



SSC CHSL 17 Jan 2017 Evening Shift

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Instructions

For the following questions answer them individually

Question 1

Rearrange the parts of the sentence in correct order.

Technology for

P-tracking droughts has

Q-grown in leaps and bounds

R-forecasting and

A RQP

B PQR

C RPQ

D QRP

Answer: C

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Question 2

Improve the bracketed part of the sentence.

If you are living in the crowded part of the city then you should be ready to (bear) the noise.

A bear off

B bear away

C bear with

D no improvement

Answer: C

Question 3

Select the word with the correct spelling.

A extoled

B couscous

C infernall

D conceriti

Answer: B

Question 4

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. based on random choice or personal whim

A auxiliary

B arbitrary

- C allegory
- D ambulatory

Answer: B

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Question 5

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

- A A hopeless search for something unattainable
- B An adventurous trip full of surprises
- C To waste a lot of time and effort for small returns
- D To have fun doing a certain task

Answer: A

Question 6

Rearrange the parts of the sentence in correct order.

The NSG

P- of nuclear trade, spelt out in its guidelines and trigger-lists

Q- covering every aspect

R- has already made its rules,

- A QRP
- B QPR
- C PRQ
- D RQP

Answer: D

Question 7

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'.

Today the cost of living(A)/is so high that many people(B)/find it difficult to make ends meet.(C)/No error(D)

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

Answer: D

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Question 8

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

- A Contradicting someone
- B Certainly
- C Gamble
- D Letting others lead

Answer: B

Question 9

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

- A The job was expecting to being finished by the workers.
- B It was expected that the workers would be finishing the job.
- C The job was expected to been finished by the workers.
- D It was expected by the workers that they would finish the job.

Answer: D

Question 10

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'.

Vipul has been(A)/suffering from fever(B)/since seven days.(C)/No error(D)

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

Answer: C

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Question 11

In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase. to slap with one's hand or a flat object

- A to spank
- B to clobber
- C to whip
- D to flog

Answer: A

Question 12

Select the synonym of deployment

- A bane
- B banishment
- C stationing
- D strategise

Answer: C

Question 13

Select the antonym of: to sue

- A to absolve
- B to litigate
- C to indict
- D to solicit

Answer: A

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Question 14

Select the antonym of facade

- A frontage
- B semblance
- C veneer
- D reality

Answer: D

Question 15

Improve the bracketed part of the sentence.

If you come across new words, you should look (them up) in the dictionary.

- A for them
- B at them
- C them down
- D no improvement

Answer: D

Question 16

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

Crimes against women areof the deep rooted patriarchal systems of our society.

- A indications
- B manifestations
- C demonstrations
- D explanations

Answer: B

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Question 17

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.

Three Indian ad agencies haveawards at the International competition.

- A obtained
- B attained
- C bagged
- D procured

Answer: C

Question 18

Select the word with the correct spelling.

- A diseased
- B spedier
- C schemata
- D unioniest

Answer: C

Question 19

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

Sara answered, "The photographs are under the drawer".

- A Sarah answered the photographs are under the drawer.
- B Sarah answered that, that the photographs are under the drawer.
- C Sarah answered the photographs were under the drawer.
- D Sarah answered that the photographs were under the drawer.

Answer: D

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Question 20

Select the synonym of banquet

- A fast
- B feast
- C voracity
- D gluttony

Answer: B

Instructions

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

To begin.....(1)....., let us asksuch an appellation, assuming it has only positive.....(2)....., was ever deserved in a city like Bengaluru. At the risk.....(3)..... earning the well-shaped wrath of fellow Bengalureans, let me explain that.....(4).....for a "peacefull" past apart, it would be difficult to assert that "Asia's Silicon Valley" had even a history of toleration of difference. To begin(5).....,

Question 21

(1)

- A for
- B so
- C with
- D thus

Answer: C

Question 22

(2)

- A whether
- B if
- C even if
- D in case

Answer: A

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Question 23

(3)

- A nuances
- B hints
- C suggestions
- D connotations

Answer: D

Question 24

(4)

- A for
- B of
- C about
- D over

Answer: B

Question 25

(5)

- A nostalgia
- B remorse
- C sentimentality
- D memories

Answer: A

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Reasoning

Instructions

For the following questions answer them individually

Question 26

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

Railway Station : Station Master :: School : ?

- A Chef
- B Doctor
- C Lieutenant
- D Principal

Answer: D

Explanation:

First is institution and second is its highest authority, i.e. Station master is the head of a railway station, similarly *Principal* is the head

of a school.

=> Ans - (D)

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Question 27

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

GROUPS : ITQWRU :: SECOND : ?

A UGFQPE

B UGEQPF

C UEGQPF

D UGEQFP

Answer: B

Explanation:

Expression = GROUPS : ITQWRU :: SECOND : ?

The pattern followed is :

G	R	O	U	P	S
+2↓	+2↓	+2↓	+2↓	+2↓	+2↓
I	T	Q	W	R	U

Similarly, SECOND : UGEQPF

=> Ans - (B)

Question 28

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

LETTER : MFUUPS :: AHEAD : ?

