
- b. Rajasthan
- c. Maharashtra

- A 1-b, 2-c, 3-a
- **B** 1-c, 2-a, 3-b
- C 1-b, 2-a, 3-c
- **D** 1-a, 2-c, 3-b

Answer: A

#### **Question 72**

Who has won the 'Miss Universe 2016' title?

- A Pia Wurtzbach
- B Iris Mittenaere
- C Raquel Pellissier
- D Andrea Tova

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

#### **Question 73**

Who is the author of the book titled 'Numbers Do Lie'?

- A Anil Menon
- **B** Akash Chopra
- C Ian Chapell
- **D** Kunal Basu

Answer: B

#### **Question 74**

Who has been appointed as the Secretary General of the United Nations in January, 2017?

- A Ban Ki-Moon
- **B** Kofi Annan
- C Boutros-Boutros Ghali
- **D** Antonio Guterres

Answer: D

#### **Question 75**

India has longest international border with which country?

- A Bhutan
- **B** Nepal
- C Bangladesh
- **D** Pakistan

Answer: C

# **SSC Exam Free Videos (Youtube)**

#### **Mathematics**

#### Instructions

For the following questions answer them individually

#### **Question 76**

How many numbers are there from 700 to 950 (including both) which are neither divisible by 3 nor by 7?

- **A** 107
- **B** 141



#### **Explanation:**

Total numbers between 700 to 950 = 950 - 700 + 1 = 251 -----(i

Numbers between 700 to 950 which are divisible by 3 = 702,705,708,........948

This is an AP with first term  $\,a=702\,$  and common difference  $\,d=3\,$ 

Last term of AP = a + (n-1)d

$$=>702+(n-1)3=948$$

$$=>(n-1)3=948-702=246$$

$$=>(n-1)={}^{246}_{3}=82$$

$$=> n = 82 + 1 = 83$$
 -----(ii)

Similarly, numbers between 700 to 950 which are divisible by 7 = 700,707,714,......,945

$$\Rightarrow 700 + (n-1)3 = 945$$

$$=> (n-1)7 = 945 - 700 = 245$$

$$\Rightarrow (n-1) = {}^{245}_{7} = 35$$

$$=> n = 35 + 1 = 36$$
 -----(iii)

Now, numbers which are divisible by L.C.M.(3,7) = 21 are: 714,735,756,......945

Similarly, n=12——(iv)

 $\therefore$  Numbers between 700 to 950 which are not divisible by 3 or 7 = 251-83-36+12=144

=> Ans - (C)

## **SSC Free Preparation App**

#### **Question 77**

A can complete a work in 20 days and B can complete the same work in 25 days. If both of them work together, then in 3 days what percent of the total work will be completed?



- **B** 12
- **C** 25
- **D** 27

Answer: D

#### **Explanation:**

Let total work to be done = 100 units

A can complete the work in 20 days

=> A's efficiency = 
$$\frac{100}{20}$$
 = 5 units/day

Similarly, B's efficiency =  $\frac{100}{25} = 4 \, \mathrm{units/day}$ 

Thus, (A+B)'s 1 day's work = 5+4=9 units/day

=> Work done by them together in 3 days = 3 imes 9 = 27 units

 $\therefore$  % of work completed =  $^{27}_{100} imes 100 = 27\%$ 

=> Ans - (D)

**Question 78** 

The length of two parallel sides of a trapezium are 18 m and 24 m. If its height is 12 m, then what is the area  $(inm^2)$  of the trapezium?

**A** 126

**B** 252

**C** 504

**D** 1024

Answer: B

#### **Explanation:**

Sum of parallel sides = 18 + 24 = 42 m and height = 12 m

Area of trapezium =  $\frac{1}{2} \times h \times$  (sum of parallel sides)

= 
$$\frac{1}{2} \times 42 \times 12$$

$$=42 \times 6 = 252 \ m^2$$

=> Ans - (B)

#### **Question 79**

If two successive discounts of 50% and 10% are offered, then what is the net discount (in %)?

