



SSC CHSL 21 Jan 2017 Afternoon Shift

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Reasoning

Instructions

For the following questions answer them individually

Question 1

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

India : Rupee :: ? : Taka

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

Answer: C

Explanation:

Rupee is the currency of India, similarly Taka is the currency of *Bangladesh*.

=> Ans - (C)

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Question 2

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

RST:QPO:: MNO:: ?

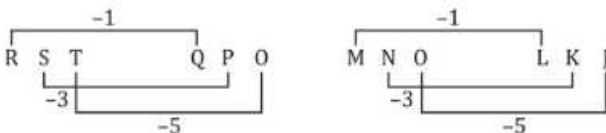
- A YZA
- B GHI
- C BAC
- D LKJ

Answer: D

Explanation:

Expression = RST:QPO:: MNO:: ?

The pattern followed is :



Thus, MNO : LKJ

=> Ans - (D)

Question 3

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

JOCKER : MRFNHU :: DRAUGHT : ?

- A GUDXKWJ

- B GUDXJWK
- C GUDXJKW
- D GUDJXKW

Answer: C

Explanation:

Expression = JOCKER : MRFNHU :: DRAUGHT : ?

The pattern followed is :

J	O	C	K	E	R
(+3)	(+3)	(+3)	(+3)	(+3)	(+3)
M	R	F	N	H	U

Similarly, for DRAUGHT :

D	R	A	U	G	H	T
(+3)	(+3)	(+3)	(+3)	(+3)	(+3)	(+3)
G	U	D	X	J	K	W

=> Ans - (C)

Question 4

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

8 : 504 :: 11 : ?

- A 1300
- B 1310
- C 1320
- D 1302

Answer: C

Explanation:

Expression = 8 : 504 :: 11 : ?

The pattern followed is = $x : (x - 1)(x)(x + 1)$

Eg :- 8 : (7)(8)(9) = 8 : 504

Similarly, $10 \times 11 \times 12 = 1320$

=> Ans - (C)

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Question 5

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

- A Horse
- B Pony
- C Mare
- D Cub

Answer: D

Explanation:

Except cub other three related to Horse family, hence cub is the odd one out.

=> Ans - (D)

Question 6

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

A VW

B ST

C BD

D PQ

Answer: C

Explanation:

Except for BD, other letters are consecutive pairs according to the English alphabetical order, hence BD is the odd one out.

=> Ans - (C)

Question 7

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

A 85431

B 23870

C 99300

D 11559

Answer: B

Explanation:

The sum of digits of the numbers is 21, but $2 + 3 + 8 + 7 + 0 = 20$, hence 23870 is the odd one out.

=> Ans - (B)

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Question 8

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

A 9

B 729

C 81

D 243

Answer: D

Explanation:

Except 243 other three are exponents of 9.

$$9^1 = 9, 9^2 = 81, 9^3 = 729$$

=> Ans - (D)

Question 9

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

Egg, ?, Pupa, Adult

- A Larva
- B Chicken
- C Mammal
- D Insect

Answer: A

Explanation:

Life cycle of silkworm is given.

= Egg -> Larva -> Pupa -> Adult

=> Ans - (A)

Question 10

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

?, LKJ, DCB, UTS

- A SRQ
- B SPQ
- C SPO
- D SRT

Answer: A

Explanation:

Expression : ?, LKJ, DCB, UTS

The pattern followed is :

S R Q L K J D C B U T S
 └──┬──┘ └──┬──┘ └──┬──┘
 -5 -6 -7

Thus, missing term = SRQ

=> Ans - (A)

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Question 11

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

WX, AB, FG, ?

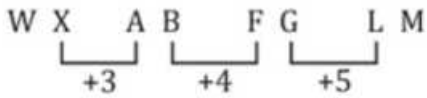
- A LI
- B LO
- C LM
- D LN

Answer: C

Explanation:

Expression : WX, AB, FG, ?

The pattern followed is :



Thus, missing term = LM

=> Ans - (C)

Question 12

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

35, 39, 34, 38, ?

A 39

B 33

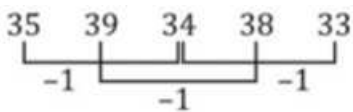
C 32

D 31

Answer: B

Explanation:

The pattern followed is :



Thus, missing number = 33

=> Ans - (B)

Question 13

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) Ramaa is brilliant.

(II) Ramaa is a woman.

Conclusion:

(I) Women are brilliant.

(II) Ramaa is brilliant as she is a woman.

A Conclusion I follows

B Conclusion II follows

C Neither I nor II follows

D Both I and II follows

Answer: C

Explanation:

The given statement indicates that Ramaa is brilliant and Ramaa is a woman. These are mutually exclusive statements, thus it does not mean that all women are brilliant or Ramaa is brilliant as she is a woman.

Thus, neither I nor II follows.

