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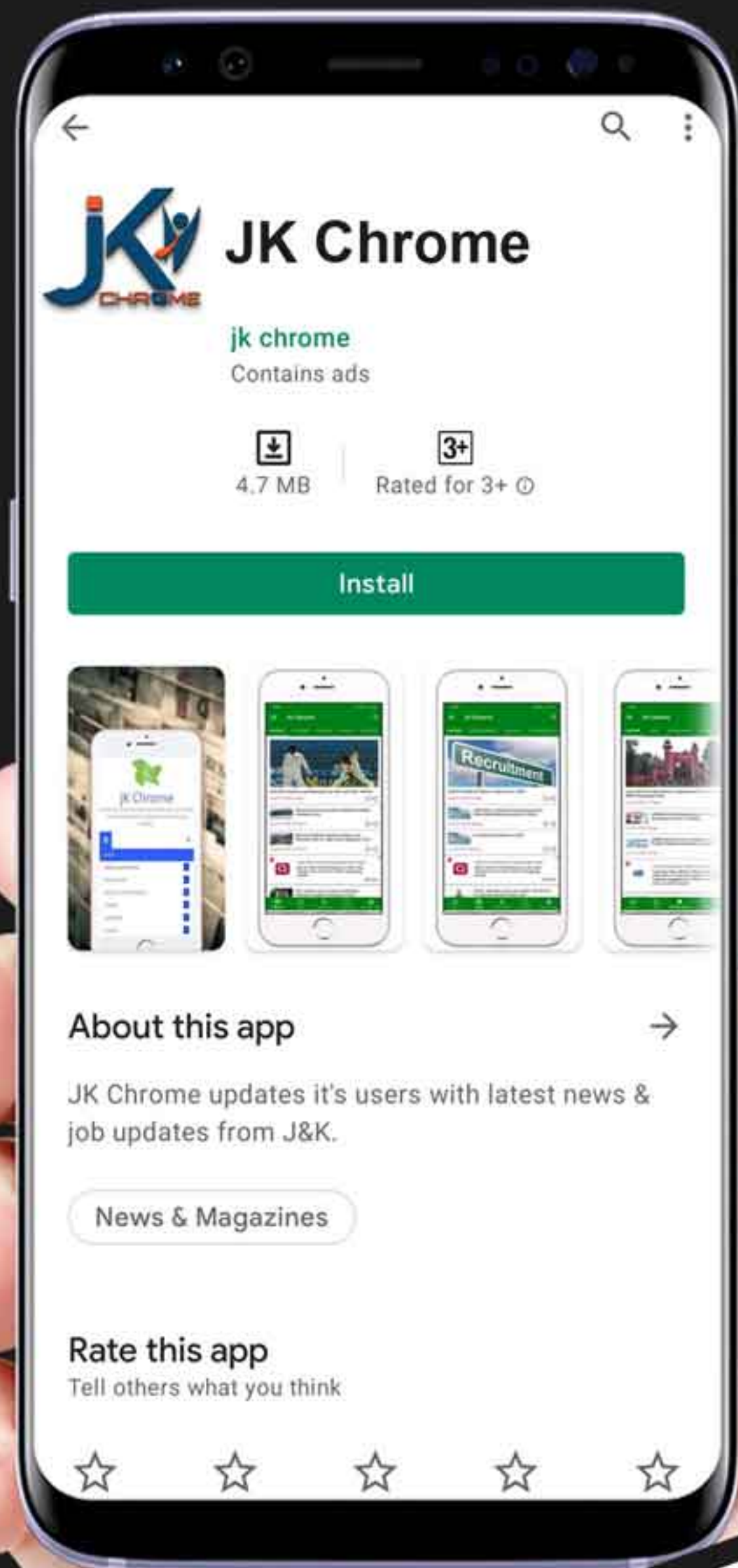
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SSC CGL

Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Calendar : Date :: Index : ?

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

Answer: C

Explanation:

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

=> Ans - (C)

Question 2

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

ACOUSTIC : 91 :: RENOUNCE : ?

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

Answer: A

Explanation:

The sum of numerical representation of the alphabets will be :

$$\text{ACOUSTIC} = 1 + 3 + 15 + 21 + 19 + 20 + 9 + 3 = 91$$

$$\text{Similarly, RENOUNCE} = 18 + 5 + 14 + 15 + 21 + 14 + 3 + 5 = 95$$

=> Ans - (A)

Question 3

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

243 : 819 :: 163 : ?

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

Answer: A

Explanation:

Expression = 243 : 819 :: 163 : ?

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

Now, $(24)^2 = 576$

and $576 + 243 = 819$

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

and $(18)^2 = 324$

Thus, $324 + 163 = 487$

=> Ans - (A)

Question 4

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

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

Answer: A

Explanation:

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

=> Ans - (A)

Question 5

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

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

Answer: C

Explanation:

(A) : ACFJ

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

(B) : RTWA

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

(C) : NPSV

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

(D) : HJMQ

$$= H (+2) = J (+3) = M (+4) = Q$$

=> Ans - (C)

Question 6

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

- A (4, 16, 48)
- B (6, 36, 90)
- C (8, 64, 160)
- D (12, 144, 360)

Answer: A

Explanation:

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

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

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

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

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

=> Ans - (A)

Question 7

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

1. Decollete
2. Desecrate
3. Decorous
4. Despicable
5. Destitute

A 13245

B 15243

C 32451

D 45231

Answer: A

Explanation:

As per the dictionary,

= Decollete -> Decorous -> Desecrate -> Despicable -> Destitute

≡ 13245

=> Ans - (A)

Question 8

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

a _ bc _ a _ bcdabc _ da _ cd _

A acbddb

B adbcbd

C cabddc

D ddcbbc

Answer: B

Explanation:

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

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

=> aabcd abbcd abccd abcd

=> Ans - (B)

Question 9

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

1357, 3085, 5282, 8026, ?