A BIFBE

B BIBFE

C BFIBE

D BEFBE

Answer: A

Explanation:

Expression = LETTER : MFUUPS :: AHEAD : ?

The pattern followed is :

L	E	T	T	E	R
+1↓	+1↓	+1↓	+1↓	+1↓	+1↓
M	F	U	U	F	S

Similarly, AHEAD : BIFBE

=> Ans - (A)

Question 29

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

12 : 48 :: 104 : ?

- A 415
- B 420
- C 480
- D 416

Answer: D

Explanation:

Expression = $12 : 48 :: 104 : ?$

The pattern followed is = $x : 4x$

Eg :- $12 : 4 \times 12 = 12 : 48$

Similarly, $4 \times 104 = 416$

=> Ans - (D)

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Question 30

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

- A Duckworth-Lewis method
- B Googly
- C Dribbling
- D Leg before wicket

Answer: C

Explanation:

Except Dribbling other three are related to cricket, hence it is the odd one out.

=> Ans - (C)

Question 31

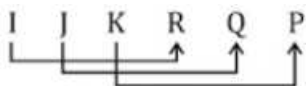
Select the odd word/letters/number/number pair from the given alternatives.

- A IJKRQP
- B FGHUTS
- C BCDWXY
- D KLMPON

Answer: C

Explanation:

Last three letters are corresponding opposite of first three letters.



Similar pattern is observed in FGHUTS and KLMPON, hence BCDWXY is the odd one out.

=> Ans - (C)

Question 32

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

A 64122

B 56211

C 54304

D 54321

Answer: C

Explanation:

The sum of digits of the numbers is 15, but $5 + 4 + 3 + 0 + 4 = 16$, hence 54304 is the odd one out.

=> Ans - (C)

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Question 33

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

A 3425

B 4541

C 5661

D 6783

Answer: D

Explanation:

The sum of squares of first two digits is equal to the last two digits.

$$3^2 + 4^2 = 9 + 16 = 25$$

$$4^2 + 5^2 = 16 + 25 = 41$$

$$5^2 + 6^2 = 25 + 36 = 61$$

$$6^2 + 7^2 = 36 + 49 = 85 \neq 83$$

=> Ans - (D)

Question 34

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

A Uttar Pradesh

B Madhya Pradesh

C Rajasthan

D Telangana

Answer: D

Explanation:

Newly formed states in increasing order.

= Chhattisgarh -> Uttarakhand -> Jharkhand -> Telangana

=> Ans - (D)

Question 35

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

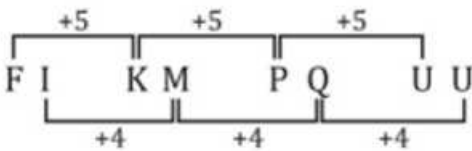
- A MO
- B ZA
- C TO
- D UU

Answer: D

Explanation:

Expression : FI, KM, PQ, ?

The pattern followed is :



Thus, missing term = UU

=> Ans - (D)

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Question 36

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

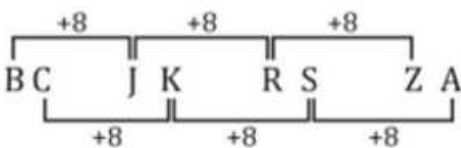
- A YA
- B ZA
- C BC
- D TU

Answer: B

Explanation:

Expression : BC, JK, RS, ?

The pattern followed is :



Thus, missing term = ZA

=> Ans - (B)

Question 37

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statements:

(I) All paper are files.

(II) Some files are pens.

Conclusion:

(I) No paper is a pen.

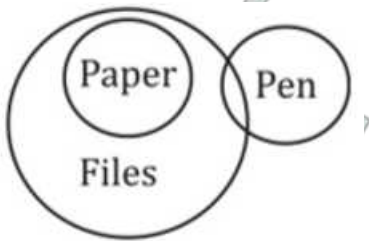
(II) Some papers are pens.

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

Answer: C

Explanation:

The venn diagram for above statements is :



Conclusion:

(I) No paper is a pen = may or may not be true

(II) Some papers are pens = may or may not be true

Thus, neither I nor II follows

=> Ans - (C)

Question 38

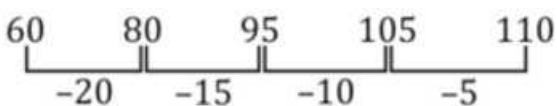
A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.
60, 80, 95, 105, ?

- A 190
- B 110
- C 150
- D 250

Answer: B

Explanation:

Multiples of 5 are added in decreasing order.



Thus, missing number = 110

=> Ans - (B)

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Question 39

The birth rate in India, Nepal, Sri Lanka, Bangladesh and Pakistan was calculated. The birth rate in Nepal is the lowest, while the birth rate in Pakistan is higher than that in Sri Lanka, and lower than that in India. The birth rate in Bangladesh is higher than that in Nepal, and lower than that in Sri Lanka. Which country has the highest birth rate?