=> Ans - (C)

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Question 14

Bumrah, Jaggu, Mahi, Yuvi and Sehwag play cricket. Sehwag scored more runs than Yuvi but lesser runs than Mahi. Bumrah scored more runs than Mahi but lesser runs than Jaggu. Who scored the maximum runs?

- A Yuvi
- B Bumrah
- C Mahi
- D Jaggu

Answer: D

Explanation:

Sehwag scored more runs than Yuvi but lesser runs than Mahi, => Mahi > Sehwag > Yuvi

Bumrah scored more runs than Mahi but lesser runs than Jaggu, => Jaggu > Bumrah > Mahi

Combining above statements, we get : **Jaggu > Bumrah > Mahi > Sehwag > Yuvi**

∴ Jaggu scored the maximum runs.

=> Ans - (D)

Question 15

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

- i. Parachute
- ii. Pacable
- iii. Pachometer
- iv. Pabloism

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

Answer: D

Explanation:

As per the order of dictionary :

= Pabloism -> Pacable -> Pachometer -> Parachute

≡ iv, ii, iii, i

=> Ans - (D)

Question 16

In a certain code language, "DOMINOS" is written as "5981796" and "MONEY" is written as "89742" How is "MOMOS" written in that code language?

- A 89872

B 89896

C 89895

D 89897

Answer: B

Explanation:

The codes for each letter is given :

M -> 8

O -> 9

M -> 8

O -> 9

S -> 6

Thus, MOMOS : **89896**

=> Ans - (B)

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Question 17

Find the missing number as per given series in the table?

17	8	136
19	?	171
8	13	104

A 7

B 9

C 6

D 2

Answer: B

Explanation:

In each row, the number at the end is obtained by multiplying the other two.

Eg :- $17 \times 8 = 136$ and $8 \times 13 = 104$

Similarly, $19 \times x = 171$

=> $x = \frac{171}{19} = 9$

=> Ans - (B)

Question 18

If "K" means "minus", "L" means "divided by", "M" means "plus" and "D" means "multiplied by", then

$104 \text{ L } 2 \text{ K } 25 \text{ M } 2 \text{ D } 9 = ?$

A 15

B 25

C 35

D 45

Answer: D

Explanation:

Expression : $104 \div 2 - 25 + 2 \times 9 = ?$

$$\equiv 104 \div 2 - 25 + 2 \times 9$$

$$= \left(\frac{104}{2}\right) + (-25) + (2 \times 9)$$

$$= 52 - 25 + 18 = 45$$

=> Ans - (D)

Question 19

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

_q_rpq_r_qq_

A pqqpr

B prpqr

C pqqqr

D prrrp

Answer: A

Explanation:

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

= pqqr pqqr pqqr

=> Ans - (A)

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Question 20

Riya left home for school. She moved 5 km in the east direction, then she turned towards south-east to move 10 km, again she turned towards north-east to move for another 10 km. From there, she finally moved 5 km towards east to reach her school. How far is she from her home?

A $10+10\sqrt{2}$ km

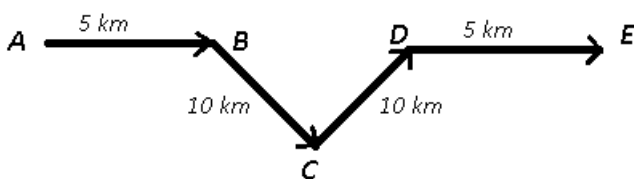
B $10+20\sqrt{2}$ km

C $20+10\sqrt{2}$ km

D $15+20\sqrt{2}$ km

Answer: A

Explanation:



Let Riya started from point A and moved east for 5 km, then she turned south-east and moved 10 km to reach point C, from there she turned north-east for 10 km and finally stopped at point E.

$$\text{Now, } BD = \sqrt{(10)^2 + (10)^2} = \sqrt{100 + 100}$$

$$= \sqrt{200} = 10\sqrt{2} \text{ km}$$

$$\text{Thus, AE} = 5 + 5 + 10\sqrt{2} = 10 + 10\sqrt{2} \text{ km}$$

=> Ans - (A)

Question 21

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, 'D' can be represented by 01, 10, etc., and 'R' can be represented by 34, 22, etc. Similarly, you have to identify the set for the word 'GREEN'.

MATRIX 1:

	0	1	2	3	4
0	A	D	N	M	R
1	D	T	W	R	W
2	S	H	R	B	E
3	F	R	E	V	R
4	R	E	G	C	F

MATRIX 2:

	5	6	7	8	9
5	H	E	Z	A	T
6	E	G	A	G	Y
7	K	A	X	G	M
8	A	B	C	M	W
9	K	V	M	H	N

- A 98, 40, 85, 14, 20
- B 01, 04, 42, 76, 98
- C 78, 34, 65, 24, 99
- D 42, 04, 24, 41, 88

Answer: C

Explanation:

- (A) : 98, 40, 85, 14, 20 = HRAWS
- (B) : 01, 04, 42, 76, 98 = DRGAH
- (C) : 78, 34, 65, 24, 99 = **GREEN**
- (D) : 42, 04, 24, 41, 88 = GREEM

=> Ans - (C)

Question 22

Pointing towards a lady in a picture, Jatin says, "She is the only daughter-in-law of my paternal grandfather's wife." How is the lady related to Jatin?