A 9961

B 10441

C 11321

D 11401

Answer: D

Explanation:

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

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

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

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

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

=> Ans - (D)

Question 10

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

A 5, 9

B 6, 5

C 9, 5

D 9, 6

Answer: C

Explanation:

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

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

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

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

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

\Rightarrow Ans - (C)

Question 11

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

A North-West

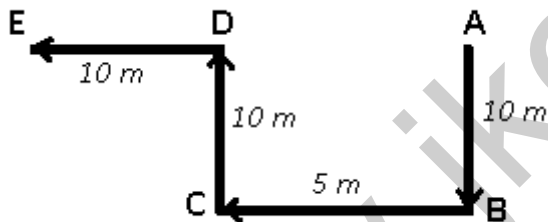
B East

C West

D South

Answer: C

Explanation:



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

His final position is at point E.

Thus, E is to the **west** of A.

\Rightarrow Ans - (C)

Question 12

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

ENCYCLOPEDIA

A CONE

B CYCLE

C NOISY

D PEACE

Answer: C

Explanation:

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

=> Ans - (C)

Question 13

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

A QFLNTT

B QDLLTR

C SFNNVT

D SDNLVR

Answer: D

Explanation:

"RAIN" is written as "OHBQ"

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

R	A	I	N
(-1)	(+1)	(-1)	(+1)
Q	B	H	O

Similarly, for SUMMER :

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

=> SUMMER : **SDNLVR**

=> Ans - (D)

Question 14

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

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

A 3 and 4

B 4 and 8

C 5 and 3

D 5 and 9

Answer: C

Explanation:

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

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

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

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

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

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

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

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

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

=> Ans - (C)

Question 15

If $(2)\# * 4 = 2$ and $(4)\# * 4 = 16$, then what is the value of A in $(6)\# * A = 18$?

A 12

B 14

C 16

D 20

Answer: A

Question 16

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

	2	
1	41	5
	3	

	3	
4	159	6
	2	

	7	
5	?	3
	2	

A 189

B 227

C 277

D 339

Answer: B

Explanation:

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

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

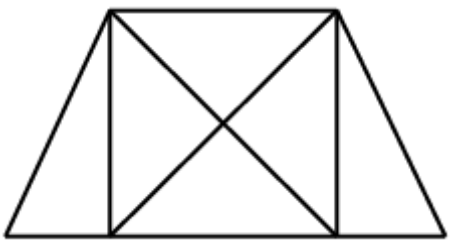
$$\text{and } (4 \times 3 \times 6 \times 2) + (4 + 3 + 6 + 2) = 144 + 15 = 159$$

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

=> Ans - (B)

Question 17

How many triangles are there in the given figure ?



A 8

B 10

C 12

D 14

Answer: C

Explanation:

Smaller triangles = 6

Triangles formed by combination of 3 triangles = 2

Larger triangles (at the diagonals) = 4

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

=> Ans - (C)

Question 18

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

Statements:

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

Conclusions:

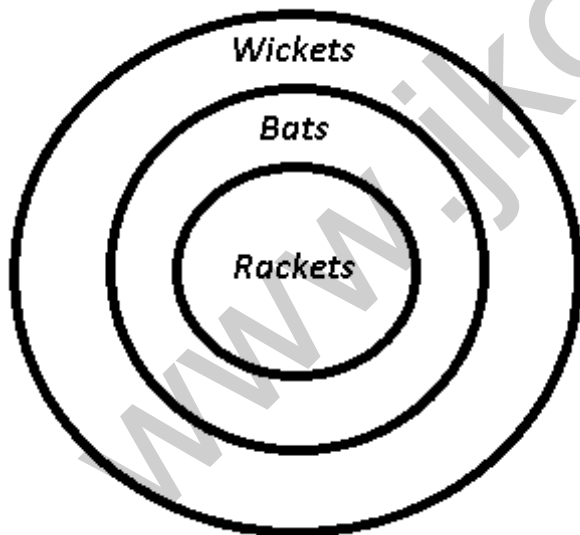
- I. Some wickets are rackets.
- II. All wickets are rackets.

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

Answer: A

Explanation:

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



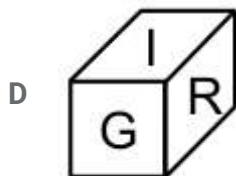
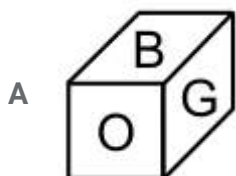
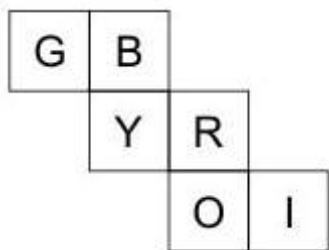
Clearly, all wickets are definitely not rackets, but some wickets are rackets.

Thus, only conclusion (I) follows.