**A** 50

**B** 55

**C** 60

**D** 65

Answer: B

#### **Explanation:**

Let list price = Rs. 100x

After first discount of 50%, price =  $100x imes \frac{(100-50)}{100} = 50x$ 

After second discount of 10%, price =  $50x \times \frac{(100-10)}{100} = 45x$ 

=> Equivalent discount =  $\frac{100x - 45x}{100x} \times 100$ 

= 55%

=> Ans - (B)

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#### **Question 80**

Three bottles of equal capacity containing mixture of milk and water in ratio 2:5, 3:4 and 4:5 respectively. These three bottles are emptied into a large bottle. What will be the ratio of milk and water respectively in the large bottle?

**A** 73:106

- R 73:116
- **C** 73:113
- **D** 73:189
  - Answer: B

#### **Explanation:**

Let the capacity of each bottle = 63 litres [L.C.M.(7,7,9)]

Ratio of milk and water in the three bottles respectively = 2:5, 3:4 and 4:5

Milk in 1st bottle = 
$$\binom{2}{2+5} \times 63 = 18$$
 litres

and water in 1st bottle = 
$$63-18=45$$
 litres

Similarly, milk in 2nd bottle = 
$$\frac{3}{7} \times 63 = 27$$
 litres

and water in 2nd bottle = 
$$63 - 27 = 36$$
 litres

Similarly, milk in 3rd bottle = 28 litres and water = 35 litres

=> Total milk = 
$$18+27+28=73$$
 litres

and total water = 
$$45 + 36 + 35 = 116$$
 litres

#### **Question 81**

The average age of 6 members of a family is 20 years. If the age of the servant is included, then the average age increase by 25%. What is the age (in years) of the servant?



Answer: D

#### **Explanation:**

Average age of family of 6 members = 20 years

=> Total age of the family = 
$$6 \times 20 = 120$$
 years

Let the age of servant = x years

Average age of family including servant =  $20 imes {}^{125}_{100} = 25$  years

$$=> 7^{120+x} = 25$$

$$\Rightarrow 120 + x = 25 \times 7 = 175$$

$$\Rightarrow x = 175 - 120 = 55$$
 years

#### **Question 82**

For an article the profit is 190% of the cost price. If the cost price increase by 10% but the selling price remains same, then profit is what percentage of selling price (approximately)?

**C** 70

**D** 163

Answer: B

#### **Explanation:**

Let cost price = Rs. 100x

=> Profit = 
$$^{190}_{100} imes 100x = Rs.~190x$$

Thus, selling price = Rs. (100x + 190x) = Rs. 290x

If cost price is increased by 10%, => New cost price =  $100x imes \frac{110}{100} = Rs$ . 110x

=> New profit = Rs. 
$$(290x - 110x) = Rs. 180x$$

$$\therefore$$
 Required % =  $^{180x}_{290x} imes 100$ 

= 
$$^{1800}_{29} = 62.06 \approx 62\%$$

## **SSC CGL Free Online Coaching**

#### **Question 83**

A, B and C are three students. A got 18% more marks than B and 12% less than C. If B got 220 marks, then how much marks C has got?

**A** 230

**B** 295

**C** 240

**D** 290

Answer: B

#### **Explanation:**

B's marks = 220

A got 18% more marks than B

=> A's marks = 
$$220+\binom{18}{100}\times 220=259.6$$

Also, A got 12% less marks than C

=> C's marks = 
$$259.6 \times (100-12)$$

$$={}^{25960}_{88}=295$$

=> Ans - (B)

#### **Question 84**

Two people A and B are at a distance of 260 km from each other at 9:00 a.m. A immediately starts moving towards B at a speed of 25 km/h and at 11:00 a.m. B starts moving towards A at a speed of 10 km/hr. At what time (in p.m.) will they meet each other?

**A** 5:00

**B** 6:00

#### **Explanation:**

Speed of A = 25 km/hr and speed of B = 10 km/hr

Distance between A and B = 260 km

At 9:00 am, A starts moving, => distance covered by A in 2 (11-9) hours = ~25 imes 2 = 50 km

Distance left between A and B at 11:00 am =  $260-50=210~\mathrm{km}$ 

Now, at 11:00 am both move towards each other, => relative speed = 25+10=35 km/hr

=> Time taken to meet each other =  $\begin{pmatrix} 210 \\ 35 \end{pmatrix} = 6$  hours

... Time at which they will meet = 11:00 am + 6 hours = 5:00 pm

=> Ans - (A)

#### **Question 85**

If Rs 2500 becomes to Rs 2970.25 in 2 years at compound interest compounded annually, then what is the yearly rate of interest (in %)?