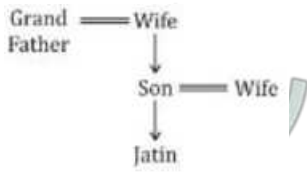
- A Cousin
- B Mother
- C Sister
- D Niece

Answer: B

Explanation:

Jatin's paternal grandfather's wife = Jatin's grandmother

Now, the lady is daughter-in-law of Jatin's grandmother, => Jatin is her son



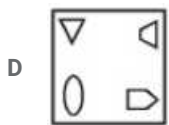
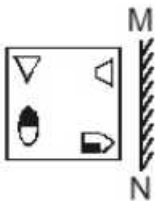
Thus, that lady is Jatin's mother.

=> Ans - (B)

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Question 23

If a mirror is placed on the line MN, then which of the answer figures in 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 triangle (pointing downwards) at top left will still point downwards but will now be at top right, thus the first and last options will be eliminated.


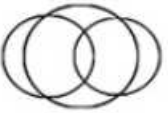


Also, in the question figure, the pentagon that has a little black colour will have the colour but it will appear at left side, hence second option is the right image.

=> Ans - (B)

Question 24

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

Furniture, Sofa, Tables

- A 
- B 
- C 
- D 

Answer: A

Explanation:

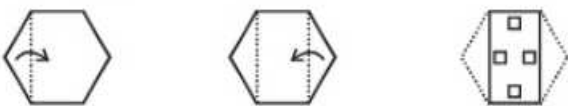
Both sofa and tables are types of furniture, but are completely different from each other, hence the venn diagram that best describes above relationship is :

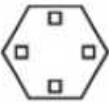
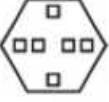
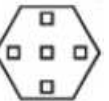
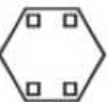


=> Ans - (A)

Question 25

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.



- A 
- B 
- C 
- D 

Answer: B

Explanation:

When the paper is unfolded first to the right, a square will appear on the right part.

When the paper is unfolded again to the left, a square will appear on the left part of the paper.

∴ When the paper is opened it will appear as shown below



Hence, the correct answer is Option B

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Which World Heritage Monument has been acclaimed as the "Necropolis of the Mughal dynasty"?

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

Answer: A

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Question 27

Highest Civilian Honour received by Priyanka Chopra is

- A Padma Shri
- B Padma Bhushan
- C Padma Vibhushan
- D Bharat Ratna

Answer: A

Question 28

Which drug is used to cure Osteoporosis?

- A Risedronate
- B Tramadol
- C Promethazine
- D Levothyroxine

Answer: A

Question 29

A ____ is the fleshy, spore-bearing fruiting body of a fungus.

- A aloe vera
- B coral
- C cactus
- D mushroom

Answer: D

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Question 30

Which of the following is a fungal disease?

- A Dermatitis
- B Cholera
- C Jaundice
- D Indigofera

Answer: A

Question 31

Which chemical is present in Nail polish remover?

- A Citric acid
- B Acetone
- C Ethylene
- D Benzene

Answer: B

Question 32

What is the formula of potassium ion in the noble gas state?

- A K^+
- B K^{2+}
- C K^{2-}
- D K^-

Answer: A

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Question 33

Unix operating system was developed in 1970s by

- A Moto Labs
- B Microsoft Labs
- C IBM Labs
- D Bell Labs

Answer: D

Question 34

Malayalam is the official language of _____.

- A Haryana
- B Jharkhand
- C Kerala
- D Uttarakhand

Answer: C

Question 35

If price of an article decreases from Rs 18 to Rs 16, quantity demanded increases from 1250 units to 1400 units. What is the point elasticity of demand?

- A -2.04
- B -1.08
- C 1.08
- D 2.04

Answer: B

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Question 36

If goods A and B are substitutes, a decrease in the price of good B will

- A decrease demand for good B
- B decrease demand for both the goods
- C increase demand for both the goods
- D decrease demand for good A

Answer: D

Question 37

Qatar is the highest per capita emitter of which of the following gases?

- A Carbon Dioxide
- B Carbon Monoxide
- C Ammonia
- D Hydrogen Sulphide

Answer: A

Question 38

Where is Dachigam National Park located?

- A Uttarakhand
- B Mizoram
- C Jammu & Kashmir
- D Himachal Pradesh

Answer: C

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Question 39

Name the first satellite of India dedicated exclusively for educational purposes.

- A KNOWSAT
- B TEJSAT
- C EDUSAT
- D GSAT

Answer: C

Question 40

In terms of size, Uranus ranks no. ___ in our Solar System.

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

Answer: C

Question 41

Hyderabad is the Capital City of ____.

- A Assam
- B Chhattisgarh

C Andhra Pradesh

D Telangana

Answer: D

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Question 42

Who was first Viceroy of pre-independence era British India?

