



2016 SSC CGL 07 Sep Morning Shift

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General Awareness

Instructions

For the following questions answer them individually

Question 1

What is the maximum number of days of employment a rural poor would get under 'MGNREGA'?

- A 180 days
- B 120 days
- C 100 days
- D 90 days

Answer: C

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Question 2

Scheduled bank is a bank which is

- A Nationalised
- B Not Nationalised
- C Based in foreign Country
- D Included in the second schedule of RBI

Answer: D

Question 3

Black soil is also known by which of the following name ?

- A Khadar Soil
- B Bangar Soil
- C Alluvial Soil
- D Regur soil

Answer: D

Question 4

What is the name of the book written by Panini ?

- A Mahabhashya
- B Mitakshara
- C Madhyamika Karika
- D Ashtadhyayi

Answer: D

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Question 5

Which dynasty was started by Khizr Khan ?

- A The Sayyids
- B The Lodhis
- C The Rajputs
- D The Khiljis

Answer: A

Question 6

The instrument used for measuring air pressure is called

- A Anemometer
- B Barometer
- C Hygrometer
- D Thermometer

Answer: B

Question 7

Gustation refers to the sense of which of the following ?

- A Smell
- B Hearing
- C Tactile
- D Taste

Answer: D

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Question 8

Intensity of any wave is proportional to which quantity?

- A amplitude
- B Square of amplitude
- C Square root of amplitude
- D Cube of amplitude

Answer: B

Question 9

In the following list of devices which device is used in network layer?

- A Repeaters
- B Router
- C Application Gateway
- D Switch

Answer: B

Question 10

NTPC is a Central Public Sector Enterprise in which sector?

- A Education
- B Health
- C Power
- D Transport

Answer: C

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Question 11

Which State government has launched the Smart Village Programme, to improve public facilities in village?

- A Maharashtra
- B Rajasthan
- C Odisha
- D Gujarat

Answer: D

Question 12

Rodrigo "Digong" Duterte emerged winner in 2016 presidential elections of which country ?

- A Mexico
- B The Philippines
- C Spain
- D Singapore

Answer: B

Question 13

What is commonly known as 'white plague'?

- A Typhoid
- B Malaria
- C Tuberculosis
- D Plague

Answer: C

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Question 14

What are gilt-edged securities?

- A Securities issued by the multinational companies.
- B Securities issued by the Government
- C Securities issued by the private sector
- D Securities issued by the joint venture companies

Answer: B

Question 15

With whose consultation does the President convene and prorogue all sessions of Parliament ?

- A The Speaker
- B The Prime Minister
- C The Prime Minister and the leader of the opposition in Lok Sabha
- D The Council of Ministers

Answer: B

Question 16

With which religion is Kaivalya associated?

- A Buddhism
- B Jainism
- C Hinduism
- D Sikhism

Answer: B

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Question 17

Bauxite is used as raw material by which industry

- A Aluminium
- B Iron
- C Steel
- D Gold

Answer: A

Question 18

The large collection of stars, dust and gas held together by gravitational attraction between components is known as

- A Cluster
- B Atmosphere
- C Galaxy
- D Sun Family

Answer: C

Question 19

Thermal electricity is generated by using which of these ?

- A Coal only
- B Coal and Natural Gas only
- C Coal, Natural Gas and Petroleum
- D None of these

Answer: C

General Science Notes for SSC CGL

Question 20

When iron rusts, its weight

- A decreases
- B increases
- C remains the same
- D first increases and then decreases

Answer: B

Question 21

The driest location on Earth is in which country?

- A Kenya
- B Chile

C Congo

D Libya

Answer: B

Question 22

Which leader of British Labour Party was recently elected the first Muslim Mayor of London?

A Sadiq Khan

B Ataulah Khan

C Firdauz Zaidi

D Karim Shaikh

Answer: A

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Question 23

Lady Ratan Tata Trophy' is related to which game?

A Basketball

B Hockey

C Kho-Kho

D Cricket

Answer: B

Question 24

Which instrument is used for measuring humidity of atmosphere?

A Barometer

B Anemometer

C Thermometer

D Hygrometer

Answer: D

Question 25

Pankaj Advani is associated with which sport?

A Billiards

B Boxing

C Cricket

D Badminton

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.

Bacteria : Microscope :: Moon : ?

- A Night
- B Earth
- C Satellite
- D Telescope

Answer: D

Explanation:

Microscope is an optical device used to see tiny objects like bacteria, similarly a telescope is used to view moon.