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

Answer: C

Explanation:

The birth rate in Nepal is the lowest, while the birth rate in Pakistan is higher than that in Sri Lanka, and lower than that in India

=> India > Pakistan > Sri Lanka

The birth rate in Bangladesh is higher than that in Nepal, and lower than that in Sri Lanka

=> Sri Lanka > Bangladesh > Nepal

Combining above statements, we get : **India > Pakistan > Sri Lanka > Bangladesh > Nepal**

∴ India has the highest birth rate.

=> Ans - (C)

Question 40

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

- i. Regular
- ii. Reinforcement
- iii. Rainbow
- iv. Remedy

- A iii, i, iv, ii
- B iv, i, iii, ii
- C iii, i, ii, iv
- D iii, iv, i, ii

Answer: C

Explanation:

As per the order of dictionary :

= Rainbow -> Regular -> Reinforcement -> Remedy

≡ iii, i, ii, iv

=> Ans - (C)

Question 41

In a certain code language, "COPIOUS" is written as "2345389" and "GENEROUS" is written as "16760389". How is "PIGEON" written in that code language?

- A 451763

B 451673

C 451637

D 452637

Answer: C

Explanation:

The codes for each letter is given :

P -> 4

I -> 5

G -> 1

E -> 6

O -> 3

N -> 7

Thus, PIGEON : 451637

=> Ans - (C)

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Question 42

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

14	16	12
4	5	6
784	1280	?

A 512

B 968

C 864

D 432

Answer: C

Explanation:

In each column the number at the end is obtained by multiplying the square of the first number to the second number.

$$\text{Eg :- } (14)^2 \times 4 = 784$$

$$(16)^2 \times 5 = 1280$$

$$\text{Similarly, } (12)^2 \times 6 = 864$$

=> Ans - (C)

Question 43

If "#" means "subtraction", "&" means "division", "@" means "addition" and "%" means "multiplication", then
 $132 \& 3 \# 10 @ 20 \% 2 = ?$

A 91

B 74

C 69

D 76

Answer: B

Explanation:

Expression : $132 \div 3 \# 10 @ 20 \% 2 = ?$

$$\equiv 132 \div 3 - 10 + 20 \times 2$$

$$= \left(\frac{132}{3} \right) + (-10) + (20 \times 2)$$

$$= 44 - 10 + 40 = 74$$

=> Ans - (B)

Question 44

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

A TERT

B STTT

C STRS

D SRTS

Answer: D

Explanation:

The pattern followed is that in groups of 4, the term 'TERS' is repeated.

= TERS TERS TERS

=> Ans - (D)

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Question 45

A boy leaves his school and travels 8 km towards the east. He takes a left turn and travels 6 km in that direction, and then turns towards the east and travels another 5 km. Finally, he turns right and travels 10 km. In which direction is he now from his school?

A South-East

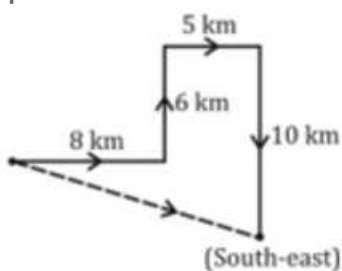
B West

C East

D North-East

Answer: A

Explanation:



The boy initially travels 8 km towards the east. Then, he takes a left turn and travels 6 km northwards, and then turns towards the east and travels another 5 km. Finally, he turns right and travels towards south for 10 km.

Thus, he is south-east of his school.

=> Ans - (A)

Question 46

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, 'F' can be represented by 42, 13 etc. and 'R' can be represented by 76, 58 etc. Similarly, you have to identify the set for the word "GOAL".

Matrix - I					Matrix - II						
	0	1	2	3	4		5	6	7	8	9
0	G	T	G	D	O	5	F	G	L	R	S
1	A	G	L	F	A	6	O	N	R	E	O
2	G	V	Y	G	N	7	A	R	S	J	F
3	R	G	V	S	E	8	R	L	W	O	Y
4	O	L	F	B	L	9	A	V	E	H	E

A 02, 10, 88, 86

B 56, 88, 14, 41

C 23, 65, 75, 40

D 31, 04, 00, 44

Answer: B

Explanation:

(A) : 02, 10, 88, 86 = GAOL

(B) : 56, 88, 14, 41 = **GOAL**

(C) : 23, 65, 75, 40 = GOAO

(D) : 31, 04, 00, 44 = GOGL

=> Ans - (B)

Question 47

Introducing a girl, Ankit says, "She is the sister of the son of my mother's sister". How is the girl related to Ankit?

A Niece

B Daughter

C Sister

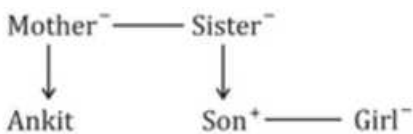
D Cousin

Answer: D

Explanation:

Son of Ankit's mother's sister = Ankit's cousin

Now, the girl is the sister of Ankit's cousin



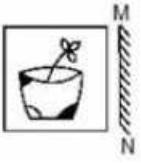
Thus, the girl is also Ankit's cousin.