=> Ans - (A)

Question 19

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

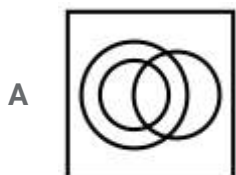


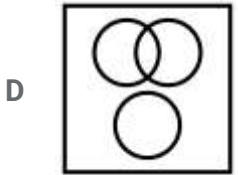
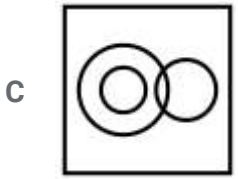
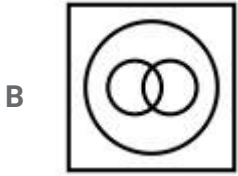
Answer: A

Question 20

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

Staff, Manager, Worker





Answer: A

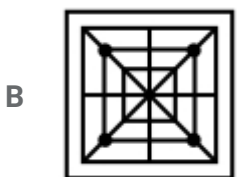
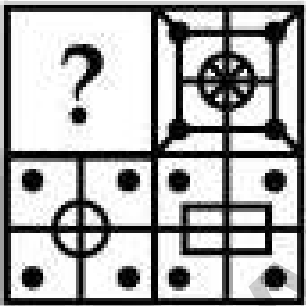
Explanation:

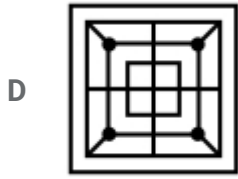
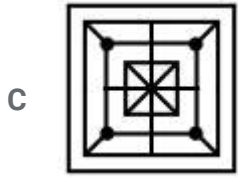
All workers are staff members, and some workers are also managers, hence the first figure best describes above relationship.

=> Ans - (A)

Question 21

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

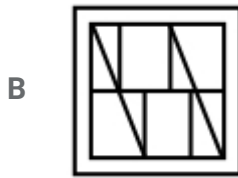
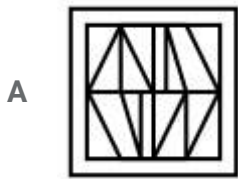
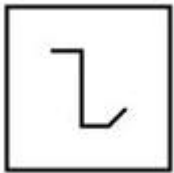




Answer: C

Question 22

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



Answer: A

Explanation:

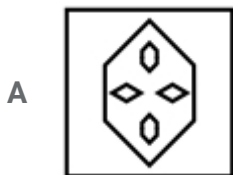
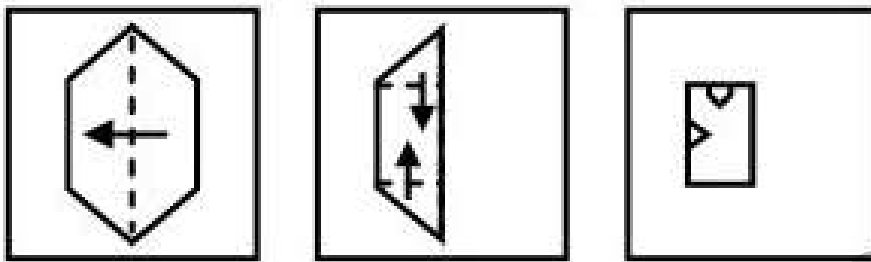
The question figure is embedded in the following figure :



=> Ans - (A)

Question 23

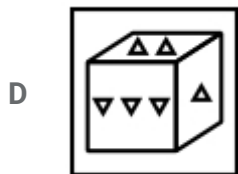
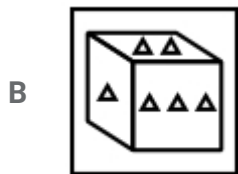
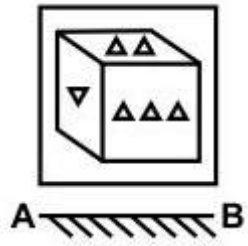
A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?



Answer: C

Question 24

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



Answer: A

Explanation:

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

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

Thus, first is the correct output.

=> Ans - (A)

Question 25

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

Matrix - I

	0	1	2	3	4
0	E	C	P	X	T
1	C	P	X	T	E
2	P	X	T	E	C
3	X	T	E	C	P
4	T	E	C	P	X

Matrix - II

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

A 10, 79, 23, 32, 42

B 24, 55, 14, 41, 12

C 33, 86, 32, 13, 43

D 42, 98, 41, 00, 34

Answer: D

Explanation:

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

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

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

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

=> Ans - (D)

General Awareness

Instructions

For the following questions answer them individually

Question 26

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

A Oligopoly

B Monopoly

- C Duopoly
- D Monopolistic Competition

Answer: B

Question 27

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

- A Underemployment
- B Frictional unemployment
- C Seasonal unemployment
- D Cyclical unemployment

Answer: A

Question 28

Which of the following are constituents of Indian Parliament?

- (i) The President
- (ii) The Council of States (Rajya Sabha)
- (iii) The House of the People (Lok Sabha)

- A (ii) and (iii)
- B (i) and (ii)
- C (i) and (iii)
- D (i), (ii) and (iii)

Answer: D

Question 29

Who among the following is the executive head of state in India?

- A Prime Minister
- B President
- C Cabinet Secretary

D Finance Secretary

Answer: B

Question 30

Who built the Konark's Sun Temple?

A Anantavarman Chodaganga Deva

B Narasimhadeva I

C Kapilendra Deva Routaray

D Purushottam Dev

Answer: B

Question 31

Who was the first Governor General of Bengal?

A Robert Clive

B William Bentick

C Warren Hastings

D Charles Cornawallis

Answer: C

Question 32

Amazon river flows through which of the following country?

