



2017 SSC CGL 11 Aug Shift-2

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Instructions

For the following questions answer them individually

Question 1

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'.

Are not your father (a)/ and your elder brother (b)/ out of town? (c)/ No Error (d)

- A Are not your father
- B and your elder brother
- C out of town?
- D No Error

Answer: D

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Question 2

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'.

Our office building comprises (a)/ seven floors and a restaurant at the top in an (b)/ area of about eight hundred sq. metres. (c)/ No Error (d)

- A Our office building comprises
- B seven floors and a restaurant at the top in an
- C area of about eight hundred sq. metres
- D No Error

Answer: B

Question 3

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.

John as well as his friends always ____ the permission of his mother before going for a rugby match.

- A asks
- B receives
- C seeks
- D soughts

Answer: C

Question 4

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.

My sister unlike my brothers _____ to have a career in Engineering.

- A wants
- B want
- C wish
- D aspire

Answer: A

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Question 5

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

Boisterous

- A Clamorous
- B Ferocious
- C Fissiparous
- D Voluminous

Answer: A

Question 6

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

Haggard

- A Emaciate
- B Insane
- C Rejected
- D Ridicule

Answer: A

Question 7

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

Ostentation

- A Comical
- B Insane
- C Modest
- D Swanky

Answer: C

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Question 8

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

Commiserate

- A Debatable
- B Empathize
- C Indifferent
- D Legion

Answer: C

Question 9

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

Pillar to post

- A Main support of an object
- B One place to another
- C To be reluctant
- D To incite others

Answer: B

Question 10

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

Hobson's choice

- A To choose first in row
- B To make a careful choice
- C No real choice at all
- D To seek all favourable alternatives to choose from

Answer: C

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Question 11

Improve the bracketed part of the sentence.

William Shakespeare is the greatest of (all other) writers.

- A all the
- B any other
- C the other
- D No improvement

Answer: A

Question 12

Improve the bracketed part of the sentence.

She is not used (to sleep) for so long.

- A to be sleeping
- B to sleep
- C to sleeping
- D No improvement

Answer: C

Question 13

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

Giving undue favours to one's own kith and kin

- A Ableism
- B Iconoclast
- C Maiden
- D Nepotism

Answer: D

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Question 14

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

One who does not care for literature or art

- A Dictator
- B Hypocrite
- C Philistine
- D Primitive

Answer: C

Question 15

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

- A Colonel
- B Hypocrisy
- C Offence
- D Strength

Answer: B

Question 16

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

- A Preceed
- B Proceed
- C Recede
- D Succeed

Answer: A

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Question 17

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- And if I think about something which didn't happen I start thinking about all the other things which didn't happen.
- Q- But there is only ever one thing which happened at a particular time and a particular place.
- R- And there are an infinite number of things which didn't happen at that time and that place.
- S- A lie is when you say something happened which didn't happen.

- A QSRP
- B SQPR
- C SRQP
- D SQRP

Answer: D

Question 18

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 magnitude of the interdependence depends on the technique of production causing the shifts in the food supply curve.
- Q- Interdependence of food and labour market is important for the development process.
- R- Similarly, an upward shift in the food supply curve shifts up the food demand curve.
- S- An upward shift in the food supply curve would simultaneously result in an upward shift in the labour demand curve.

- A QSPR
- B QPRS
- C PSRQ
- D SPQR

Answer: A

Question 19

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.

Who teaches you Mathematics?

- A By whom are you taught Mathematics?
- B By whom were you taught Mathematics?
- C By whom will you be taught Mathematics?
- D Mathematics is taught by whom?

Answer: A

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Question 20

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.

"I don't know the answer. Do you"? She asked.

- A She asked me if I knew the answer which she didn't.
- B She said that she didn't know the answer and did I know it.
- C She said that she didn't know the answer and asked me if i did.
- D She told that she was not knowing the answer but wondered if I know.

Answer: C

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.

Education is for life, not merely for a livelihood. As long as we are unmindful of this ___(1)___, the ___(2)___ of our educational curriculum as well as that of our ___(3)___ and students is likely to remain ___(4)___ . It is not enough for a society to have experts. It needs human beings who can think, feel and act generously, the kind of people who cannot be replaced by computers and ___(5)___.

Question 21

(1)

- A measure
- B resource
- C story
- D truth

Answer: D

Question 22

(2)

- A efficiency
- B effectiveness
- C quality
- D quantity

Answer: C

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Question 23

(3)

- A friends
- B ideals
- C parents
- D teachers

Answer: D

Question 24

(4)

- A inadequate
- B indifferent
- C represented
- D unmeasurable

Answer: A

Question 25

(5)

- A mechanics
- B monitors
- C robots
- D televisions

Answer: C

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Reasoning

Instructions

For the following questions answer them individually

Question 26

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

Heart : Organ :: ? : ?

- A Bones : Calcium

- B Eyes : Organ
- C Leg : Feet
- D Ear : Sense

Answer: B

Explanation:

As heart is one of the organs of a body, similarly eyes are also a part of organs.

=> Ans - (B)

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Question 27

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

BPTW : CQUX :: CHNS : ?

- A DIST
- B DIOT
- C BGOT
- D DSTO

Answer: B

Explanation:

Expression = BPTW : CQUX

The pattern followed is =

B	P	T	W
(+1)	(+1)	(+1)	(+1)
C	Q	U	X

Similarly, for CHNS

C	H	N	S
(+1)	(+1)	(+1)	(+1)
D	I	O	T

=> Ans - (B)

Question 28

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

48 : 63 :: 80 : ?

- A 97
- B 98
- C 99
- D 101

Answer: C

Explanation:

Expression = 48 : 63 :: 80 : ?

The pattern followed is = $(n^2 - 1) : (n + 1)^2 - 1$

Eg = $7^2 - 1 : 8^2 - 1 = 49 : 63$

Similarly, $9^2 - 1 = 80$

and $(9 + 1)^2 - 1 = 100 - 1 = 99$

=> Ans - (C)

Question 29

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

A Calendar : Dates

B Dairy : Milk

C Notebook : Notes

D Accounts : Entries

Answer: B

Explanation:

The dates, notes and entries in a calendar, notebook and accounts respectively are imprinted, but a dairy is used to buy milk, and it is the odd one out.