A Warren Hastings

B Lord William Bentinck

C Lord Mountbatten

D Lord Canning

Answer: D

Question 43

Jahangir was the son of?

A Babur

B Humayun

C Akbar

D Shah Jahan

Answer: C

Question 44

Isaac Newton invented _____.

A Thermometer

B Reflecting Telescope

C Hydraulic Accumulator

D Transistor

Answer: B

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Question 45

Which among the following is false about work?

A If displacement is zero, work is zero

B Work done can be negative

C It is a vector quantity

D Its unit is Joule

Answer: C

Question 46

What is inertia?

A Tendency to resist change in the current state

B Tendency to impart acceleration to a body

C Tendency to bring a body to rest

D Tendency to change its current state

Answer: A

Question 47

Article 356 of the Indian Constitution is about

A Directive Principles of state policy

B Imposition of President's Rule in states

C Hindi as official language

D Special status to Kashmir

Answer: B

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Question 48

The number of parliamentary seats (Lok Sabha) of Maharashtra is

A 10

B 26

C 28

D 48

Answer: D

Question 49

Which cricketer scored 400 runs in an innings in Test Cricket?

A Sachin Tendulkar

B Don Bradman

C Brian Lara

D Vivian Richards

Answer: C

Question 50

Name the author of the book "Discovery of India".

- A Jawahar Lal Nehru
- B Kiran Desai
- C K Natwar Singh
- D Indira Gandhi

Answer: A

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English

Instructions

For the following questions answer them individually

Question 51

Select the word with the correct spelling.

- A enarvate
- B liggament
- C accesses
- D dweling

Answer: C

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Question 52

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 dog is being fed by us.

- A We fed the dog.
- B We have had been feeding the dog.
- C We are feeding the dog.
- D We had been feeding the dog.

Answer: C

Question 53

Select the word with the correct spelling.

- A autarchie
- B inately

C choosers

D gimmicks

Answer: D

Question 54

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

A to vex

B to dither

C tiff

D to stew

Answer: B

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Question 55

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 last Mughal emperor was(A)/send into exile(B)/by the British.(C)/No error(D)

A The last Mughal emperor was

B send into exile

C by the British.

D No error

Answer: B

Question 56

Select the antonym of

elf

A pixie

B nisse

C fay

D giant

Answer: D

Question 57

Improve the bracketed part of the sentence.

Bunty did not just throw the toy, he (has broken it).

A had broken it

- B broke it too
- C breaks it
- D no improvement

Answer: B

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Question 58

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'.

Being a sunny day(A)/I decided to stay at home(B)/and take a nap.(C)/No error(D)

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

Answer: A

Question 59

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

to pull or twist out of shape

- A to distort
- B to gnarl
- C pervert
- D to repudiate

Answer: A

Question 60

Select the synonym of

batter

- A insulate
- B assure
- C bash
- D bulwark

Answer: C

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Question 61

Improve the bracketed part of the sentence.

You ought not to (go) there but you did.

- A have gone
- B be going
- C going
- D no improvement

Answer: A

Question 62

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.

Keynesian economic theory differs _____ from Marxian.

- A variably
- B markedly
- C literally
- D usually

Answer: B

Question 63

Select the antonym of
imminent

- A friendly
- B nigh
- C escapable
- D dangerous

Answer: C

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Question 64

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

No horse in this race

- A A rigged contest
- B A very easily won contest where there are no b contestants
- C To have no vested interest in the outcome of a contest

D To have no chance of winning

Answer: C

Question 65

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.

The management should have put up a notice _____ the dates of the event.

A illustrating

B implying

C indicating

D expressing

Answer: C

Question 66

Rearrange the parts of the sentence in correct order:

Therefore, perhaps

P-on ensuring learning standards

Q-there is a case

R-to introduce some clauses

A RQP

B QRP

C PRQ

D PQR

Answer: B

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Question 67

Select the synonym of

jeer

A compliment

B hoot

C flatter

D praise

Answer: B

Question 68

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

To be pushing up daisies

- A To get up feeling fresh
- B To be dead and buried
- C To smell like flowers
- D Once beautiful but now ugly

Answer: B

Question 69

Rearrange the parts of the sentence in correct order.

Public interest litigation,
P-presently serves a role distinctly opposed
Q-therefore,
R-to the rationale behind its fashioning

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

Answer: A

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Question 70

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.

The professor said to the students, 'Work hard if you want to pass the test.'

- A The professor said to the students work hard if they wanted to pass the test.
- B The professor said to the students work hard if you want to pass the test.
- C The professor advised the students to work hard if they wanted to pass the test.
- D The professor informed the students to work hard if you want to pass the test.

Answer: C

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.

In the course _____ the hearing, the Central government _____ to concede that it had not fulfilled many of its statutory _____. The National Disaster Policy required under the Disaster Management Act did not exist. The Disaster Mitigation Fund proposed under the same Act _____. The National Disaster Response Force did not have _____ expertise to deal with the drought. It also admitted that the Centre had delayed releasing assistance to States under the National Disaster Response Fund.