A USA

B France

C Brazil

D Canada

Answer: C

Question 33

What is the other name of Sahyadri Range?

- A Lesser Himalayas
- B Shivaliks
- C Western Ghats
- D Eastern Ghats

Answer: C

Question 34

Who discovered bacteria?

- A Antonie Ven Leeuwenhoek
- B Robert Brown
- C Robert Hook
- D Robert Koch

Answer: A

Question 35

What is the name of a group of similar cells performing a specific function?

- A Tissue
- B Organ
- C Organ system
- D Cellular organization

Answer: A

Question 36

Plant tissues are of how many types?

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

Answer: A

Question 37

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

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

Answer: C

Question 38

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

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

Answer: A

Question 39

What is a bug in computer terminology?

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

D Magnetic disk storage device

Answer: C

Question 40

A radio-active substance has a half life of six months. Three-fourth of the substance will decay in _____.

A Six months

B Ten months

C Twelve Months

D Twenty four months

Answer: C

Question 41

pH of the human blood is _____.

A Slightly Acidic

B Highly Acidic

C Slightly Basic

D Highly Basic

Answer: C

Question 42

In which city is the Forest Research Institute of India located?

A New Delhi

B Hyderabad

C Dehradun

D Shimla

Answer: C

Question 43

Deen Dayal Raso Yojana to provide food at only Rs. 5 has been launched on 6th April, 2017 by which state?

- A Chattisgarh
- B Haryana
- C Madhya Pradesh
- D Uttar Pradesh

Answer: C

Question 44

What was invented by Zacharias Jansen?

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

Answer: C

Question 45

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

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

Answer: C

Question 46

Match the following.

Festival

1. Gangaur
2. Ganesh Chaturthi
3. Durga Puja

State

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

A 1-b, 2-c, 3-a

B 1-c, 2-a, 3-b

C 1-b, 2-a, 3-c

D 1-a, 2-c, 3-b

Answer: A

Question 47

Who has won the 'Miss Universe 2016' title?

A Pia Wurtzbach

B Iris Mittenaere

C Raquel Pellissier

D Andrea Tova

Answer: B

Question 48

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

A Anil Menon

B Akash Chopra

C Ian Chapell

D Kunal Basu

Answer: B

Question 49

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

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

Answer: D

Question 50

India has longest international border with which country?

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

Answer: C

English**Instructions**

For the following questions answer them individually

Question 51

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

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

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

Answer: B

Question 52

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

She has not been (a)/ to the restaurant (b)/ much late. (c)/ No Error (d)

- A She has not been
- B to the restaurant
- C much late
- D No Error

Answer: C

Question 53

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

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

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

Answer: D

Question 54

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

He _____ his camera on the table.

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

Answer: A

Question 55

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

Monotonous

- A Dull
- B Timid
- C Unfriendly
- D Lusty

Answer: A

Question 56

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

Elusive

- A Baffling
- B Enticing
- C Directing
- D Soothing

Answer: A

Question 57

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

Colossal

- A Epic
- B Rust
- C Teeny
- D Vast

Answer: C

Question 58

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

Opprobrium

- A Adulation
- B Ignominy
- C Mystical
- D Preclude

Answer: A

Question 59

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

All agog

- A Avoid
- B Contentment
- C Amazed
- D Unsystematically

Answer: C

Question 60

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

Not to mince matters

- A To be at ease
- B To not confuse others
- C To not interfere in others affairs

D To speak out politely

Answer: D

Question 61

Improve the bracketed part of the sentence.

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

A has advised

B had been advised

C was advised

D No improvement

Answer: A

Question 62

Improve the bracketed part of the sentence.

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

A As a pleasant evening

B It being a pleasant evening

C With a pleasant evening

D No improvement

Answer: B

Question 63

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

A roundabout way of speaking

A Centipede

B Circumlocution

C Coercion

D Concentric

Answer: B

Question 64

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

An old unmarried woman

A Masochist

B Septuagenarian

C Sniper

D Spinster

Answer: D

Question 65

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

A Autumn

B Desperate

C Reciept

D Traffic

Answer: C

Question 66

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

A Century

B Finance

C Remember

D Sponser

Answer: D

Question 67

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

P- However, our environment also need some help from all of us to get maintained as usual to nourish our lives forever and to never ruin our lives.

Q- It gives us all things which we need to live our life on this planet.

R- It provides us better medium to grow and develop.

S- An environment includes all the natural resources which surround us to help in number of ways.

A PQRS

B QPSR

C SRQP

D QSPR

Answer: C

Question 68

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

P- The starting point can be the experience of a minority within society generally or even the experience of a group of people within a progressive social movement which does not live up to its progressive agenda in every respect.

Q- Within (or after) postmodernism a grand unifying theory no longer seems possible. This does not exclude the possibility or the necessity of dialogue.

R- The starting points of social criticism can be very different and the different forms of socialism never has a monopoly on Social Criticism.

S- Nevertheless most social critics still consider the Critique of capitalism to be central.

A PRQS

B RPQS

C RQPS

D PSRQ

Answer: B

Question 69

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

Rohan was not told about the e-mail.

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

Answer: A

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 expresses the same sentence in Indirect/Direct speech.