=> Ans - (B)

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Question 30

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

A M

B E

C S

D W

Answer: B

Explanation:

Apart from 'E', all the other letters are consonants, thus it is the odd one out.

=> Ans - (B)

Question 31

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

A 26

B 50

C 82

D 120

Answer: D

Explanation:

The pattern followed is $n^2 + 1$

$$5^2 + 1 = 26$$

$$7^2 + 1 = 50$$

$$9^2 + 1 = 82$$

$$11^2 + 1 = 122 \neq 120$$

=> Ans - (D)

Question 32

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

1. Train
2. Topper
3. Tingling
4. Tumbler
5. Traction

A 23541

B 32154

C 25314

D 32514

Answer: D

Explanation:

As per the dictionary,

= Tingling -> Topper -> Traction -> Train -> Tumbler

≡ 32514

=> Ans - (D)

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Question 33

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

DK, FN, HQ, ?

A KS

B JT

C KT

D JS

Answer: B

Explanation:

Expression : DK, FN, HQ, ?

The pattern followed is that for the first letter in each term, difference is 2 letters and similarly difference is 3 letters for the second letter.

1st letter = D, F, H, J

2nd letter = K, N, Q, T

Thus, missing term = **JT**

=> Ans - (B)

Question 34

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

2, 5, 17, 71, ?

A 131

B 247

C 359

D 419

Answer: C

Explanation:

The pattern followed is :

$$2 \times 2 + 1 = 5$$

$$5 \times 3 + 2 = 17$$

$$17 \times 4 + 3 = 71$$

$$71 \times 5 + 4 = \mathbf{359}$$

=> Ans - (C)

Question 35

Akshar remembers that the match is after 26th April but before 30th April, while Suresh remembers that the match is after 22nd April but before 28th April. On which date of April is the match?

A 29

B 26

C 27

D 28

Answer: C

Explanation:

Akshar remembers that the match is after 26th April but before 30th April,

=> Possible dates = 27, 28, 29

Suresh remembers that the match is after 22nd April but before 28th April,

=> Possible dates = 23, 24, 25, 26, 27

Common dates in above cases = 27

∴ The match is on 27th April.

=> Ans - (C)

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Question 36

In a row of books a book of English is 16th from left end of row. A book of Mathematics is 12th from the right end. If the Mathematics book is 6th to the right of the English book, then how many total books are in the row?

- A 33
- B 32
- C 34
- D 31

Answer: A

Explanation:

Position of English book from left end = 16th

=> Position of Mathematics book from left end = 16 + 6 = 22nd

Also, Position of Mathematics book from right end = 12th

Thus, total books in the row = $(22+12) - 1 = 34-1 = 33$

=> Ans - (A)

Question 37

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

Passenger

- A Anger
- B Pass
- C Page
- D Pain

Answer: D

Explanation:

The word PASSENGER does not contain any 'l' and thus the word 'Pain' cannot be formed.

=> Ans - (D)

Question 38

In a certain code language, "TREASON" is written as "RKWWINX" and "POULTRY" is written as "CNXHYKT". How is "NUMBER" written in that code language?

- A NIXQQR
- B JAIFAV
- C RQQXIN
- D VAFIAJ

Answer: A

Explanation:

"TREASON" is written as "RKWWINX"

When we reverse the code, pattern will be :

T	R	E	A	S	O	N
(+4)	(-4)	(+4)	(-4)	(+4)	(-4)	(+4)
X	N	I	W	W	K	R

Thus, reverse code for POULTRY is TKYHXNC

P	O	U	L	T	R	Y
(+4)	(-4)	(+4)	(-4)	(+4)	(-4)	(+4)
T	K	Y	H	X	N	C

Similarly, for NUMBER :

N	U	M	B	E	R
(+4)	(-4)	(+4)	(-4)	(+4)	(-4)
R	Q	Q	X	I	N

Thus, NUMBER : **NIXQQR**

=> Ans - (A)

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Question 39

In the following question, by using which mathematical operators will the expression become correct?

$$30 ? 6 ? 4 ? 5 ? 4$$

- A +, =, x and -
- B -, =, x and +
- C =, x, + and -
- D -, +, = and x

Answer: B

Explanation:

Expression : $30 ? 6 ? 4 ? 5 ? 4$

$$(A) : 30 + 6 = 4 \times 5 - 4$$

$$\text{L.H.S.} = 36$$

$$\text{R.H.S.} = 20 - 4 = 16 \neq \text{L.H.S.}$$

$$(B) : 30 - 6 = 4 \times 5 + 4$$

$$\text{L.H.S.} = 24$$

$$\text{R.H.S.} = 20 + 4 = 24 = \text{L.H.S.}$$

=> Ans - (B)

Question 40

If $13 \# 9 = 94$ and $18 \# 7 = 100$, then $24 \# 6 = ?$

- A 121
- B 113
- C 148
- D 115

Answer: B

Explanation:

The pattern followed is that both the numbers are multiplied and then one more than the sum of numbers is subtracted from the result.

$$\text{Eg : } (13 \times 9) - (13 + 9 + 1) = 117 - 23 = 94$$

$$\text{and } (18 \times 7) - (18 + 7 + 1) = 126 - 26 = 100$$

Similarly, $(24 \times 6) - (24 + 6 + 1) = 144 - 31 = 113$

=> Ans - (B)

Question 41

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

2	5
14	9

7	10
19	14

8	11
20	?

A 14

B 15

C 17

D 19

Answer: B

Explanation:

The pattern followed is $S_L = S_R + 2$, where S_L is the sum of numbers in the left column and S_R is the sum of the right column.