=> Ans - (D)

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Question 27

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

LNPR : TVXZ : NPRT : ?

- A FHJL
- B FLJH
- C HFLJ
- D JLHF

Answer: A

Explanation:

Expression = LNPR : TVXZ : NPRT : ?

L (+2 letters) = N (+2 letters) = P (+2 letters) = R

T (+2 letters) = V (+2 letters) = X (+2 letters) = Z

N (+2 letters) = P (+2 letters) = R (+2 letters) = T

Similarly, F (+2 letters) = H (+2 letters) = J (+2 letters) = L

=> Ans - (A)

Question 28

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

27 : 125 :: 64 : ?

- A 517

B 162

C 216

D 273

Answer: C

Explanation:

Expression = $27 : 125 :: 64 : ?$

The numbers given are cubes of consecutive natural numbers.

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

Similarly, $6^3 = 216$

=> Ans - (C)

Question 29

For the following questions

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

A Novel

B Paper

C Pencil

D Pen

Answer: A

Explanation:

Paper, pencil and pen are stationary items, hence novel is the odd one.

=> Ans - (A)

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Question 30

For the following questions

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

A acDD

B egHH

C ikLL

D QSTt

Answer: D

Explanation:

In the first three options, the first two letters are small and last two are capital, this is not observed in the last option, hence it is the odd one.

=> Ans - (D)

Question 31

For the following questions

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

- A 65 - 90
- B 73 - 97
- C 112 - 137
- D 162 - 187

Answer: B

Explanation:

Difference between the numbers :

(A) : $90 - 65 = 25$

(B) : $97 - 73 = 24$

(C) : $137 - 112 = 25$

(D) : $187 - 162 = 25$

=> Ans - (B)

Question 32

Arrange the following words as per order in the dictionary

- a. Guarantee
- b. Group
- c. Grotesque
- d. Guard
- e. Groan

- A a, c, e, b, d
- B b, e, a, d, c
- C b, c, e, a, d
- D e, c, b, a, d

Answer: D

Explanation:

As per the dictionary,

= Groan -> Grotesque -> Group -> Guarantee -> Guard

≡ e, c, b, a, d

=> Ans - (D)

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Question 33

Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

xy_kx_zk_yzk xyz_ _

- A zyxkx
- B zyksz

C zkxyk

D zxykx

Answer: A

Explanation:

In a group of 4 letters, the term 'xyzk' is repeated.

= xyzk xyzk xyzk xyzk x

≡ zyxx

=> Ans - (A)

Question 34

Find the missing number in the series:

219, 211, 204, 198, ?, 189

A 189

B 192

C 193

D 196

Answer: C

Explanation:

The pattern followed is :

$219 - 8 = 211$

$211 - 7 = 204$

$204 - 6 = 198$

$198 - 5 = 193$

$193 - 4 = 189$

=> Ans - (C)

Question 35

If M is the sister of Z, Z is the wife of P and P is the son of A, how Z relates to A?

A Daughter-in-law

B Daughter

C Wife

D Mother

Answer: A

Explanation:

Z is the wife of P and P is the son of A,

=> Z is the daughter-in-law of A.

Note :- The first statement is redundant.

=> Ans - (A)

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Question 36

The sum of ages of 4 children born at intervals of 4 years each is 60. What is the age of the youngest child?

- A 7
- B 9
- C 10
- D 12

Answer: B

Explanation:

Let ages of the 4 children be (x) , $(x + 4)$, $(x + 8)$, $(x + 12)$ years

$$\text{Sum of ages} = (x) + (x + 4) + (x + 8) + (x + 12) = 60$$

$$\Rightarrow 4x + 24 = 60$$

$$\Rightarrow 4x = 60 - 24 = 36$$

$$\Rightarrow x = \frac{36}{4} = 9$$

\therefore Age of youngest child = $x = 9$ years

\Rightarrow Ans - (B)

Question 37

From the given alternative words, select the word which cannot be formed using the letters of the given word: ENVIRONMENT

- A OINTMENT
- B MENTOR
- C VENOM
- D TRIM

Answer: A

Explanation:

The word ENVIRONMENT does not contain 2 T's, and thus the word 'Ointment' cannot be formed.

\Rightarrow Ans - (A)

Question 38

In a certain code CAMEL is written as MFNBD. How shall TIGER be written in that code?