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

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

Answer: D

Instructions

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

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

Question 71

(1)

- A lens

- B resource
- C source
- D telescope

Answer: A

Question 72

(2)

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

Answer: A

Question 73

(3)

- A accompanied
- B exercised
- C perpetuated
- D undeterred

Answer: C

Question 74

(4)

- A connote
- B rectify
- C trouble
- D understand

Answer: A

Question 75

(5)

A breeding

B gestures

C instincts

D species

Answer: C

Mathematics

Instructions

For the following questions answer them individually

Question 76

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

A 107

B 141

C 144

D 145

Answer: C

Explanation:

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

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

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

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

$$\Rightarrow 702 + (n - 1)3 = 948$$

$$\Rightarrow (n - 1)3 = 948 - 702 = 246$$

$$\Rightarrow (n - 1) = \frac{246}{3} = 82$$

$$\Rightarrow n = 82 + 1 = 83$$
 -----(ii)

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

$$\Rightarrow 700 + (n - 1)7 = 945$$

$$\Rightarrow (n - 1)7 = 945 - 700 = 245$$

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

$$\Rightarrow n = 35 + 1 = 36 \text{ -----(iii)}$$

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

Similarly, $n = 12$ -----(iv)

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

\Rightarrow Ans - (C)

Question 77

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

- A 9
- B 12
- C 25
- D 27

Answer: D

Explanation:

Let total work to be done = 100 units

A can complete the work in 20 days

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

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

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

$$\Rightarrow \text{Work done by them together in 3 days} = 3 \times 9 = 27 \text{ units}$$

$$\therefore \% \text{ of work completed} = \frac{27}{100} \times 100 = 27\%$$

\Rightarrow Ans - (D)

Question 78

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

- A 126
- B 252
- C 504
- D 1024

Answer: B

Explanation:

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

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

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

$$= 42 \times 6 = 252 \text{ m}^2$$

=> Ans - (B)

Question 79

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

- A 50
- B 55
- C 60
- D 65

Answer: B

Explanation:

Let list price = Rs. $100x$

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

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

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

$$= 55\%$$

=> Ans - (B)

Question 80

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

A 73 : 106

B 73 : 116

C 73 : 113

D 73 : 189

Answer: B**Explanation:**

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

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

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

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

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

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

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

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

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

∴ Required ratio = $\frac{73}{116}$

=> Ans - (B)

Question 81

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

A 30

B 35

C 50

D 55

Answer: D**Explanation:**

Average age of family of 6 members = 20 years

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

Let the age of servant = x years

Average age of family including servant = $20 \times \frac{125}{100} = 25$ years

$$\Rightarrow \frac{120+x}{7} = 25$$

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

$$\Rightarrow x = 175 - 120 = 55 \text{ years}$$

=> Ans - (D)

Question 82

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

A 54

B 62

C 70

D 163

Answer: B

Explanation:

Let cost price = Rs. $100x$

$$\Rightarrow \text{Profit} = \frac{190}{100} \times 100x = \text{Rs. } 190x$$

Thus, selling price = Rs. $(100x + 190x) = \text{Rs. } 290x$

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

$$\Rightarrow \text{New profit} = \text{Rs. } (290x - 110x) = \text{Rs. } 180x$$

$$\therefore \text{Required \%} = \frac{180x}{290x} \times 100$$

$$= \frac{1800}{29} = 62.06 \approx 62\%$$

=> Ans - (B)

Question 83

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

A 230

B 295

C 240

D 290

Answer: B**Explanation:**

B's marks = 220

A got 18% more marks than B

$$\Rightarrow \text{A's marks} = 220 + \left(\frac{18}{100} \times 220\right) = 259.6$$

Also, A got 12% less marks than C

$$\Rightarrow \text{C's marks} = 259.6 \times \frac{100}{(100-12)}$$

$$= \frac{25960}{88} = 295$$

 \Rightarrow Ans - (B)**Question 84**

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

A 5:00

B 6:00

C 6:30

D 7:00

Answer: A**Explanation:**

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

Distance between A and B = 260 km

At 9:00 am, A starts moving, \Rightarrow distance covered by A in 2 (11-9) hours = $25 \times 2 = 50$ kmDistance left between A and B at 11:00 am = $260 - 50 = 210$ kmNow, at 11:00 am both move towards each other, \Rightarrow relative speed = $25 + 10 = 35$ km/hr

$$\Rightarrow \text{Time taken to meet each other} = \frac{210}{35} = 6 \text{ hours}$$

 \therefore Time at which they will meet = 11:00 am + 6 hours = 5:00 pm \Rightarrow Ans - (A)**Question 85**

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

- A 7
B 9
C 11
D 13

Answer: B

Explanation:

Let rate of interest = $r\%$

Sum of Rs. 2500 amounts to Rs. 2970.25

Time period (t) = 2 years

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

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

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

=> $1 + \frac{r}{100} = \sqrt{1.1881} = 1.09$

=> $\frac{r}{100} = 1.09 - 1 = 0.09$

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

=> Ans - (B)

Question 86

If $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$ and $x + y + z = 9$, then what is the value of $x^3 + y^3 + z^3 - 3xyz$?