Eg : $14 + 2 = 9 + 5 + 2 = 16$

and $7 + 19 = 10 + 14 + 2 = 26$

Similarly, $20 + 8 = 11 + x + 2$

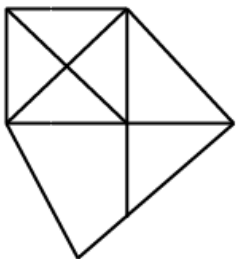
=> $x = 28 - 13 = 15$

=> Ans - (B)

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Question 42

How many triangles are there in the given figure ?



A 11

B 12

C 13

D 15

Answer: C

Explanation:

Smaller triangles = 6

Triangles at the diagonal of the square = 4

Triangles formed by combining 2 triangles (at the right) = 1

Triangles formed by combining 1 triangles and 1 quadrilateral (at the bottom) = 1

Triangles formed by combining 3 triangles = 1

Thus, total triangles = $6 + 4 + 1 + 1 + 1 = 13$

=> Ans - (C)

Question 43

In each of 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 books are erasers.
- II. All sharpeners are books.

Conclusions:

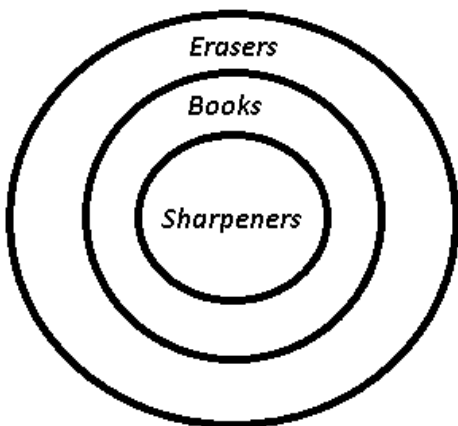
- I. All sharpeners are erasers.
- II. Some books are sharpeners.

- A Only conclusion (I) follows.
- B Only conclusion (II) follows.
- C Both conclusion follow.
- D Neither conclusion (I) nor conclusion (II) follows.

Answer: C

Explanation:

The venn diagram of the statements is :



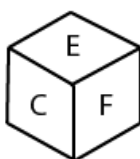
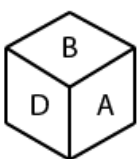
- I. All sharpeners are erasers = true
- II. Some books are sharpeners = true

Thus, both conclusion follow.

=> Ans - (C)

Question 44

Three positions of a cube are shown below. What will come opposite to face containing 'E'?



A B

B D

C A

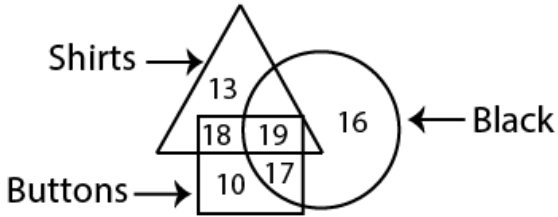
D F

Answer: C

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Question 45

In the given figure, how many black buttons are shirts ?



A 37

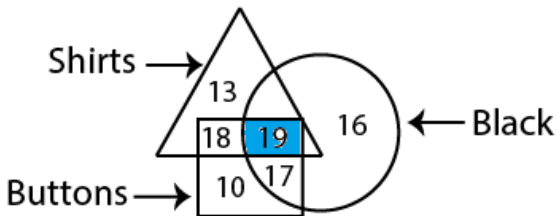
B 19

C 36

D 27

Answer: B

Explanation:

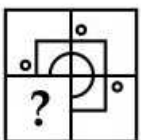


Black buttons which are shirts is represented by blue colour = 19

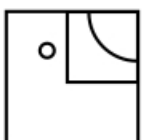
=> Ans - (B)

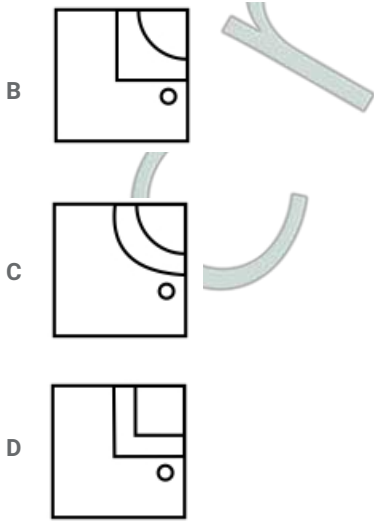
Question 46

Which answer figure will complete the pattern in the question figure



A





Answer: B

Explanation:

When we complete the question figure, we get :

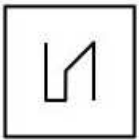


Thus, the second figure matches the figure in blue colour.

=> Ans - (B)

Question 47

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



Answer: D

Explanation:

The question figure is embedded in the following figure in blue colour.

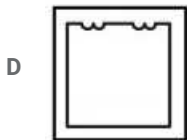
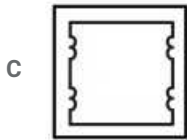
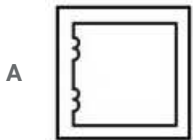


=> Ans - (D)

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Question 48

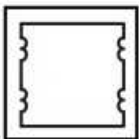
A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



Answer: C

Explanation:

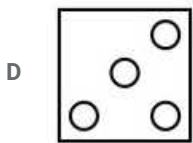
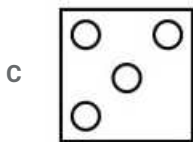
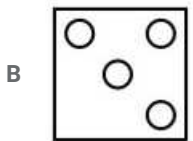
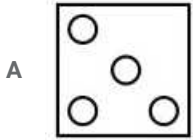
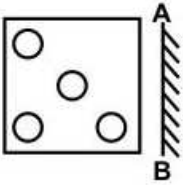
When the paper is unfolded once, the two semi circles will appear at the top as well as bottom, and when the paper is unfolded second time, the circular patterns will appear on the right side as well, the same it appeared on the left.



=> Ans - (C)

Question 49

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



Answer: D

Explanation:

A vertical mirror is placed, so the circles on the left will appear on the right. Also, the left diagonal will become the right diagonal in the mirror image, and thus first two options are eliminated.

Also, the circle at bottom left will now appear at bottom right, thus the third option is also eliminated.