=> Ans - (D)

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Question 48

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



Answer: B

Explanation:

A vertical mirror is placed, so the object on the left will appear right in reverse position and vice-versa.

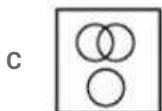
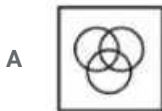
So the flower in the middle facing right will be reversed and will face left, thus the first option will be eliminated.

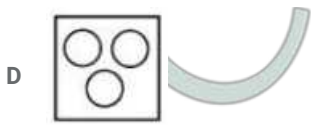
Also, in the flower pot, the the shaded part at top left will appear at top right and the one at bottom left at bottom right, hence second option is the right image.

=> Ans - (B)

Question 49

Identify the diagram that best represents the relationship among the given classes. Human, Men, Brothers





Answer: B

Explanation:

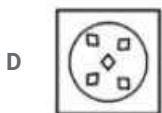
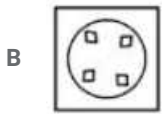
All men are humans and all brothers are men, hence the venn diagram that best describes above relation is :



=> Ans - (B)

Question 50

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



Answer: B

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General Awareness

Instructions

For the following questions answer them individually

Question 51

From which monument, Gautama Buddha propagated his divine knowledge of Buddhism to the world?

- A Humayun's Tomb
- B Mahabodhi Temple Complex
- C Qutub Minar

D Red Fort Complex

Answer: B

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Question 52

Which is the second highest civilian award given in India?

A Bharat Ratna

B Padma Vibhushan

C Padma Bhushan

D Padma Shri

Answer: B

Question 53

Which drug is used as an Anti-Inflammatory?

A Metformin

B Diazepam

C Latanoprost

D Prednisone

Answer: D

Question 54

Musa paradisiaca is the scientific name of which plant?

A mango

B wheat

C Corn

D banana

Answer: D

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Question 55

Prawns belong to which family?

A Crustaceans

B Fish

C Amphibians

D Reptiles

Answer: A

Question 56

Adding which substance gives blue colour to glass?

- A Manganese oxide
- B Cobalt oxide
- C Chromium oxide
- D Iron oxide

Answer: B

Question 57

The (O-H) bond in CH_3OH is which type of bond?

- A polar covalent
- B ionic
- C non polar covalent
- D cationic

Answer: A

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Question 58

What is the base of the Octal Numeral System?

- A 8
- B 16
- C 32
- D 64

Answer: A

Question 59

Bengali is the official language of

- A Uttarakhand
- B Tripura
- C Kerala
- D Chhattisgarh

Answer: B

Question 60

If price of an article decreases from Rs 40 to Rs 30, quantity demanded increases from Q1 units to 7500 units. If point elasticity of demand is -1 find Q1?

- A 9000 units
- B 4500 units
- C 10500 units
- D 6000 units

Answer: D

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Question 61

Micro economics deals with

- A the circular flow of income
- B the decision making of a single economic variable like demand
- C understanding unemployment
- D economic growth

Answer: B

Question 62

Name the drug that is yielded from Cinchona tree and is used to cure malaria.

- A Camptotheca
- B Acuminata
- C Quinine
- D Cinchonia

Answer: C

Question 63

When did the US drop the atomic bomb on Japanese city Hiroshima?

- A 6th August 1945
- B 18th July 1922
- C 26th June 1947
- D 11th May 1931

Answer: A

Question 64

The Great Smog of 1952 was a severe air-pollution event which affected

- A Paris
- B London
- C New York
- D Delhi

Answer: B

Question 65

1-degree of latitude is equal to how many Kms?

- A 11 Km
- B 211 Km
- C 111 Km
- D 311 Km

Answer: C

Question 66

Which city is located on the banks of the river Brahmaputra?

- A Kanpur
- B Srinagar
- C Dibrugarh
- D Lucknow

Answer: C

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Question 67

Adolf Hitler committed suicide in

- A 1915
- B 1925
- C 1935
- D 1945

Answer: D

Question 68

Humayun (1530-1540 AD) was the ruler of which dynasty?

- A Nanda
- B Mughal
- C Maurya
- D Haryanka

Answer: B

Question 69

Blood Circulation was discovered by?

- A Mary Anderson
- B Virginia Apgar
- C William Harvey
- D Robert Feulgen

Answer: C

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Question 70

What are the two kinds of Rotatory motion?

- A Spin and Vibrational motion
- B Spin and Orbital motion
- C Spin and Translatory motion
- D Spin and Projectile motion

Answer: B

Question 71

.....is the perpendicular distance between point of application of force and axis of rotation.

- A Moment arm
- B Moment of Inertia
- C Altitude
- D Base

Answer: A

Question 72

As per John Locke, an English philosopher and physician, which is not a Natural Right?