A 7

**B** 9

C 11

**D** 13

Answer: B

#### **Explanation:**

Let rate of interest = r%

Sum of Rs. 2500 amounts to Rs. 2970.25

Time period (t) = 2 years

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

 $\Rightarrow 2500(1 + {100 \atop 100})^2 = 2970.25$ 

$$=> (1 + {r \atop 100})^2 = {2970.25 \atop 2500} = 1.1881$$

$$\Rightarrow 1 + {1 \atop 100}^r = \sqrt{1.1881} = 1.09$$

$$=> 100 = 1.09 - 1 = 0.09$$

$$\Rightarrow r = 0.09 \times 100 = 9\%$$

=> Ans - (B)



#### **Question 86**

If x + y + z = 0 and x + y + z = 9, then what is the value of  $x^3 + y^3 + z^3 - 3xyz$ ?

**A** 81

**B** 361

#### **Explanation:**

Given: 
$$x + y + z = 0$$

$$yz+zx+xy$$
 = 0

$$\Rightarrow xy + yz + zx = 0 - - - (i)$$

Also, 
$$x + y + z = 9$$

Squaring both sides,

$$\Rightarrow (x + y + z)^2 = (9)^2$$

$$\Rightarrow x^2 + y^2 + z^2 + 2(xy + yz + zx) = 81$$

$$\Rightarrow x^2 + y^2 + z^2 + 2(0) = 81$$

$$\Rightarrow x^2 + y^2 + z^2 = 81$$

To find : 
$$x^3 + y^3 + z^3 - 3xyz$$

$$=(x+y+z)(x^2+y^2+z^2-xy-yz-zx)$$

$$=(9)(81-0)=729$$

#### **Question 87**

If  $x^4 + (\stackrel{1}{x^4}) = 34$ , then what is the value of  $x^3 - (\stackrel{1}{x^3})$  ?



**B** 6

C 8

**D** 14

Answer: D

#### **Explanation:**

Given : 
$$x^4+\stackrel{1}{x^4}=34$$

Adding 2 on both sides,

$$\Rightarrow x^4 + x^4 + 2(x^2)(x^2) = 34 + 2$$

$$\Rightarrow (x^2 + \frac{1}{x^2})^2 = 36$$

$$\Rightarrow (x^2 + \frac{1}{x^2}) = \sqrt{36} = 6$$

Now subtracting 2 from both sides, we get

$$\Rightarrow (x)^2 + {1 \choose x}^2 - 2(x){1 \choose x} = 6 - 2$$

$$\Rightarrow (x - x^{1}) = 2$$
 ----(i)

Cubing both sides, we get:

$$\Rightarrow (x - \frac{1}{x})^3 = (2)^3$$

$$\Rightarrow x^3 - \frac{1}{x^3} - 3(x)(\frac{1}{x})(x - \frac{1}{x}) = 8$$

$$\Rightarrow x^3 - x^3 - 3(2) = 8$$

$$\Rightarrow x^3 - \frac{1}{x^3} = 8 + 6 = 14$$

=> Ans - (D)

#### **Question 88**

If x = 1 - y and  $x^2 = 2 - y^2$ , then what is the value of xy?



**B** 2

**C** -1/2

**D** -1

Answer: C

#### **Explanation:**

Given :  $x^2 = 2 - y^2$ 

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

Also, x = 1 - y

$$=> x + y = 1$$

Squaring both sides, we get:

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

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

$$\Rightarrow 2 + 2xy = 1$$
 [Using (i)]

$$\Rightarrow 2xy = 1 - 2 = -1$$

$$\Rightarrow xy = \begin{array}{c} -1 \\ 2 \end{array}$$



#### **Question 89**

If  $x+\left[ \begin{smallmatrix} 1 \\ (x+7) \end{smallmatrix} \right]=0$ , then what is the value of  $\left[ \begin{smallmatrix} 1 \\ (x+7) \end{smallmatrix} \right]$  ?