=> Ans - (D)

Question 50

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, 'P' can be represented by 12, 43, etc., and 'O' can be represented by 67, 88, etc. Similarly, you have to identify the set for the word "STROM".

Matrix - I

	0	1	2	3	4
0	P	Q	R	S	T
1	S	T	P	Q	R
2	Q	R	S	T	P
3	T	P	Q	R	S
4	R	S	T	P	Q

Matrix - II

	5	6	7	8	9
5	N	O	M	L	K
6	L	K	O	M	N
7	O	L	N	K	M
8	M	N	K	O	L
9	K	M	L	N	O

A 10, 04, 33, 57, 69

B 41, 42, 14, 68, 86

C 34, 23, 40, 88, 78

D 22, 11, 21, 75, 96

Answer: D

Explanation:

(A) : 10, 04, 33, 57, 69 = STRMN

(B) : 41, 42, 14, 68, 86 = STRMN

(C) : 34, 23, 40, 88, 78 = STROK

(D) : 22, 11, 21, 75, 96 = **STROM**

=> Ans - (D)

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General Awareness

Instructions

For the following questions answer them individually

Question 51

An economic system combining private and state enterprise is called as _____

- A Market economy
- B Centrally planned economy
- C Private economy
- D Mixed economy

Answer: D

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Question 52

What was the main motive of Third Five Year Plan in India?

- A Rural development
- B Agriculture
- C Financial inclusion
- D Economic reform

Answer: B

Question 53

Under which article, President of India can proclaim constitutional emergency?

- A Article 32
- B Article 349
- C Article 356

D Article 360

Answer: C

Question 54

How many members of upper house (Rajya Sabha) can be nominated by President of India?

A 10

B 12

C 14

D 16

Answer: B

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Question 55

Who wrote 'Akbarnama'?

A Abul Fazal

B Faizi

C Abdur Rahim

D Abdul Qadir

Answer: A

Question 56

Which Sikh Guru initiated 'The Khalsa'?

A Guru Nanak Dev

B Guru Gobind Singh

C Guru Angad Dev

D Guru Tegh Bahadur

Answer: B

Question 57

A difference between 2 longitudes at equator is nearby equivalent to ____ km.

A 101

B 111

C 121

D 91

Answer: B

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Question 58

Which of the following winds are hot dust laden and blow from Sahara desert towards Mediterranean Region?

- A Sirocco
- B Loo
- C Foehn
- D Mistral

Answer: A

Question 59

Which of the following are longest cells of human body?

- A Pancreatic cells
- B Epithelial cells
- C Nerve cells
- D Epidermal cells

Answer: C

Question 60

Which of the following is responsible for giving colour to human skin?

- A Luciferin
- B Haemoglobin
- C Flavonoids
- D Melanin

Answer: D

SSC CGL Tier-2 Previous Papers PDF

Question 61

Which of the following disease is non-communicable in nature?

- A Cholera
- B Chicken-pox
- C Tuberculosis
- D Cancer

Answer: D

Question 62

Electric Motor converts ____ energy to mechanical energy

- A sound
- B mechanical
- C chemical
- D electrical

Answer: D

Question 63

Optical fibre works on which of the following principle of light?

- A Reflection
- B Refraction
- C Diffraction
- D Total internal reflection

Answer: D

SSC CGL Important Questions PDF

Question 64

Which key is used to move to next line in a Ms-Word document?

- A Enter key
- B Escape key
- C Shift key
- D Return key

Answer: A

Question 65

In which industry Potassium Nitrate is used commercially?

- A Glass Manufacturing
- B Electroplating
- C Fire Cracker Manufacturing
- D Leather Industry

Answer: C

Question 66

Which of the following is not an example of Allotrope?

- A Diamond
- B Graphite
- C Ozone
- D Steel

Answer: D

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Question 67

Which of the following three R's are regarded as environment friendly?

- A Reduce - Reuse - Recycle
- B Reduce - Reuse - Reutilize
- C Recollect - Reuse - Reutilize
- D Reduce - Renew - Reutilize

Answer: A

Question 68

In which of the following city "Urja Ganga", 1500 km long gas pipeline project has been launched in October, 2016?

- A Ahmedabad
- B New Delhi
- C Ghaziabad
- D Varanasi

Answer: D

Question 69

Who invented Pentium Chip?

- A C. Kumar Patel
- B Tom Gunter
- C Vince Emery
- D Vinod Dham

Answer: D

General Science Notes for SSC CGL

Question 70

What is the duration (in minutes) of one-half of a football match?

- A 30
- B 35
- C 40
- D 45

Answer: D

Question 71

Which one of the following films was not directed by Satyajit Ray?

- A Shatranj ke khiladi
- B Charulata
- C Jalsaghar
- D Gumnam

Answer: D

Question 72

Match the following (Arjuna award 2016).

Sport

1. Shooting
2. Hockey
3. Cricket

Player

- a. Ajinkya Rahane
- b. Apurvi Chandela
- c. Ritu Rani

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

Answer: C

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Question 73

Which play of Shakespeare's was recently claimed to be dated wrongly?

- A Macbeth
- B Othello
- C Hamlet
- D Romeo Julliet

Answer: C

Question 74

Which of the following country has co-sponsored 'Cobra Gold' - an annual multilateral military exercise alongwith Thailand?

- A India
- B Indonesia
- C USA
- D China

Answer: C

Question 75

The Gurudwara 'Panja Sahib' is located in which neighbouring country of India?

- A Pakistan
- B Bangladesh
- C Sri Lanka
- D Nepal

Answer: A

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Mathematics

Instructions

For the following questions answer them individually

Question 76

By what least number should 1200 be multiplied so that it becomes a perfect square?

- A 2
- B 3
- C 5
- D 13

Answer: B

Explanation:

Prime factorization of $1200 = 2^4 \times 3 \times 5^2$

Now, to make it a perfect square, all the powers should be even, but clearly power of 3 is 1, which is odd.