- A 81
B 361
C 729
D 6561

Answer: C

Explanation:

Given : $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$

=> $\frac{yz+zx+xy}{xyz} = 0$

=> $xy + yz + zx = 0$ -----(i)

Also, $x + y + z = 9$

Squaring both sides,

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

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

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

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

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

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

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

\Rightarrow Ans - (C)

Question 87

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

A 0

B 6

C 8

D 14

Answer: D

Explanation:

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

Adding 2 on both sides,

$$\Rightarrow x^4 + \frac{1}{x^4} + 2\left(x^2\right)\left(\frac{1}{x^2}\right) = 34 + 2$$

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

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

Now subtracting 2 from both sides, we get :

$$\Rightarrow \left(x\right)^2 + \left(\frac{1}{x}\right)^2 - 2\left(x\right)\left(\frac{1}{x}\right) = 6 - 2$$

$$\Rightarrow \left(x - \frac{1}{x}\right) = 2 \text{ -----(i)}$$

Cubing both sides, we get :

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

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

$$\Rightarrow x^3 - \frac{1}{x^3} - 3(2) = 8$$

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

=> Ans - (D)

Question 88

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

A 1

B 2

C $-1/2$

D -1

Answer: C

Explanation:

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

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

Also, $x = 1 - y$

$$\Rightarrow x + y = 1$$

Squaring both sides, we get :

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

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

$$\Rightarrow 2 + 2xy = 1 \quad [\text{Using (i)}]$$

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

$$\Rightarrow xy = \frac{-1}{2}$$

=> Ans - (C)

Question 89

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

A $3\sqrt{5}$

B $3\sqrt{5} - 7$

C $3\sqrt{5} + 7$

D 8

Answer: B

Explanation:

$$\text{Given : } x + \left[\frac{1}{(x+7)} \right] = 0 \text{ -----(i)}$$

$$\Rightarrow \frac{x^2+7x+1}{x+7} = 0$$

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

$$\Rightarrow x = \frac{-7 \pm \sqrt{49-4}}{2}$$

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

$$\text{From equation (i), } \Rightarrow \frac{1}{(x+7)} = -x \text{ -----(iii)}$$

$$\text{To find : } x - \left[\frac{1}{(x+7)} \right]$$

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

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

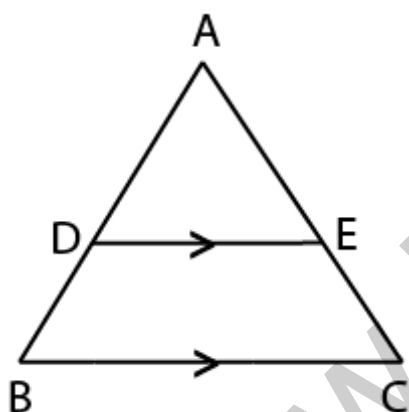
$$= 2 \times \frac{3\sqrt{5}-7}{2}$$

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

\Rightarrow Ans - (B)

Question 90

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



A 5/8

B 2/3

C 3/4

D 5/3

Answer: A

Explanation:

Let $AD = 5$ and $DB = 3$

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

$$\Rightarrow \frac{AD}{DE} = \frac{AB}{BC}$$

$$\Rightarrow \frac{DE}{BC} = \frac{AD}{AD+DB}$$

$$\Rightarrow \frac{DE}{BC} = \frac{5}{5+3}$$

$$\Rightarrow \frac{DE}{BC} = \frac{5}{8}$$

\Rightarrow Ans - (A)

Question 91

PQRS is a cyclic quadrilateral and PQ is the diameter of the circle. If $\angle RPQ = 38^\circ$, then what is the value (in degrees) of $\angle PSR$?

A 52

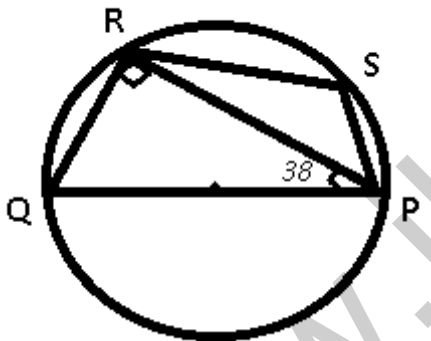
B 77

C 128

D 142

Answer: C

Explanation:



Given : PQRS is a cyclic quadrilateral and $\angle RPQ = 38^\circ$

To find : $\angle PSR = ?$

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

In $\triangle PQR$,

$$\Rightarrow \angle PQR + \angle QPR + \angle QRP = 180^\circ$$

$$\Rightarrow \angle PQR + 90^\circ + 38^\circ = 180^\circ$$

$$\Rightarrow \angle PQR = 180^\circ - 128^\circ = 52^\circ$$

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

$$\Rightarrow \angle PQR + \angle PSR = 180^\circ$$

$$\Rightarrow \angle PSR = 180^\circ - 52^\circ = 128^\circ$$

\Rightarrow Ans - (C)

Question 92

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

A $18\sqrt{3}$

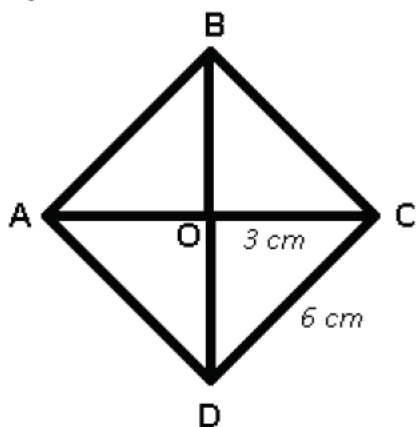
B $27\sqrt{3}$

C $32\sqrt{3}$

D $36\sqrt{3}$

Answer: B

Explanation:



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

Diagonals of a rhombus bisect each other at right angle.