**B** 
$$3\sqrt{5} - 7$$

**c** 
$$3\sqrt{5} + 7$$

**D** 8

Answer: B

#### **Explanation:**

Given : 
$$x + [(x+7)] = 0$$
 -----(i)

$$=> x^2 + 7x + 1 = 0$$

$$\Rightarrow x^2 + 7x + 1 = 0$$



=> 
$$x={2\atop 2}^{-7\pm\sqrt{49-4}}$$

=> 
$$x = \frac{3\sqrt{5}-7}{2}$$
 -----(ii)

From equation (i), =>  $\overset{1}{(x+7)} = -x$  -----(iii)

To find : 
$$x-\left[ egin{pmatrix} 1 \\ x+7 \end{pmatrix} \right]$$

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

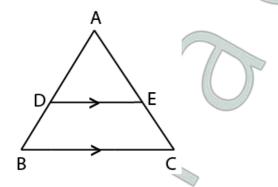
$$=x-(-x)=2x$$

= 
$$2 \times {3\sqrt{5} - 7 \over 2}$$

$$=3\sqrt{5}-7$$

#### Question 90

In the given figure, DEIIBC and AD: DB = 5:3, then what is the value of (DE/BC)?



**A** 5/8

**B** 2/3

C 3/4

**D** 5/3

Answer: A

#### **Explanation:**

Let AD = 5 and DB = 3

DE  $\parallel$  BC and thus  $\triangle$  ADE  $\sim$   $\triangle$  ABC

$$=> DE = BC$$

$$\stackrel{DE}{=>} \stackrel{AD}{BC} = \stackrel{AD+DB}{AD+DB}$$

$$\stackrel{DE}{=>} \stackrel{5}{BC} = \stackrel{5}{5+3}$$

$$\Rightarrow BC = 8$$

=> Ans - (A)

#### **Question 91**

PQRS is a cyclic quadrilateral and PQ is the diameter of the circle. If ∠RPQ = 38°, then what is the value (in degrees) of ∠PSR?

**A** 52

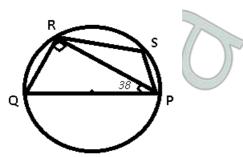
**B** 77

c 128

**D** 142

Answer: C

## **Explanation:**



Given: PQRS is a cyclic quadrilateral and ∠RPQ = 38°

To find :  $\angle PSR = ?$ 

Solution : PQ is the diameter, =>  $\angle QRP = 90^\circ$  (Angle of the semi circle)

In  $\triangle$  PQR,

 $\Rightarrow$   $\angle$ PQR +  $\angle$ QPR + QRP = 180°

 $=> \angle PQR + 90^{\circ} + 38^{\circ} = 180^{\circ}$ 

=> ∠PQR = 180° - 128° = 52°

Also, sum of opposite angles of a cyclic quadrilateral = 180°

=> ∠PQR + ∠PSR = 180°

=> ∠PSR = 180° - 52° = 128°

=> Ans - (C)

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#### **Question 92**

Smaller diagonal of a rhombus is equal to length of its sides. If length of each side is 6 cm, then what is the area  $(incm^2)$  of an equilateral triangle whose side is equal to the bigger diagonal of the rhombus?

**A**  $18\sqrt{3}$ 

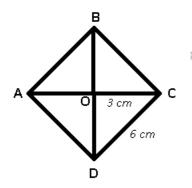
**B**  $27\sqrt{3}$ 

**c**  $32\sqrt{3}$ 

**D**  $36\sqrt{3}$ 

Answer: B

**Explanation:** 



Let bigger diagonal of rhombus = BD = 2x cm and smaller diagonal = AC = 6 cm

Diagonals of a rhombus bisect each other at right angle.

$$\Rightarrow$$
 OC = 3 cm and OD =  $x$  cm

In  $\triangle$  OCD,

$$=> (OD)^2 = (CD)^2 - (OC)^2$$

$$\Rightarrow (OD)^2 = (6)^2 - (3)^2$$

$$=> (OD)^2 = 36 - 9 = 27$$

$$\Rightarrow OD = \sqrt{27} = 3\sqrt{3} \text{ cm}$$

Thus, side of equilateral triangle = bigger diagonal =  $2 \times 3\sqrt{3} = 6\sqrt{3}$  cm