Thus, least number that should be multiplied by 1200 so that it becomes a perfect square = 3

$$\Rightarrow 1200 \times 3 = 3600 = (60)^2$$

\Rightarrow Ans - (B)

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Question 77

A, B and C can complete a work in 10, 12 and 15 days respectively. All three of them starts together but after 2 days A leaves the job and B left the job 3 days before the work was completed. C completed the remaining work alone. In how many days was the total work completed?

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

Answer: C

Explanation:

A, B and C can complete a work in 10, 12 and 15 days respectively.

Let total work to be done = L.C.M.(10,12,15) = 180 units

$$\Rightarrow \text{A's efficiency} = \frac{180}{10} = 18 \text{ units/day}$$

$$\text{Similarly B's efficiency} = \frac{180}{12} = 15 \text{ units/day}$$

$$\text{and C's efficiency} = \frac{180}{15} = 12 \text{ units/day}$$

$$\text{All of them works for 2 days, } \Rightarrow \text{Work done in 2 days} = (18 + 15 + 12) \times 2 = 90 \text{ units}$$

$$\text{C alone work for the last three days, } \Rightarrow \text{Work done by C alone} = 12 \times 3 = 36 \text{ units}$$

$$\text{Work left} = 180 - 90 - 36 = 54 \text{ units}$$

$$\text{Now, time taken by B and C together to complete 54 units of work} = \frac{54}{(15+12)} = 2 \text{ days}$$

$$\therefore \text{Total time taken} = 3 + 2 + 2 = 7 \text{ days}$$

\Rightarrow Ans - (C)

Question 78

A solid sphere of diameter 7 cm is cut into two equal halves. What will be the increase (in cm^2) in the total surface area ?

- A 77
- B 154
- C 87
- D 38.5

Answer: A

Explanation:

A solid sphere when cut into two equal halves, two solid hemispheres will be formed

$$\text{Radius of sphere} = \frac{7}{2} \text{ cm}$$

$$\text{Increase in total surface area} = (2 \times 3\pi r^2) - (4\pi r^2)$$

$$= 6\pi r^2 - 4\pi r^2 = 2\pi r^2$$

$$= 2 \times \frac{22}{7} \times \left(\frac{7}{2}\right)^2$$

$$= 11 \times 7 = 77 \text{ cm}^2$$

\Rightarrow Ans - (A)

Question 79

After a discount of 23% an article is sold for Rs 1848. What is the marked price (in Rs) of the article?

- A 2150
- B 2275
- C 2350
- D 2400

Answer: D

Explanation:

Selling price = Rs. 1848

Discount % = 23%

$$\Rightarrow \text{Marked price} = \frac{100}{100-23} \times 1848$$

$$= \frac{100}{77} \times 1848$$

$$= 100 \times 24 = \text{Rs. } 2400$$

\Rightarrow Ans - (D)

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Question 80

If $\frac{3}{5}P = \frac{7}{2}Q = \frac{7}{5}R$, then what is the ratio of P,Q and R respectively ?

- A 3 : 2 : 5
- B 3 : 35 : 14
- C 5 : 7 : 5
- D 35 : 6 : 15

Answer: D

Explanation:

$$\text{Let } \frac{3}{5}P = \frac{7}{2}Q = \frac{7}{5}R = k$$

$$\Rightarrow P = \frac{5k}{3}, Q = \frac{2k}{7} \text{ and } R = \frac{5k}{7}$$

$$\Rightarrow P : Q : R = \frac{5k}{3} : \frac{2k}{7} : \frac{5k}{7}$$

$$= 3 : 2 : 5$$

Multiplying the numerator by L.C.M.(3,7,7) = 21

$$= 21 \left(\frac{5}{3} : \frac{2}{7} : \frac{5}{7} \right)$$

$$= 35 : 6 : 15$$

\Rightarrow Ans - (D)

Question 81

What is the average of first 93 natural numbers?

- A 45

- B 46
- C 47
- D 49

Answer: C

Explanation:

$$\text{Sum of first } n \text{ natural numbers} = \frac{n(n+1)}{2}$$

$$\begin{aligned} \text{Thus, sum of first 93 natural numbers} &= \frac{93(93+1)}{2} \\ &= 93 \times 47 \end{aligned}$$

$$\therefore \text{Average of first 93 natural numbers} = \frac{93 \times 47}{93} = 47$$

=> Ans - (C)

Question 82

A trader sells two items at the rate of Rs 400 each. If he gains 15% on one and losses 15% on other, then what is the value (in Rs) of loss ?

- A 18.41
- B 22.14
- C 20.25
- D 24.36

Answer: A

Explanation:

Selling price of each item = Rs. 400

Profit % on 1st item = 15%

$$\Rightarrow \text{Cost price of 1st item} = 400 \times \frac{100}{(100+15)} = \text{Rs. } 347.82$$

$$\text{Similarly cost price of 2nd item} = 400 \times \frac{100}{(100-15)} = \text{Rs. } 470.58$$

$$\Rightarrow \text{Total cost price} = \text{Rs. } (347.82+470.58) = \text{Rs. } 818.4$$

$$\text{and total selling price} = \text{Rs. } (400+400) = \text{Rs. } 800$$

$$\therefore \text{Loss} = \text{CP} - \text{SP}$$

$$= \text{Rs. } (818.4 - 800) = \text{Rs. } 18.4$$

=> Ans - (A)

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Question 83

30% of a number exceeds 25% of the same number by 27. What is the value of the number?

- A 540
- B 270
- C 108

D 90

Answer: A

Explanation:

Let the number be $100x$

$$\text{According to ques, } \Rightarrow \left(\frac{30}{100} \times 100x\right) - \left(\frac{25}{100} \times 100x\right) = 27$$

$$\Rightarrow 30x - 25x = 27$$

$$\Rightarrow x = \frac{27}{5} = 5.4$$

$$\therefore \text{Number} = 100 \times 5.4 = 540$$

\Rightarrow Ans - (A)

Question 84

37 trees are planted in a straight line such that distance between any two consecutive trees is same. A car takes 20 seconds to reach the 13th tree. How much more time (in seconds) will it take to reach the last tree?