$$\Rightarrow OC = 3 \text{ cm and } OD = x \text{ cm}$$

In $\triangle OCD$,

$$\Rightarrow (OD)^2 = (CD)^2 - (OC)^2$$

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

$$\Rightarrow (OD)^2 = 36 - 9 = 27$$

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

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

$$\therefore \text{Area of equilateral triangle} = \frac{\sqrt{3}}{4} a^2$$

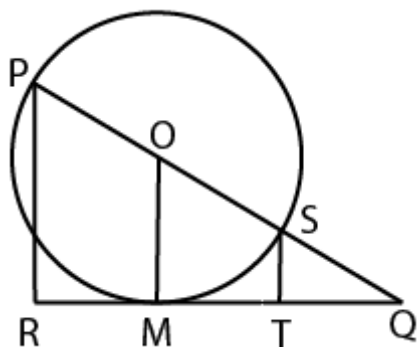
$$= \frac{\sqrt{3}}{4} \times (6\sqrt{3})^2$$

$$= \frac{\sqrt{3}}{4} \times 108 = 27\sqrt{3} \text{ cm}^2$$

\Rightarrow Ans - (B)

Question 93

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



A 1

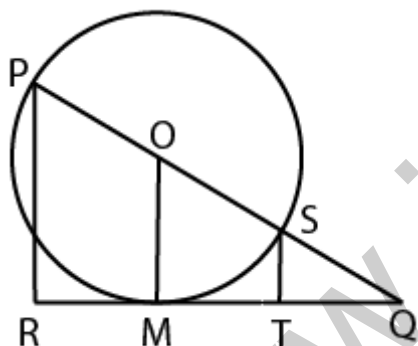
B 1.25

C 1.5

D 2

Answer: A

Explanation:



Given : PR = 9 cm and radius OM = PO = OS = 5 cm

To find : ST = x = ?

Solution : Let SQ = y cm

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

$\Rightarrow \angle PRQ = \angle OMQ = 90^\circ$

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

$\Rightarrow \triangle PRQ \sim \triangle OMQ$

$\Rightarrow \frac{PR}{PQ} = \frac{OM}{OQ}$

$\Rightarrow \frac{9}{10+y} = \frac{5}{5+y}$

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

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

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

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

$$\Rightarrow \frac{PR}{PQ} = \frac{ST}{SQ}$$

$$\Rightarrow \frac{9}{10+y} = \frac{x}{y}$$

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

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

$$\Rightarrow \frac{45}{4} = x \frac{45}{4}$$

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

\Rightarrow Ans - (A)

Question 94

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

A $2\tan^2 A$

B $2\sin^2 A$

C $\sin^2 A - \tan^2 A$

D $\sin^2 A + \tan^2 A$

Answer: D

Explanation:

$$\text{Expression : } (\sec A + \cos A)(\sec A - \cos A)$$

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

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

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

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

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

\Rightarrow Ans - (D)

Question 95

What is the simplified value of $\left(\frac{\operatorname{cosec} A}{\cot A + \tan A}\right)^2$?

A $2\cos^2 A$

B $1 - \sin^2 A$

C $\sec^2 A$

D $\sec A - \tan A$

Answer: B

Explanation:

Expression : $\left(\frac{\operatorname{cosec} A}{\cot A + \tan A}\right)^2$

$$= \left[\left(\frac{1}{\sin A}\right) \div \left(\frac{\cos A}{\sin A} + \frac{\sin A}{\cos A}\right)\right]^2$$

$$= \left[\left(\frac{1}{\sin A}\right) \div \left(\frac{\sin^2 A + \cos^2 A}{\sin A \cos A}\right)\right]^2$$

$$= \left(\frac{1}{\sin A} \times \frac{\sin A \cos A}{1}\right)^2$$

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

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

=> Ans - (B)

Question 96

What is the simplified value of $\frac{\tan A}{1 - \cot A} + \frac{\cot A}{1 - \tan A} - \frac{2}{\sin 2A}$?

A -1

B 0

C 1

D 2

Answer: C

Explanation:

Expression : $\frac{\tan A}{1 - \cot A} + \frac{\cot A}{1 - \tan A} - \frac{2}{\sin 2A}$

$$= \frac{\tan A(1 - \tan A) + \cot A(1 - \cot A)}{(1 - \tan A)(1 - \cot A)} - \frac{2}{2 \sin A \cos A}$$

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

$$= \frac{\tan A + \cot A - [(\tan A + \cot A)^2 - 2]}{1 - (\tan A + \cot A) + 1} - \frac{1}{\sin A \cos A}$$

$$[\because \tan x \cdot \cot x = 1]$$

Let $(\tan A + \cot A) = x$ -----(i)

$$= \frac{x - x^2 + 2}{2 - x} - \frac{1}{\sin A \cos A}$$

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

$$= x + 1 - \frac{1}{\sin A \cos A}$$
 -----(ii)

From equation (i), => $\frac{\sin A}{\cos A} + \frac{\cos A}{\sin A} = x$

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

$$\Rightarrow \frac{1}{\sin A \cos A} = x$$

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

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

=> Ans - (C)

Instructions

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

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

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

Question 97

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

A 480000

B 378000

C 468000

D 348000

Answer: B

Explanation:

Total population of City 4 = 600,000

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

$$= 378,000$$

=> Ans - (B)

Question 98

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

- A 348 : 595
- B 255 : 199
- C 7 : 6
- D 6 : 7

Answer: C

Explanation:

Total population of City 2 = 220,000

$$\Rightarrow \text{Literate males of City 2} = \frac{7}{(7+4)} \times 220,000 = 140,000$$