- A Liberty
- B Equality

- C Property
- D Right to Vote

Answer: D

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Question 73

How many seats are reserved for representatives of Scheduled Castes and Scheduled Tribes in Lok Sabha?

- A 39
- B 85
- C 109
- D 131

Answer: D

Question 74

The term "Birdie" is related to which game?

- A Golf
- B Baseball
- C Basketball
- D Polo

Answer: A

Question 75

Name the author of the book "All About Women".

- A Priya Kumar
- B Taslima Nasreen
- C Shobha De
- D Geeta Choubey

Answer: B

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Mathematics

Instructions

For the following questions answer them individually

Question 76

Profit of Rs 135200 has to be divided among three partners Aashay, Bhairav and Chetan in the ratio 4:3:6. How much Rs. does Chetan get?

- A 31200
- B 41600
- C 62400
- D 93600

Answer: C

Explanation:

Total amount to be distributed = Rs. 1,35,200

Ratio in which amount is divided between Aashay, Bhairav and Chetan = 4:3:6

=> Amount that Chetan will get = $\frac{6}{4+3+6} \times 135200$

= $\frac{6}{13} \times 135200$

= $6 \times 10400 = \text{Rs. } 62,400$

=> Ans - (C)

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Question 77

Sum of lengths of all edges of a cube is 84 cm, find its volume?

- A 686 cubic cms
- B 343 cubic cms
- C 171.5 cubic cms
- D 514.5 cubic cms

Answer: B

Explanation:

Let the edge of the cube = a cm

Number of edges in a cube = 12

Sum of all the edges = $12a = 84$

=> $a = \frac{84}{12} = 7$

∴ Volume of cube = a^3

= $(7)^3 = 343 \text{ cm}^3$

=> Ans - (B)

Question 78

Two numbers are 30% and 60% lesser than a third number. By how much percent is the second number to be enhanced to make it equal to the first number?

- A 75 percent
- B 42.86 percent
- C 30 percent
- D 50 percent

Answer: A

Explanation:

Let third number = $100x$

First number is 30% less than $100x$ and second number is 60% less than $100x$

=> First number = $70x$ and Second number = $40x$

To make second number equal to first number, it should be enhanced by = $70x - 40x = 30x$

=> Required % = $\frac{30x}{40x} \times 100 = 3 \times 25 = 75\%$

=> Ans - (A)

Question 79

Two cars travel from city A to city B at a speed of 30 and 45 km/hr respectively. If one car takes 2.5 hours lesser time than the other car for the journey, then the distance between City A and City B is:

A 270 km

B 338 km

C 180 km

D 225 km

Answer: D

Explanation:

Let the distance between City A and City B = d km

Speed of first car = 30 km/hr and speed of second car = 45 km/hr

Let time taken by first car = t hrs and time taken by second car = $(t - 2.5)$ hrs

Using, speed = distance/time for first car :

$$\Rightarrow \frac{d}{t} = 30$$

$$\Rightarrow d = 30t \text{-----(i)}$$

$$\text{For second car, } \Rightarrow \frac{d}{t-2.5} = 45$$

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

$$\Rightarrow 30t = 45t - 112.5$$

$$\Rightarrow 45t - 30t = 15t = 112.5$$

$$\Rightarrow t = \frac{112.5}{15} = 7.5 \text{ hrs}$$

From equation (i), $\Rightarrow d = 30 \times 7.5 = 225$ km

=> Ans - (D)

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Question 80

If $7x + 2 \geq x - 2$ and $7 + 2x \geq 3 + 3x$; then x can take which of the following values?

A 5

B 3

C -3

D -5

Answer: B

Explanation:

Expression 1 : $7x + 2 \geq x - 2$

$$\Rightarrow 7x - x \geq -2 - 2$$

$$\Rightarrow 6x \geq -4$$

$$\Rightarrow x \geq \frac{-2}{3} \text{ -----(i)}$$

Expression 2 : $7 + 2x \geq 3 + 3x$

$$\Rightarrow 3x - 2x \leq 7 - 3$$

$$\Rightarrow x \leq 4 \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{-2}{3} \leq x \leq 4$

The only value that x can take among the options = 3

\Rightarrow Ans - (B)

Question 81

If $\frac{(1+\cos A)}{(1-\cos A)} = x$, then x is

A $\frac{\cot^2 A}{(\sec A - 1)^2}$

B $\frac{\cot^2 A}{(\sec A + 1)^2}$

C $\frac{\tan^2 A}{(\sec A + 1)^2}$

D $\frac{\tan^2 A}{(\sec A - 1)^2}$

Answer: D

Explanation:

Expression : $\frac{(1+\cos A)}{(1-\cos A)} = x$

Multiplying both numerator and denominator by $(1 - \cos A)$

$$= \frac{1+\cos A}{1-\cos A} \times \frac{(1-\cos A)}{(1-\cos A)}$$

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

Dividing both numerator and denominator by $(\cos^2 A)$

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

$$= \tan^2 A \div \left(\frac{1-\cos A}{\cos A}\right)^2$$

$$= \frac{\tan^2 A}{(\sec A - 1)^2}$$

\Rightarrow Ans - (D)

Question 82

There is 40% increase in an amount in 8 years at simple interest. What will be the compound interest of Rs. 36000 after 2 years at the same rate?