A 36

B 40

C 57

D 60

Answer: B

Explanation:

Let the distance between any two consecutive trees = d metres

$$\Rightarrow \text{Total distance between the 37 trees} = 36d \text{ metres}$$

Time taken to reach the 13th tree = 20 seconds

\Rightarrow Speed of car = distance/time

$$= \frac{12d}{20} = \frac{3d}{5} \text{ m/s}$$

$$\text{Thus, time taken to reach the last tree from the first tree} = \frac{36d}{\frac{3d}{5}}$$

$$= 36 \times \frac{5}{3} = 60 \text{ seconds}$$

\therefore The car will take $(60-20) = 40$ seconds more to reach the last tree

\Rightarrow Ans - (B)

Question 85

If a certain sum of money doubles itself in 7 years 8 months at simple interest, then what will be the yearly rate of interest (in %)?

A $18\frac{3}{4}$

B $13\frac{1}{23}$

C $26\frac{2}{3}$

D 30

Answer: B

Explanation:

Let the sum of money = Rs. x

=> Interest after 7 years 8 months = Rs. $(2x - x) = Rs. x$

Time period = 7 years 8 months = $7\frac{8}{12} = 7\frac{2}{3}$ years

Let rate of interest = $r\%$

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

$$\Rightarrow \frac{x \times r \times \frac{23}{3}}{100} = x$$

$$\Rightarrow 23r = 300$$

$$\Rightarrow r = \frac{300}{23} = 13\frac{1}{23}\%$$

=> Ans - (B)

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Question 86

What is the value of $x^{\frac{1}{p-q}+1} + x^{\frac{1}{q-p}+1}$?

A 0

B 1

C $x^{(p-q)}$

D $x^{(p+q)}$

Answer: B

Explanation:

Expression : $x^{\frac{1}{p-q}+1} + x^{\frac{1}{q-p}+1}$

$$= \frac{x^p}{x^q+1} + \frac{x^q}{x^p+1}$$

$$= \frac{x^p+x^q}{x^q} + \frac{x^p+x^q}{x^p}$$

$$= \frac{x^p}{x^p+x^q} + \frac{x^q}{x^p+x^q}$$

$$= \frac{x^p+x^q}{x^p+x^q} = 1$$

=> Ans - (B)

Question 87

If $x = 8 + 2\sqrt{15}$, then what is the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$?

A $2\sqrt{5}$

B $2\sqrt{3}$

C $\frac{3\sqrt{5}+\sqrt{3}}{2}$

D $\frac{3\sqrt{3}-\sqrt{5}}{2}$

Answer: C

Explanation:

Given : $x = 8 + 2\sqrt{15}$

$$\Rightarrow x = 5 + 3 + 2\sqrt{(5)(3)}$$

$$\Rightarrow x = (\sqrt{5})^2 + (\sqrt{3})^2 + 2(\sqrt{5})(\sqrt{3})$$

$$\Rightarrow x = (\sqrt{5} + \sqrt{3})^2$$

$$\Rightarrow \sqrt{x} = \sqrt{5} + \sqrt{3} \text{ -----(i)}$$

Now, $\frac{1}{\sqrt{x}} = \frac{1}{\sqrt{5} + \sqrt{3}}$

$$\Rightarrow \frac{1}{\sqrt{x}} = \frac{1}{\sqrt{5} + \sqrt{3}} \times \frac{(\sqrt{5} - \sqrt{3})}{(\sqrt{5} - \sqrt{3})}$$

$$\Rightarrow \frac{1}{\sqrt{x}} = \frac{\sqrt{5} - \sqrt{3}}{5 - 3} = \frac{\sqrt{5} - \sqrt{3}}{2} \text{ -----(ii)}$$

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

$$\Rightarrow \sqrt{x} + \frac{1}{\sqrt{x}} = (\sqrt{5} + \sqrt{3}) + \left(\frac{\sqrt{5} - \sqrt{3}}{2}\right)$$

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

\Rightarrow Ans - (C)

Question 88

What is the value of $a^{\frac{1+a}{2} + \frac{1}{2}} - a^{\frac{1}{2} + \frac{1}{1+a}} + a^{\frac{-1}{2}}$?

A \sqrt{a}

B $\frac{1}{\sqrt{a}}$

C $\sqrt{a} + 1$

D $\sqrt{a} - 1$

Answer: A

Explanation:

Expression : $a^{\frac{1+a}{2} + \frac{1}{2}} - a^{\frac{1}{2} + \frac{1}{1+a}} + a^{\frac{-1}{2}}$

$$= \left(\sqrt{\frac{1+a}{a} + \frac{1}{a}}\right) - \left(\frac{\sqrt{a} + \frac{1}{\sqrt{a}}}{1+a}\right) + \left(\frac{1}{\sqrt{a}}\right)$$

$$= \left(\frac{1+a}{\sqrt{a}}\right) - \left(\frac{1+\frac{1}{\sqrt{a}}}{1+a}\right) + \left(\frac{1}{\sqrt{a}}\right)$$

$$= \sqrt{a} - \frac{1}{\sqrt{a}} + \frac{1}{\sqrt{a}} = \sqrt{a}$$

\Rightarrow Ans - (A)

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Question 89

If $\frac{p}{q} = \frac{x+3}{x-3}$, then what is the value of $\frac{p^2+q^2}{p^2-q^2}$?

A $\frac{x^2+9}{3x}$

B $\frac{x^2+18}{6x}$

C $\frac{x^2+18}{3x}$

D $\frac{x^2+9}{6x}$

Answer: D

Explanation:

Given : $\frac{p}{q} = \frac{x+3}{x-3}$

Let $p = (x + 3)$ and $q = (x - 3)$

To find : $\frac{p^2+q^2}{p^2-q^2}$

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

$$= \frac{(x^2+6x+9)+(x^2-6x+9)}{(x^2+6x+9)-(x^2-6x+9)}$$

$$= \frac{2x^2+18}{12x}$$

$$= \frac{x^2+9}{6x}$$

=> Ans - (D)

Question 90

PQRS is a square, M is the mid-point of PQ and N is a point on QR such that NR is two-third of QR. If the area of ΔMQN is 48cm^2 , then what is the length (in cm) of PR ?