Question 71

In the course _____ the hearing

- A of
- B for
- C to
- D with

Answer: A

Question 72

the Central government _____ to concede

- A forced
- B was forced
- C was being forced
- D forces

Answer: B

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Question 73

it had not fulfilled many of its statutory _____.

- A liabilities
- B contracts
- C rights
- D obligations

Answer: D

Question 74

The Disaster Mitigation Fund proposed under the same Act _____.

- A would not be created
- B was not being created
- C has not been created
- D could not be created

Answer: C

Question 75

The National Disaster Response Force did not have _____ expertise to deal with the drought.

- A any
- B some

- C all
- D little

Answer: A

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Mathematics

Instructions

For the following questions answer them individually

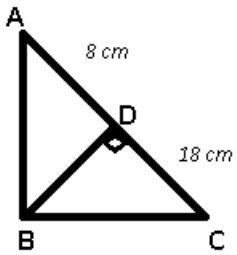
Question 76

Triangle ABC is right angled at B. BD is the altitude. AD is 8 cm and DC is 18 cm. Find length of BD?

- A 6 cm
- B 9 cm
- C 12 cm
- D 15 cm

Answer: C

Explanation:



Let $BD = x$ cm

Using, $(BD)^2 = (AD) \times (CD)$

$$\Rightarrow (x)^2 = 8 \times 18 = 144$$

$$\Rightarrow x = \sqrt{144} = 12 \text{ cm}$$

\Rightarrow Ans - (C)

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Question 77

Painter 'A' can paint a house in 50 days and 'B' can do it in 25 days. With help of 'C', they did the job in 10 days only. Then, 'C' alone can do the job in

- A 8 days
- B 16 days
- C 25 days
- D 15 days

Answer: C

Explanation:

Let total work to be done = 100 units

Painter 'A' can paint a house in 50 days and 'B' can do it in 25 days

$$\Rightarrow \text{A's efficiency} = \frac{100}{50} = 2 \text{ units/day}$$

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

Let C's efficiency = x units/day

According to ques, all of them complete the job in 10 days

$$\Rightarrow (2 + 4 + x) \times 10 = 100$$

$$\Rightarrow x + 6 = \frac{100}{10} = 10$$

$$\Rightarrow x = 10 - 6 = 4$$

$$\therefore \text{Time taken by C alone to do the job} = \frac{100}{4} = 25 \text{ days}$$

\Rightarrow Ans - (C)

Question 78

If $4 + 2x \leq 6 + x$ and $2x + 5 < 2 + 4x$; then x can take which of the following values?

A 3

B 1

C 0

D 2

Answer: D

Explanation:

Expression 1 : $4 + 2x \leq 6 + x$

$$\Rightarrow 2x - x \leq 6 - 4$$

$$\Rightarrow x \leq 2 \text{ -----(i)}$$

Expression 2 : $2x + 5 < 2 + 4x$

$$\Rightarrow 4x - 2x > 5 - 2$$

$$\Rightarrow 2x > 3$$

$$\Rightarrow x > \frac{3}{2} \text{ -----(ii)}$$

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

The only value that x can take among the options = 2

\Rightarrow Ans - (D)

Question 79

What are the roots of the quadratic equation $4x^2 + 6x - 18 = 0$?

A 3, -3

B 3, 6

C $3/2, -3$

D 3, 3

Answer: C

Explanation:

$$\text{Expression : } 4x^2 + 6x - 18 = 0$$

$$\Rightarrow 4x^2 - 6x + 12x - 18 = 0$$

$$\Rightarrow 2x(2x - 3) + 6(2x - 3) = 0$$

$$\Rightarrow (2x + 6)(2x - 3) = 0$$

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

\Rightarrow Ans - (C)

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Question 80

The price of an article is cut by 21%, to restore to its original value, the new price must be increased by

- A 21 percent
- B 26.58 percent
- C 17.36 percent
- D 26.25 percent

Answer: B

Explanation:

Let the original price of the article = Rs. 100

$$\text{If the price is cut by 21\%, } \Rightarrow \text{New price} = \frac{100-21}{100} \times 100 = \text{Rs.}79$$

$$\text{To restore to its original value the new price must be increased by} = \frac{100-79}{79} \times 100$$

$$= \frac{2100}{79} \approx 26.58\%$$

\Rightarrow Ans - (B)

Question 81

If Gafur's salary is $\frac{4}{3}$ times of Haashim's and Satish's is $\frac{5}{4}$ times of Haashim's, what is the ratio of Gafur's salary to Satish's?