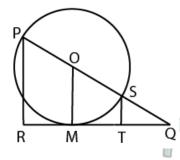
. . Area of equilateral triangle =  ${\begin{array}{c} \sqrt{3} \\ 4 \end{array}}a^2$ 

$$= {\stackrel{\sqrt{3}}{4}} \times (6\sqrt{3})^2$$

$$={}^{\sqrt{3}}_{4} imes 108 = 27\sqrt{3} \ cm^{2}$$

#### **Question 93**

In the given figure. PR and ST are perpendicular to tangent QR. PQ passes through centre 0 of the circle whose diameter is 10 cm. If PR = 9 cm. then what is the length (in cm) of ST?



**A** 1

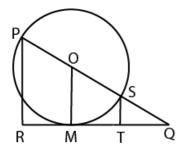
**B** 1.25

**C** 1.5

**D** 2

Answer: A

**Explanation:** 





To find : ST = x = ?

Solution : Let SQ = y cm

In  $\triangle$  PRQ and  $\triangle$  OMQ

=> 
$$\angle$$
 PRQ =  $\angle$  OMQ =  $90^{\circ}$ 

and  $\angle$  PQR =  $\angle$  OQM (common angle)

=> 
$$\triangle$$
 PRQ  $\sim$   $\triangle$  OMQ

$$\stackrel{PR}{=>} \stackrel{OM}{PQ} = \stackrel{OQ}{}$$

$$=>10+y=5+y$$

$$\Rightarrow 45 + 9y = 50 + 5y$$

$$\Rightarrow 9y - 5y = 50 - 45$$

$$=> y = \frac{5}{4}$$
 -----(i)

Similarly, in  $\triangle$  PRQ and  $\triangle$  STQ

$$PR = ST$$
 $PQ = SQ$ 

$$=>10+y=y$$

$$\Rightarrow 9y = 10x + xy$$

$$\Rightarrow 9 \times \overset{5}{4} = x(10 + \overset{5}{4})$$

$$\Rightarrow x = ST = 1 \text{ cm}$$

=> Ans - (A)

#### Question 94

What is the simplified value of (sec A + cos A)(sec A - cos A)?



B 
$$2sin^2A$$

$$c sin^2A - tan^2A$$

$$\mathbf{D} \quad sin^2A + tan^2A$$

Answer: D

## **Explanation:**

Expression : (secA + cosA)(secA - cosA)

$$= (\cos A + \cos A)(\cos A - \cos A)$$



$$= {1+\cos^2A \choose \cos A} {1-\cos^2A \choose \cos A}$$

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

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

= 
$$tan^2A + sin^2A$$



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#### **Question 95**

What is the simplified value of  $(cotA+tanA)^2$ ?

A 
$$2cos^2A$$

B 
$$1-sin^2A$$

$$\mathbf{C}$$
  $sec^2A$ 

$$\mathbf{D}$$
  $sec A - tan A$ 

Answer: B

#### **Explanation:**

Expression :  $(\cot A + \tan A)^2$ 

$$= \left[ \begin{pmatrix} \sin A \end{pmatrix} \div \begin{pmatrix} \cos A & \sin A \\ \sin A + \cos A \end{pmatrix} \right]^2$$

$$= \big[ \left( \begin{smallmatrix} 1 \\ sin A \end{smallmatrix} \right) \div \left( \begin{smallmatrix} sin^2 A + cos^2 A \\ sin A cos A \end{smallmatrix} \right) \big]^2$$

$$= \left( \begin{smallmatrix} 1 \\ sinA \end{smallmatrix} \times \begin{smallmatrix} sinAcosA \\ 1 \end{smallmatrix} \right)^2$$

$$=(cosA)^2=cos^2A$$

= 
$$1 - sin^2A$$

#### **Question 96**

#### **A** -1

#### Answer: C

#### **Explanation:**

$$\begin{array}{c} tanA(1-tanA)+cotA(1-cotA) & 2 \\ = & (1-tanA)(1-cotA) & - \ 2sinAcosA \end{array}$$

$$\begin{array}{c} tanA + cotA - [(tanA + cotA)^2 - 2] & 1 \\ = & 1 - (tanA + cotA) + 1 & - sinAcosA \end{array}$$

$$[\because tanx.cotx = 1]$$

Let (tanA + cotA) = x -----(i)

$$= \begin{array}{ccc} x - x^2 + 2 & 1 \\ 2 - x & -\sin A \cos A \end{array}$$

$$= \begin{array}{ccc} (2-x)(x+1) & 1\\ 2-x & -\sin A \cos A \end{array}$$

$$= x + 1 - sinAcosA$$
 ----(ii)