A $12\sqrt{2}$

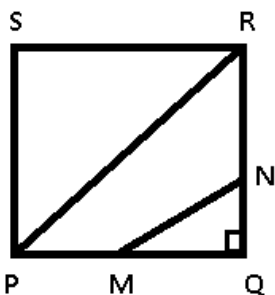
B 12

C 24

D $24\sqrt{2}$

Answer: D

Explanation:



Given : PQRS is a square and $PM = MQ$ and $NQ = \frac{1}{3} QR$

To find : PR = ?

Solution : Let the side of square = $6x$ cm

=> $MQ = \frac{6x}{2} = 3x$ cm and $NQ = \frac{6x}{3} = 2x$ cm

Area of $\Delta MQN = \frac{1}{2} \times (MQ) \times (NQ) = 48$

=> $3x \times 2x = 48 \times 2 = 96$

=> $x^2 = \frac{96}{6} = 16$

$$\Rightarrow x = \sqrt{16} = 4 \text{ cm}$$

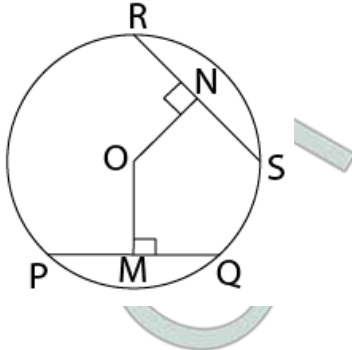
Thus, side of square = $6 \times 4 = 24 \text{ cm}$

$$\therefore \text{Diagonal PR} = \sqrt{(24)^2 + (24)^2} = 24\sqrt{2} \text{ cm}$$

\Rightarrow Ans - (D)

Question 91

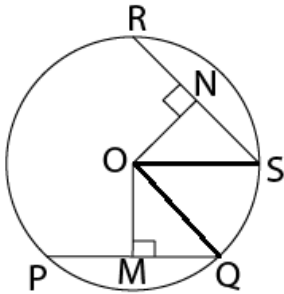
In the given figure. $PQ = 30$, $RS = 24$ and $OM = 12$. then what is the value of ON ?



- A 9
- B 12
- C 15
- D 18

Answer: C

Explanation:



Given : $PQ = 30$, $RS = 24$ and $OM = 12$

To find : $ON = ?$

Solution : A perpendicular from the centre of a circle to the chord bisects it.

$$\Rightarrow MQ = \frac{3}{2} = 15 \text{ and } NS = 12$$

In $\triangle OMQ$,

$$\Rightarrow (OQ)^2 = (OM)^2 + (MQ)^2$$

$$\Rightarrow (OQ)^2 = (12)^2 + (15)^2$$

$$\Rightarrow (OQ)^2 = 144 + 225 = 369$$

Also, $OQ = OS =$ radii of circle

Similarly, in $\triangle ONS$,

$$\Rightarrow (ON)^2 = (OS)^2 - (NS)^2$$

$$\Rightarrow (ON)^2 = 369 - (12)^2$$

$$\Rightarrow (ON)^2 = 369 - 144 = 225$$

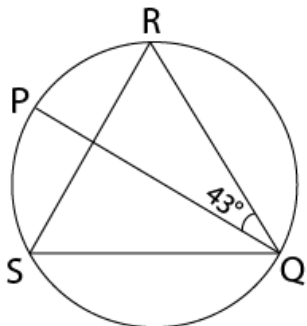
$$\Rightarrow ON = \sqrt{225} = 15$$

\Rightarrow Ans - (C)

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Question 92

In the given figure, PQ is the diameter of the circle. What is the measure (in degrees) of $\angle QSR$?



A 23

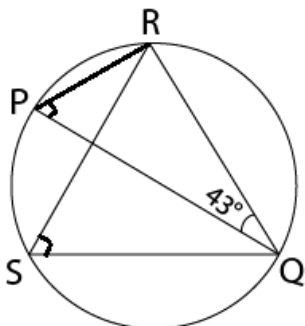
B 37

C 47

D 57

Answer: C

Explanation:



$\angle QSR = \angle QPR = \theta$ [Angles in the same segment]

Also, $\angle PRQ = 90^\circ$ [Angle in the semi circle]

In $\triangle PQR$, $\Rightarrow \angle PQR + \angle PRQ + \angle QPR = 180^\circ$

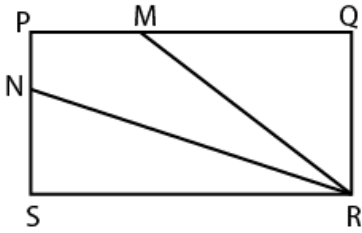
$$\Rightarrow 43^\circ + 90^\circ + \theta = 180^\circ$$

$$\Rightarrow \theta = 180 - 133 = 47^\circ$$

\Rightarrow Ans - (C)

Question 93

In the given figure, PM is one-third of PQ and PN is one-third of PS. If the area of PMRN is 17 cm^2 , then what is the area (in cm^2) of PQRS?



- A 34
- B 51
- C 68
- D 85

Answer: B

Explanation:

Let $PQ = SR = 3l$ and $PS = QR = 3b$ cm

$\Rightarrow QM = 2l$ and $NS = 2b$

Let the area of rectangle PQRS = $9lb = x \text{ cm}^2$ -----(i)

\Rightarrow Area of rectangle PQRS = Area of PMNR + ar($\triangle NSR$) + ar($\triangle QMR$)

$$\Rightarrow x = 17 + \left(\frac{1}{2} \times NS \times SR\right) + \left(\frac{1}{2} \times QM \times QR\right)$$

$$\Rightarrow x = 17 + \left(\frac{1}{2} \times 2b \times 3l\right) + \left(\frac{1}{2} \times 2l \times 3b\right)$$

$$\Rightarrow x = 17 + 6lb$$

Multiplying equation (i) by $\frac{2}{3}$, $\Rightarrow 6lb = \frac{2x}{3}$

$$\Rightarrow x - \frac{2x}{3} = 17$$

$$\Rightarrow x = 17 \times 3 = 51 \text{ cm}^2$$

\Rightarrow Ans - (B)

Question 94

What is the simplified value of $(1 - \sin A \cos A)(\sin A + \cos A)$?