- A 16:15
- B 3:5
- C 5:3
- D 15:16

Answer: A

Explanation:

Let Haashim's salary = $12x$

$$\Rightarrow \text{Gafur's salary} = \frac{4}{3} \times 12x = 16x$$

$$\Rightarrow \text{Satish's salary} = \frac{5}{4} \times 12x = 15x$$

$$\therefore \text{Ratio of Gafur's salary to Satish's} = \frac{16x}{15x}$$

$$= 16 : 15$$

\Rightarrow Ans - (A)

Question 82

If $\operatorname{cosec}A/(\operatorname{cosec}A - 1) + \operatorname{cosec}A/(\operatorname{cosec}A + 1) = x$, then x is

- A $2\operatorname{cosec}^2A$
- B $2\operatorname{cosec}A$
- C $2\sec A$
- D $2\sec^2 A$

Answer: D

Explanation:

Expression: $\frac{\operatorname{cosec}A}{\operatorname{cosec}A-1} + \frac{\operatorname{cosec}A}{\operatorname{cosec}A+1}$

$$= \left[\left(\frac{1}{\sin A} \right) \div (\sin A - 1) \right] + \left[\left(\frac{1}{\sin A} \right) \div (\sin A + 1) \right]$$

$$= \left[\left(\frac{1}{\sin A} \right) \div \left(\frac{1 - \sin A}{\sin A} \right) \right] + \left[\left(\frac{1}{\sin A} \right) \div \left(\frac{1 + \sin A}{\sin A} \right) \right]$$

$$= \left[\left(\frac{1}{\sin A} \right) \times \left(\frac{\sin A}{1 - \sin A} \right) \right] + \left[\left(\frac{1}{\sin A} \right) \times \left(\frac{\sin A}{1 + \sin A} \right) \right]$$

$$= \left(\frac{1}{1 - \sin A} \right) + \left(\frac{1}{1 + \sin A} \right)$$

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

$$= \frac{2}{\cos^2 A} = 2\sec^2 A$$

=> Ans - (D)

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Question 83

Which of the following is correct?

- A $(2x - y)^2 = 4x^2 - 4xy + y^2$
- B $(2x - y)^2 = x^2 - 4xy + 4y^2$
- C $(2x + y)^2 = x^2 - 4xy + 4y^2$
- D $(2x + y)^2 = 4x^2 - 4xy + y^2$

Answer: A

Explanation:

Expression: $(2x - y)^2$

$$= (2x)^2 + (-y)^2 + 2(2x)(-y)$$

$$= 4x^2 + y^2 - 4xy$$

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

$$= (2x)^2 + (y)^2 + 2(2x)(y)$$

$$= 4x^2 + y^2 + 4xy$$

=> Ans - (A)

Question 84

Of the 3 numbers whose average is 77, the first is $\frac{3}{4}$ times the sum of other 2. The first number is

A 148

B 66

C 99

D 198

Answer: C

Explanation:

Let the three numbers be x, y, z

$$\text{Average of three numbers} = \frac{x+y+z}{3} = 77$$

$$\Rightarrow x + y + z = 77 \times 3 = 231$$

$$\text{According to ques, } \Rightarrow x = \frac{3}{4} \times (y + z)$$

$$\Rightarrow x = \frac{3}{4} \times (231 - x)$$

$$\Rightarrow 4x = 693 - 3x$$

$$\Rightarrow 4x + 3x = 7x = 693$$

$$\Rightarrow x = \frac{693}{7} = 99$$

\Rightarrow Ans - (C)

Question 85

If the amount received at the end of 2nd and 3rd year at Compound Interest on a certain Principal is Rs 34992, and Rs 37791.36 respectively, what is the rate of interest?

A 4 percent

B 16 percent

C 8 percent

D 13 percent

Answer: C

Explanation:

Compound interest at the end of 2nd year = Rs. 34,992

Compound interest at the end of 3rd year = Rs. 37,791.36

$$\Rightarrow \text{Difference} = 37791.36 - 34992 = \text{Rs } 2799.36$$

This is the interest obtained on the amount of 2nd year.

$$\therefore \text{Rate of interest, } r = \frac{2799.36}{34992} \times 100 = 8\%$$

\Rightarrow Ans - (C)

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Question 86

Slope of the side DA of the rectangle ABCD is $-3/4$. What is the slope of the side AB?

A $-4/3$

B $3/4$

C $-3/4$

D $4/3$

Answer: D

Explanation:

Side DA and AB in the rectangle ABCD are perpendicular to each other, and product of slopes of two perpendicular lines is -1

Let slope of AB = m and slope of DA = $-3/4$

$$\Rightarrow m \times \frac{-3}{4} = -1$$

$$\Rightarrow m = \frac{4}{3}$$

\Rightarrow Ans - (D)

Question 87

If $\cot 30^\circ - \cos 45^\circ = x$, then x is

A $\sqrt{3}+2$

B $(\sqrt{6}-1)/\sqrt{2}$

C $(\sqrt{3}-2\sqrt{2})/\sqrt{6}$

D $(1+\sqrt{2})/2$

Answer: B

Explanation:

Expression : $\cot 30^\circ - \cos 45^\circ = x$

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

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

\Rightarrow Ans - (B)

Question 88

The length of the diagonal of a rectangle is 10 cm and that of one side is 8 cm. What is the area of this rectangle?