From equation (i), =>  $\frac{sinA}{cosA} + \frac{cosA}{sinA} = x$ 

$$=> \frac{\sin^2 A + \cos^2 A}{\sin A \cos A} = \alpha$$

$$\Rightarrow sinAcosA = x$$

Substituting above value in equation (ii), we get:

$$= x + 1 - x = 1$$

#### Instructions

The table given below shows the percentage of literate people in 6 cities. This table also shows the ratio of males to females among literate people.

City	% of Literate People	Males : Females
City 1	80	4:5
City 2	85	7:4
City 3	78	3:2
City 4	63	1:1
City 5	92	9:7
City 6	58	2:3

% of literate people of any city = (Literate people of the city / Total population of the city) x 100

#### **Question 97**

If the total population of City 4 is 600000, then how many literate people are there in city 4?

- **A** 480000
- **B** 378000
- **C** 468000
- **D** 348000

Answer: B

#### **Explanation:**

Total population of City 4 = 600,000

=> Literate population in city 4 =  $\frac{63}{100} \times 600,000$ 

=378,000

=> Ans - (B)

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#### **Question 98**

Total population of City 6 is 200000 and the total population of City 2 is 220000. What is the respective ratio of literate males of City 2 and literate females of City 6?

**A** 348:595

**B** 255:199

C 595:348

**D** 199:255

Answer: C

#### **Explanation:**

Total population of City 2 = 220,000

Number of literates of city  $2 = 0.85 \times 220,000 = 1,87,000$ 

=> Literate males of City 2 =  $\binom{7}{7+4} \times 1,87,000 = 119,000$ 

Total population of City 6 = 200,000

Number of literates of city 6 = 0.58 x 200,000 = 116,000

=> Literate females of City 6 =  $^3$   $^3$  imes 116,000 = 69,600

=> Required ratio =  ${}^{119,000}_{69,600} = {}^{595}_{348}$ 

=> Ans - (C)

#### **Question 99**

If there are 259210 literate females in City 5, then what is the total population of City 5?



**B** 354200

**C** 690000

**D** 483000

Answer: A

#### **Explanation:**

Let total literate population in city 5 = 16x

=> Number of literate females in city 5 =  $^{7}_{16} imes 16x = 7x$ 

According to gues, => 7x = 259210

$$\Rightarrow x = {259210 \over 7} = 37030$$

% of literate population in city 5 = 92%

=> Total population in city 5 =  $16x \times {}^{100}_{92}$ 

= 
$$^{1600}_{92} \times 37030 = 644,000$$

=> Ans - (A)

#### **Question 100**

The population of the 6 cities are 250000, 200000, 220000, 300000, 150000 and 400000 respectively. Which is the correct order of the number of literate people in these cities?

Α	City 6 >	City 1	> City 4	> Citv 2 >	City 3 >	City 5
	CILV U -	CILVI	- CILV +	- UILV Z -	UILV J -	CILV J

**D** City 6 > City 1 > City 4 > City 3 > City 2 > City 5

Answer: D

#### **Explanation:**

Number of literate people in the cities:

City 1 : 
$$^{80}_{100} \times 250,000$$
 = 200,000

City 2 : 
$$^{85}_{100} \times 200,000 = 170,000$$

City 3 : 
$$^{78}_{100} \times 220,000$$
 = 171,600

City 4 : 
$$^{63}_{100} \times 300,000$$
 = 189,000

City 5 : 
$$^{92}_{100} \times 150,000$$
 = 138,000

City 6 : 
$$^{58}_{100} \times 400,000$$
 = 232,000

=> Ans - (D)



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