- A Rs 6150
- B Rs 7687.5
- C Rs 3690
- D Rs 4612.5

Answer: C

Explanation:

Let the principal = Rs. $100x$

$$\Rightarrow \text{Amount after simple interest} = \frac{140}{100} \times 100 = \text{Rs. } 140x$$

$$\Rightarrow \text{Simple interest} = 140x - 100x = \text{Rs. } 40x$$

$$\text{Simple interest} = \frac{P \times R \times T}{100}$$

$$\Rightarrow 40x = \frac{100x \times 8 \times R}{100}$$

$$\Rightarrow R = \frac{40}{8} = 5\%$$

$$\text{Compound interest of Rs. 36,000 for 2 years} = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

$$= 36,000 \left[\left(1 + \frac{5}{100} \right)^2 - 1 \right]$$

$$= 36,000 \left[\left(\frac{21}{20} \right)^2 - 1 \right]$$

$$= 36,000 \times \frac{441 - 400}{400} = 36,000 \times \frac{41}{400}$$

$$= 90 \times 41 = \text{Rs. } 3,690$$

\Rightarrow Ans - (C)

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Question 83

Which of the following quadratic equations has real roots?

- A $4x^2 - 3x + 6 = 0$
- B $2x^2 + 7x + 6 = 0$
- C $x^2 - 2x + 4 = 0$
- D $3x^2 - 4x + 3 = 0$

Answer: B

Explanation:

A quadratic equation : $ax^2 + bx + c = 0$ has real roots iff Discriminant, $D = b^2 - 4ac \geq 0$

$$(A) : 4x^2 - 3x + 6 = 0$$

$$\Rightarrow D = (-3)^2 - 4(4)(6) = 9 - 96 = -87$$

$$(B) : 2x^2 + 7x + 6 = 0$$

$$\Rightarrow D = (7)^2 - 4(2)(6) = 49 - 48 = 1$$

$$(C) : x^2 - 2x + 4 = 0$$

$$\Rightarrow D = (-2)^2 - 4(1)(4) = 4 - 16 = -12$$

$$(D) : 3x^2 - 4x + 3 = 0$$

$$\Rightarrow D = (-4)^2 - 4(3)(3) = 16 - 36 = -20$$

Thus, the equation : $2x^2 + 7x + 6 = 0$ has real roots.

Question 84

If 1 dupatta is offered free on purchase of 4 dupattas priced Rs 1300 each what is the effective discount on each dupatta?

- A 66.67 percent
- B 20 percent
- C 25 percent
- D 12.5 percent

Answer: B

Explanation:

Cost price of 1 dupatta = Rs. 1300

Cost price of 5 dupattas = $5 \times 1300 = \text{Rs.} 6,500$

If 1 dupatta is offered free on purchase of 4 dupattas, \Rightarrow Cost of 4 dupattas = $4 \times 1300 = \text{Rs.} 5200$

$$\Rightarrow \text{Effective discount} = \frac{6500 - 5200}{6500} \times 100$$

$$= \frac{1300}{65} = \frac{100}{5} = 20\%$$

\Rightarrow Ans - (B)

Question 85

The diagonals are congruent in a

- A Parallelogram
- B Rhombus
- C Isosceles trapezium
- D Kite

Answer: C

Explanation:

In an isosceles trapezium, the non parallel sides are equal in length, and thus the diagonals are congruent.

\Rightarrow Ans - (C)

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Question 86

If $9x - 6(3 - x) = 12$, then the value of x is

- A 2
- B 4
- C 6
- D 9

Answer: A

Explanation:

Expression : $9x - 6(3 - x) = 12$

$\Rightarrow 9x - 18 + 6x = 12$

$\Rightarrow 15x = 12 + 18 = 30$

$\Rightarrow x = \frac{30}{15} = 2$

\Rightarrow Ans - (A)

Question 87

If $x - 2y = 2$ and $3x + y = 20$, then the value of (x,y) is

A (6, 2)

B (4, 1)

C (3, 2)

D (5, 5)

Answer: A

Explanation:

Equation 1 : $x - 2y = 2$

Equation 2 : $3x + y = 20$

Multiplying equation (ii) by 2

$\Rightarrow 6x + 2y = 40$ -----(iii)

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

$\Rightarrow (x + 6x) = 2 + 40$

$\Rightarrow 7x = 42$

$\Rightarrow x = \frac{42}{7} = 6$

Substituting value of x in equation (i)

$\Rightarrow 2y = 6 - 2 = 4$

$\Rightarrow y = \frac{4}{2} = 2$

$\therefore (x, y) = (6, 2)$

\Rightarrow Ans - (A)

Question 88

The area of a rectangle is 1200 sq cm and its perimeter 140 cm. What is the length of its diagonal?