A 80 sq cm

B 48 sq cm

C 60 sq cm

D 32 sq cm

Answer: B

Explanation:

Let breadth of rectangle = b cm and length, $l = 8$ cm

$$\text{Diagonal of rectangle} = \sqrt{l^2 + b^2} = 10$$

$$\Rightarrow (8)^2 + (b)^2 = (10)^2$$

$$\Rightarrow (b)^2 = 100 - 64 = 36$$

$$\Rightarrow b = \sqrt{36} \text{ cm}$$

$$\therefore \text{Area of rectangle} = l \times b$$

$$= 8 \times 6 = 48 \text{ cm}^2$$

=> Ans - (B)

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Question 89

The two numbers are 55 and 99, HCF is 11, What is their LCM?

- A 486
- B 479
- C 476
- D 495

Answer: D

Explanation:

Let the LCM = x

Numbers are = 55, 99

Also, product of numbers = HCF \times LCM

$$\Rightarrow 55 \times 99 = 11 \times x$$

$$\Rightarrow x = \frac{55 \times 99}{11} = 5 \times 99$$

$$\Rightarrow x = 495$$

=> Ans - (D)

Question 90

A dishonest milkman buys milk at Rs 25 per litre and adds $\frac{1}{5}$ of water to it and sells the mixture at Rs 29 per litre. His gain is

- A 16 percent
- B 39.2 percent
- C 24 percent
- D 32 percent

Answer: B

Explanation:

The milkman adds $\left(\frac{1}{5}\right)^{th}$ of water, thus total mixture = $1 + \frac{1}{5} = \frac{6}{5}$

Cost price per litre of the mixture = $\frac{25}{\frac{6}{5}} = 25 \times \frac{5}{6} = \text{Rs } 20.83$

Selling price per litre = Rs. 29

$$\therefore \text{Profit \%} = \frac{29 - 20.83}{20.83} \times 100$$

$$= \frac{8.17}{20.83} \approx 39.2\%$$

=> Ans - (B)

Question 91

If $9x - 6y = 15$ and $x + 6y = 15$, then the value of x, y .

- A 3, 4

B 3, 2

C 4, 5

D 5, 6

Answer: B

Explanation:

Equation 1 : $9x - 6y = 15$

Equation 2 : $x + 6y = 15$

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

$$\Rightarrow (9x + x) = (15 + 15)$$

$$\Rightarrow 10x = 30$$

$$\Rightarrow x = \frac{30}{10} = 3$$

Substituting it in equation (ii), $\Rightarrow 6y = 15 - 3 = 12$

$$\Rightarrow y = \frac{12}{6} = 2$$

$$\therefore (x, y) = (3, 2)$$

\Rightarrow Ans - (B)

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Question 92

A cone of height 25 cm and diameter 21 cm is mounted on a hemisphere of the same diameter. Find the volume of the solid thus formed? (Take $\pi = 22/7$)

A 3155 sq cms

B 1533 sq cms

C 3315 sq cms

D 5313 sq cms

Answer: D

Explanation:

Height of cone, $h = 25$ cm and radius of cone, $r = 10.5$ cm

Radius of hemisphere, $r = 10.5$ cm

Volume of solid = Volume of cone + Volume of hemisphere

$$= \left(\frac{1}{3}\pi r^2 h\right) + \left(\frac{2}{3}\pi r^3\right)$$

$$= \left(\frac{\pi r^2}{3}\right)[h + 2r]$$

$$= \left(\frac{22 \times (10.5)^2}{7 \times 3}\right)(25 + 21)$$

$$= 22 \times 5.25 \times 46$$

$$= 5313 \text{ cm}^2$$

\Rightarrow Ans - (D)

Question 93

To cover a distance of 297 km in 4.4 hours what should be the average speed of the car in meters/second?

- A 67.5 m/s
- B 33.75 m/s
- C 37.5 m/s
- D 18.75 m/s

Answer: D

Explanation:

The car covers 297 km in 4.4 hours

$$\text{Speed of car (in km/h)} = \frac{297}{4.4} = 67.5 \text{ km/hr}$$

$$\Rightarrow \text{Speed of car (in m/s)} = 67.5 \times \frac{5}{18}$$

$$= 3.75 \times 5 = 18.75 \text{ m/s}$$

\Rightarrow Ans - (D)

Question 94

The diameter of a circle is equal to the side of the square. What is the area of the square if the area of the circle is 36π sq cm?

- A 72 sq cm
- B 144 sq cm
- C 36 sq cm
- D 18 sq cm

Answer: B

Explanation:

Let radius of circle = r cm

$$\Rightarrow \text{Area of circle} = \pi r^2 = 36\pi$$

$$\Rightarrow r = \sqrt{36} = 6 \text{ cm}$$

Thus, diameter of circle = Side of square = 12 cm

$$\therefore \text{Area of square} = (12)^2 = 144 \text{ cm}^2$$

\Rightarrow Ans - (B)

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Question 95

Marked price of an item is Rs 100. On purchase of 2 items discount is 25%, on purchase of 4 items discount is 43%. Rajasi buys 6 items, what is the effective discount?