Total population of City 6 = 200,000

$$\Rightarrow \text{Literate females of City 6} = \frac{3}{(2+3)} \times 200,000 = 120,000$$

$$\Rightarrow \text{Required ratio} = \frac{140,000}{120,000} = \frac{7}{6}$$

\Rightarrow Ans - (C)

Question 99

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

- A 644000
- B 354200
- C 690000
- D 483000

Answer: A

Explanation:

Let total literate population in city 5 = $16x$

$$\Rightarrow \text{Number of literate females in city 5} = \frac{7}{16} \times 16x = 7x$$

According to ques, $\Rightarrow 7x = 259210$

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

% of literate population in city 5 = 92%

$$\Rightarrow \text{Total population in city 5} = 16x \times \frac{100}{92}$$

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

=> Ans - (A)

Question 100

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

- A City 6 > City 1 > City 4 > City 2 > City 3 > City 5
- B City 4 > City 6 > City 1 > City 2 > City 3 > City 5
- C City 6 > City 4 > City 1 > City 3 > City 2 > City 5
- D City 6 > City 1 > City 4 > City 3 > City 2 > City 5

Answer: D

Explanation:

Number of literate people in the cities :

$$\text{City 1 : } \frac{80}{100} \times 250,000 = 200,000$$

$$\text{City 2 : } \frac{85}{100} \times 200,000 = 170,000$$

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

$$\text{City 4 : } \frac{63}{100} \times 300,000 = 189,000$$

$$\text{City 5 : } \frac{92}{100} \times 150,000 = 138,000$$

$$\text{City 6 : } \frac{58}{100} \times 400,000 = 232,000$$

=> City 6 > City 1 > City 4 > City 3 > City 2 > City 5

=> Ans - (D)



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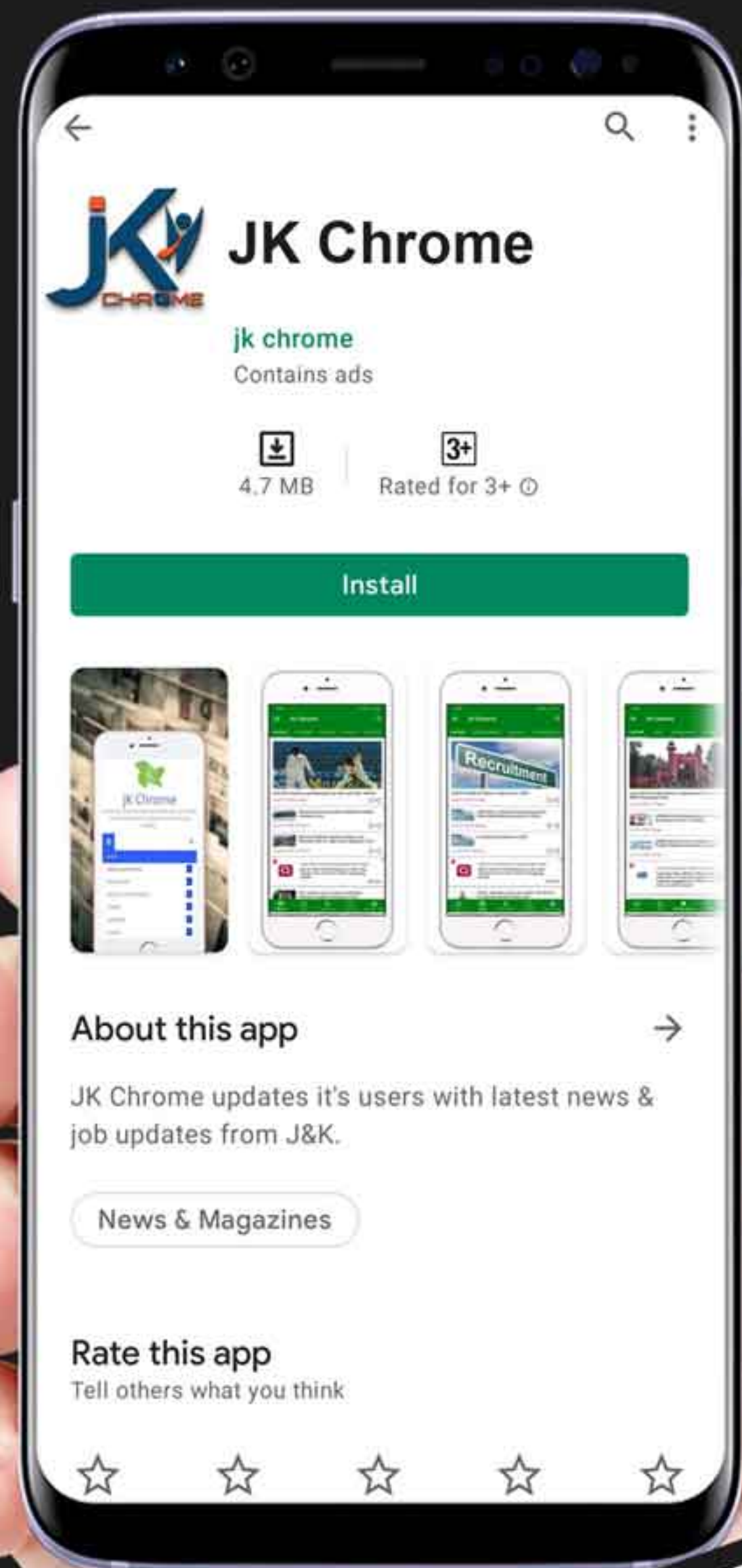
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