A 50 cm

B 30 cm

C 40 cm

D 60 cm

Answer: A

Explanation:

Let the length of the rectangle be l cm and breadth be b cm

Perimeter of rectangle = $2(l + b) = 140$

$$\Rightarrow (l + b) = \frac{140}{2} = 70$$

$$\Rightarrow l = 70 - b \text{-----(i)}$$

$$\text{Area} = l \times b = 1200$$

Substituting value of l from equation (i)

$$\Rightarrow (70 - b)b = 1200$$

$$\Rightarrow b^2 - 70b + 1200 = 0$$

$$\Rightarrow b^2 - 40b - 30b + 1200 = 0$$

$$\Rightarrow b(b - 40) - 30(b - 40) = 0$$

$$\Rightarrow (b - 40)(b - 30) = 0$$

$$\Rightarrow b = 30, 40$$

Thus, the length $l = 40$ cm and breadth $b = 30$ cm

$$\therefore \text{Diagonal of rectangle} = \sqrt{l^2 + b^2}$$

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

$$= \sqrt{2500} = 50 \text{ cm}$$

$$\Rightarrow \text{Ans - (A)}$$

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Question 89

The measures of the four angles of a quadrilateral are in the ratio 3:4:5:6. What is the measure of the biggest angle?

- A 120°
- B 100°
- C 80°
- D 60°

Answer: A

Explanation:

Let the four angles of the quadrilateral be $3x$, $4x$, $5x$ and $6x$

Sum of internal angles of a quadrilateral = 360°

$$\Rightarrow 3x + 4x + 5x + 6x = 360^\circ$$

$$\Rightarrow 18x = 360^\circ$$

$$\Rightarrow x = \frac{360}{18} = 20^\circ$$

$$\therefore \text{Biggest angle} = 6x = 6 \times 20 = 120^\circ$$

$$\Rightarrow \text{Ans - (A)}$$

Question 90

The average marks of 45 students is shown as 65. It includes a wrong entry of 84 marks instead of 48 marks. The correct average is:

- A 65.8 marks
- B 67.4 marks
- C 62.6 marks

D 64.2 marks

Answer: D

Explanation:

Total marks of 45 students = $45 \times 65 = 2925$

Replacing 84 by 48 in the data, \Rightarrow Total marks = $2925 - 84 + 48 = 2889$

\Rightarrow Correct average = $\frac{2889}{45} = \frac{321}{5} = 64.2$

\Rightarrow Ans - (D)

Question 91

The line passing through point $(-3,1)$ and point $(x,5)$ is parallel to the line passing through point $(-2,-1)$ and point $(6,3)$. What is the value of x ?

A -5

B -2

C 2

D 5

Answer: D

Explanation:

Slope of line passing through (x_1, y_1) and (x_2, y_2) is $\frac{y_2 - y_1}{x_2 - x_1}$

\Rightarrow Slope of line passing through $(-2,-1)$ and $(6,3) = \frac{3+1}{6+2} = \frac{4}{8}$

Slope of line passing through $(-3,1)$ and $(x,5) = \frac{5-1}{x+3} = \frac{4}{x+3}$

Also, slopes of parallel lines are equal.

$\Rightarrow \frac{4}{x+3} = \frac{4}{8}$

$\Rightarrow x + 3 = 8$

$\Rightarrow y = 8 - 3 = 5$

\Rightarrow Ans - (D)

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Question 92

A shopkeeper by selling 22 Skechers shoes, earns a profit equal to the selling price of 6 Skechers shoes. His profit percentage is:

A 27.2 percent

B 37.5 percent

C 54.4 percent

D 16.9 percent

Answer: B

Explanation:

Let cost price of a shoe = $Rs.x$

Selling price of a shoe = $Rs.y$

=> Selling price of 6 shoes = $Rs.6y$

According to ques, => $22(y - x) = 6y$

$$\Rightarrow 22y - 22x = 6y$$

$$\Rightarrow 16y = 22x$$

$$\Rightarrow \frac{x}{y} = \frac{16}{22} = \frac{8}{11}$$

Let Cost price, $x = 8$ and selling price, $y = 11$

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

$$= \frac{11-8}{8} \times 100$$

$$= \frac{3}{2} \times 25 = 37.5\%$$

=> Ans - (B)

Question 93

If $\cos A = x$, then x is

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

B $\sqrt{(1 + \sin^2 A)}$

C $\sqrt{(1 + \cos^2 A)}$

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

Answer: D

Explanation:

$$\because \sin^2 A + \cos^2 A = 1$$

$$\Rightarrow \cos^2 A = 1 - \sin^2 A$$

$$\Rightarrow \cos A = \sqrt{1 - \sin^2 A}$$

=> Ans - (D)

Question 94

If $\operatorname{cosec} 45^\circ - \sin 30^\circ = x$, then x is ?