- A 37 percent
- B 26.25 percent
- C 9.6 percent
- D 24.6 percent

Answer: A

Explanation:

Marked price of item = Rs. 100

=> Marked price of 2 items = $2 \times 100 = \text{Rs. } 200$

Amount saved on buying 2 items = $\frac{25}{100} \times 200 = \text{Rs. } 50$

Marked price of 4 items = $4 \times 100 = \text{Rs. } 400$

Amount saved on buying 4 items = $\frac{43}{100} \times 400 = \text{Rs. } 172$

Thus, on buying 6 items, total amount saved = $50 + 172 = \text{Rs. } 222$

Total marked price of 6 items = $6 \times 100 = \text{Rs. } 600$

\therefore Effective discount = $\frac{222}{600} \times 100$

= $\frac{222}{6} = 37\%$

=> Ans - (A)

Question 96

If $\tan 2A = x$, then x is

A $\frac{2 \tan A}{1 - \tan^2 A}$

B $\frac{1 - \tan^2 A}{2 \tan A}$

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

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

Answer: A

Explanation:

Expression : $\tan(2A)$

$\therefore \tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$

Replacing B by A

=> $\tan(A + A) = \frac{\tan A + \tan A}{1 - \tan A \tan A}$

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

=> Ans - (A)

Question 97

Read the table and answer the given questions

	Quantity of cost	Average cost(RS)
MOBILES	40	10000
CAMERAS	93	20000
TVs	97	52000
REFRIGERATOR	21	22000
AC	39	23000

What was the total value of the cost in lakhs ?

A 866.3

B 127

C 290

D 86.63

Answer: D

Explanation:

Total cost of mobiles = $40 \times 10000 = \text{Rs. } 4,00,000$

Total cost of Cameras = $93 \times 20000 = \text{Rs. } 18,60,000$

Total cost of TVs = $97 \times 52000 = \text{Rs. } 50,44,000$

Total cost of Refrigerator = $21 \times 22000 = \text{Rs. } 4,62,000$

Total cost of AC = $39 \times 23000 = \text{Rs. } 8,97,000$

\therefore Total cost = $4,00,000 + 18,60,000 + 50,44,000 + 4,62,000 + 8,97,000 = \text{Rs. } 86,63,000$

Total cost in lakhs = Rs 86.63 lakhs

=> Ans - (D)

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Question 98

Read the given data answer the questions

Years	Ratio of Import /Export
2011	0.8
2012	1.2
2013	0.8
2014	1.4
2015	0.8

If the imports in 2012 was Rs. 1000 crores and the total exports in the years 2012 and 2013 together was Rs. 3600 crores, then the imports in 2013 was?

A 2767

B 2213

C 833

D 3458

Answer: B

Explanation:

Imports in 2012 = Rs. 1000 crores

Let Exports in 2012 = Rs. y crores

Ratio of imports and exports in 2012 = 1.2

$$\Rightarrow \frac{1000}{y} = 0.7$$

$$\Rightarrow y = \frac{1000}{0.7} = 1428.57$$

Total exports In the years 2012 and 2013 together = Rs. 3600 crores

=> Exports in 2013 = Rs. $(3600 - 1428.57)$ crores = Rs 2171.43 crores

Let imports in 2013 = Rs. x crores

$$\text{Ratio of imports and exports in 2013} = \frac{x}{2171.43} = 0.8$$

$$\Rightarrow x = 2171.43 \times 0.8 = 1737.14 \approx 1737$$

\therefore Imports in 2013 was Rs. 1737 crores

=> Ans - (B)

Question 99

Read the table and answer the questions

Measured On Birthday	Hieght of Children in CMs
4	100
5	110
6	115
7	120
8	125
9	135
10	140
11	150
12	160
13	170
14	175
15	185
16	195

What is the increase in the height in the of child from 7th birthday to 15th birthday?

- A 75 cms
- B 70 cms
- C 65 cms
- D 60 cms

Answer: C

Explanation:

Height on 7th birthday = 120 cm

Height on 15th birthday = 185 cm

Increase in height = $185 - 120 = 65$ cm

=> Ans - (C)

Question 100

Read the table and answer the questions

Deep Sleep	5
Dreaming	10
Light Sleep	10
Exreamly Sleep	20
Awake	55

Between 10pm to 6am, a fitness band records the following data. How long was the user Dreaming or was Awake?

- A 3.7 hours
- B 4.7 hours
- C 5.2 hours
- D 5.7 hours

Answer: C

Explanation:

Total time between 10 pm to 6 am = 8 hours

% time spent on dreaming and awake = $10 + 55 = 65$

=> Time spent on dreaming and awake = $\frac{65}{100} \times 8$

= $\frac{26}{5} = 5.2$ hours

=> Ans - (C)

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