- A $\sin^2 A - \cos^2 A$
- B $\sin^3 A + \cos^3 A$
- C 0
- D $\cos^2 A - \sin^2 A$

Answer: B

Explanation:

Expression : $(\sin A + \cos A)(1 - \sin A \cos A)$

Using, $\sin^2 A + \cos^2 A = 1$

$$= (\sin A + \cos A)(\sin^2 A + \cos^2 A - \sin A \cos A)$$

Also, we know that : $x^3 + y^3 = (x + y)(x^2 + y^2 - xy)$

$$= \sin^3 A + \cos^3 A$$

=> Ans - (B)

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Question 95

What is the simplified value of $\sqrt{\frac{1-\sin A}{1+\sin A}}$?

- A $\tan A$
- B $\sec A$
- C $\sec A + \tan A$
- D $\sec A - \tan A$

Answer: D

Explanation:

Expression : $\sqrt{\frac{1-\sin A}{1+\sin A}}$

Rationalizing the denominator, we get :

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

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

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

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

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

=> Ans - (D)

Question 96

What is the simplified value of $\sqrt{\frac{1}{\sin^2 A} + \frac{1}{\cos^2 A}}$?

- A $\sin A - \cos A$
- B $\tan A + \cot A$
- C $\sin^2 A$
- D $\tan A - \cot A$

Answer: B

Explanation:

Expression : $\sqrt{\frac{1}{\sin^2 A} + \frac{1}{\cos^2 A}}$

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

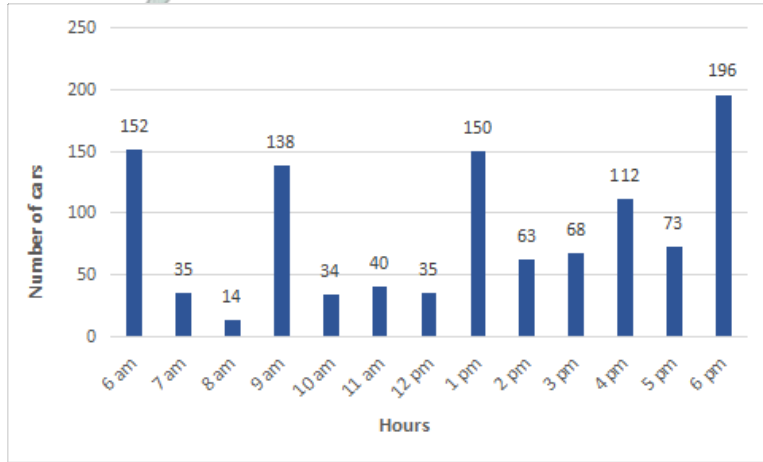
$$= \sqrt{\frac{1}{\sin^2 A \cdot \cos^2 A}} = \frac{1}{\sin A \cdot \cos A}$$

$$\begin{aligned}
 &= \frac{\sin^2 A + \cos^2 A}{\sin A \cdot \cos A} \\
 &= \frac{\sin^2 A}{\sin A \cdot \cos A} + \frac{\cos^2 A}{\sin A \cdot \cos A} \\
 &= \frac{\sin A}{\cos A} + \frac{\cos A}{\sin A} = \tan A + \cot A
 \end{aligned}$$

=> Ans - (B)

Instructions

The bar chart given below shows the number of cars parked in a multi-level parking from 6 am to 6 pm on a given day.



Question 97

What is the average number (approximately) of cars parked per hour from 6 am to 6 pm on the given day?

- A 80
- B 85
- C 73
- D 78

Answer: B

Explanation:

Total number of cars parked on the day

$$= 152 + 35 + 14 + 138 + 34 + 40 + 35 + 150 + 63 + 68 + 112 + 73 + 196$$

$$= 1110$$

$$\Rightarrow \text{Average cars parked} = \frac{1110}{13} = 85.38$$

$$\approx 85$$

=> Ans - (B)

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Question 98

At what time the percentage change in number of parked cars is the maximum?

- A 9 am to 10 am
- B 12 pm to 1 pm
- C 8 am to 9 am

D 6 am to 7 am

Answer: C

Explanation:

Percentage change in number of parked cars during :

$$(A) : 9 \text{ am to } 10 \text{ am} = \frac{138-34}{138} \times 100 = 75.36\%$$

$$(B) : 12 \text{ pm to } 1 \text{ pm} = \frac{150-35}{35} \times 100 = 328.57\%$$

$$(C) : 8 \text{ am to } 9 \text{ am} = \frac{138-14}{14} \times 100 = 885.71\% \quad [\text{MAX}]$$

$$(D) : 6 \text{ am to } 7 \text{ am} = \frac{152-35}{152} \times 100 = 76.97\%$$

=> Ans - (C)

Question 99

For how many hours the number of parked cars is less than the average on the given day?

A 5

B 8

C 6

D 7

Answer: B

Explanation:

Total number of cars parked on the day

$$= 152+35+14+138+34+40+35+150+63+68+112+73+196$$

$$= 1110$$

$$\Rightarrow \text{Average cars parked} = \frac{1110}{13} = 85.38$$

Thus, for 8 hours the number of parked cars is less than the average on the given day

=> Ans - (B)

Question 100

If the charges of parking are Rs 50 per hour, then what is the total income (in Rs) from 6 am to 6 pm on the given day?

A 55500

B 50500

C 57500

D 59500

Answer: A

Explanation:

Total number of cars parked on the day

$$= 152+35+14+138+34+40+35+150+63+68+112+73+196$$

$$= 1110$$

Parking rate = Rs. 50

$$\Rightarrow \text{Total income} = 50 \times 1110 = \text{Rs. } 55500$$

=> Ans - (A)

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