A $\frac{5}{\sqrt{3}}$

B $\frac{\sqrt{6}-1}{\sqrt{2}}$

C $\sqrt{3} + 2$

D $\frac{2\sqrt{2}-1}{2}$

Answer: D

Explanation:

Expression : $\operatorname{cosec} 45^\circ - \sin 30^\circ = x$

$$= \sqrt{2} - \frac{1}{2}$$

$$= \frac{2\sqrt{2}-1}{2}$$

=> Ans - (D)

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Question 95

Mayur can complete a work in 27 hours. If he is joined by Jayantika who is 100% more efficient, in what time will they together finish the work?

- A 6 hours
- B 3 hours
- C 9 hours
- D 10 hours

Answer: C

Explanation:

Let total work to be done = 54 units

Mayur's efficiency = $\frac{54}{27} = 2$ units/hr

Jayantika is 100% more efficient than Mayur, \Rightarrow Jayantika's efficiency = $\frac{100+100}{100} \times 2 = 4$ units/hr

\Rightarrow Mayur and Jayantika 1 day's work = $2 + 4 = 6$ units/hr

\therefore Time taken by them to finish the work together = $\frac{54}{6} = 9$ hours

\Rightarrow Ans - (C)

Question 96

The reciprocal of the sum of the reciprocals of $\frac{3}{8}$ and $\frac{8}{11}$ is:

- A $\frac{97}{24}$
- B $\frac{24}{97}$
- C $\frac{88}{97}$
- D $\frac{97}{88}$

Answer: B

Explanation:

Sum of the reciprocals of $\frac{3}{8}$ and $\frac{8}{11}$

$$= \frac{8}{3} + \frac{11}{8}$$

$$= \frac{(64+33)}{24} = \frac{97}{24}$$

\Rightarrow Reciprocal of $\frac{97}{24} = \frac{24}{97}$

\Rightarrow Ans - (B)

Question 97

Refer the below data table and answer the following Question.

	Number of employees	Annual salary (in lakhs)	Bonus as percent of annual salary
Manager	2	48	60%
Executive	9	20	20%
Trainee	2	2	10%

What Is the average bonus (in rupees)?

- A 944000
- B 723076
- C 240000
- D 332000

Answer: B

Explanation:

$$\text{Total bonus of managers (in lakh)} = 2 \times 48 \times \frac{60}{100} = 57.6 \text{ lakhs}$$

$$\text{Total bonus of executive (in lakh)} = 9 \times 20 \times \frac{20}{100} = 36 \text{ lakhs}$$

$$\text{Total bonus of trainee (in lakh)} = 2 \times 2 \times \frac{10}{100} = 0.4 \text{ lakhs}$$

$$\Rightarrow \text{Average bonus in rupees} = \frac{(57.6+36+0.4)}{(2+9+2)}$$

$$= \frac{94}{13} = 7.23076 \text{ lakhs} = 7,23,076$$

\(\Rightarrow\) Ans - (B)

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Question 98

Refer the below data table and answer the following Question.

	2011	2012	2013	2014	2015
Company A	2000	3000	4000	3000	2000
Company B	1000	4000	3000	4000	5000
Company C	3000	1000	3000	1000	2000

For which of the following pairs o years the total exports from the three Companies together are equal?
(Note: Figures given are In lakh rupees)

- A 2011 & 2013
- B 2013 & 2015
- C 2011 & 2012
- D 2014 & 2012

Answer: D

Explanation:

Total exports from the three companies together in (lakhs) :

$$2011 = 2000 + 1000 + 3000 = 6000$$

$$2012 = 3000 + 4000 + 1000 = 8000$$

$$2013 = 4000 + 3000 + 3000 = 10000$$

$$2014 = 3000 + 4000 + 1000 = 8000$$

$$2015 = 2000 + 5000 + 2000 = 9000$$

Clearly, total exports in 2012 and 2014 are equal to 8000

=> Ans - (D)

Question 99

Refer the below data table and answer the following Question.

Year	Profit or (-Loss) in Rs crore
2011	-15
2012	-5
2013	-20
2014	15
2015	20

What was the total Profit or loss of the company In last 5 years?

- A Loss of Rs 15 crores
- B Profit of Rs 5 crores
- C Profit of Rs 15 crores
- D Loss of Rs 5 crores

Answer: D

Explanation:

Total profit or loss in Rs. crore in last 5 years

$$= -15 - 5 - 20 + 15 + 20$$

$$= 35 - 40 = -5$$

Since, it is negative, thus loss of Rs. 5 crore

=> Ans - (D)

Question 100

Refer the below data table and answer the following Question.

India's Exports in 2015	Value in Million US\$
Jewellery	1000
Software	900
Cotton	575
Steel	925
Electronics	950

Jewellery was what percent of total exports?

- A 25.49 percent
- B 27.99 percent
- C 20.49 percent

D 22.99 percent

Answer: D

Explanation:

Value in millions of Jewelry = 1000

Total exports = 1000 + 900 + 575 + 925 + 950 = 4350

=> % of Jewelry in total exports = $\frac{1000}{4350} \times 100$

= $\frac{1000}{43.5} = 22.988 \approx 22.99\%$

=> Ans - (D)

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