- A SFUJH
- B SFHJU
- C SFJUH
- D SHFJU

Answer: B

Explanation:

C+1 = D

A+1 = B
M+1 = N
E+1 = F
L+1 = M
If we reverse the code --> MFNBD
Similarly,
T+1 = U
I+1 = J
G+1 = H
E+1 = F
R+1 = S
If we reverse the code --> SFHJU
Hence, TIGER : SFHJU
=> Ans - (B)

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Question 39

If x stands for -, + means x, ÷ means + and - means ÷, then what is the value of the given expression?
 $175 - 25 \div 5 + 2 \times 3 + 10 = ?$

- A -13
- B 160
- C 240
- D 2370

Answer: A

Explanation:

Expression : $175 - 25 \div 5 + 2 \times 3 + 10 = ?$

$$\equiv 175 \div 25 + 5 \times 2 - 3 \times 10$$

$$= 7 + 10 - 30 = -13$$

=> Ans - (A)

Question 40

If $4 * 2 = 3$
and $8 * 4 = 3$,
then $21 * 7 = ?$

- A 4
- B 3
- C 8
- D 16

Answer: A

Explanation:

The pattern is that both the numbers are added and then the result is divided by the second number.

$$\text{Eg} = 4 + 2 = \frac{6}{2} = 3$$

$$\text{and } 8 + 4 = \frac{12}{4} = 3$$

Similarly, $21 + 7 = \frac{28}{7} = 4$

=> Ans - (A)

Question 41

Select the missing numbers from the given alternatives

| | | |
|----|----|----|
| 17 | 11 | 19 |
| 12 | 13 | 16 |
| 25 | 4 | ? |

A 9

B 16

C 25

D 36

Answer: A

Explanation:

In the first column, number at the end is obtained by taking the square of the difference of the other two numbers.

$$\text{Eg} = (17 - 12)^2 = 5^2 = 25$$

$$\text{and } (11 - 13)^2 = (-2)^2 = 4$$

$$\text{Similarly, } (19 - 16)^2 = 3^2 = 9$$

=> Ans - (A)

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Question 42

A man walks 5 kilometre towards South and then turns to the right. After walking 3 kilometre, he turns to the left and walks 5 kilometre. Now in which direction is he from the starting point?

A West

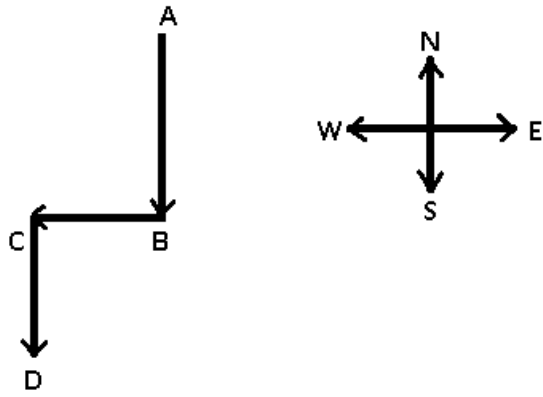
B South

C North-East

D South-West

Answer: D

Explanation:



Let the man started from point A and walked 5 km towards south and reached point B, then he turned right and walked west and reached C. Finally, he turned left and walked towards south for 5 km and stopped at point D.

Thus, he is in south-west direction from starting point.

=> Ans - (D)

Question 43

Consider the given statement/s to be true and decide which of the given conclusions/assumptions can definitely be drawn from the given statement.

Statements: Life means stresses and strains.

Stresses and strains have an adverse effect on life.

Conclusions: I. Life is not worth living.

II. One should avoid stresses and strains in life.

- A Only conclusion I follows
- B Only conclusion II follows
- C Both conclusion I and conclusion II follow
- D Neither conclusion I nor conclusion II follows

Answer: B

Explanation:

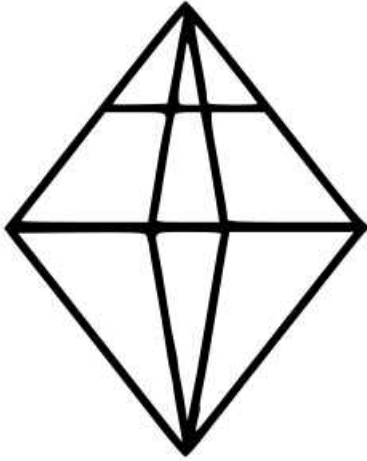
The statements indicate that stress and strains have adverse effect on life, and it does not mean that life isn't worth living, hence first conclusion does not follow. Also, as they have negative effect on life, one can do best is to avoid them, hence conclusion second follows.

Thus, only conclusion II follows

=> Ans - (B)

Question 44

How many triangles are there in this geometric figure?



A 12

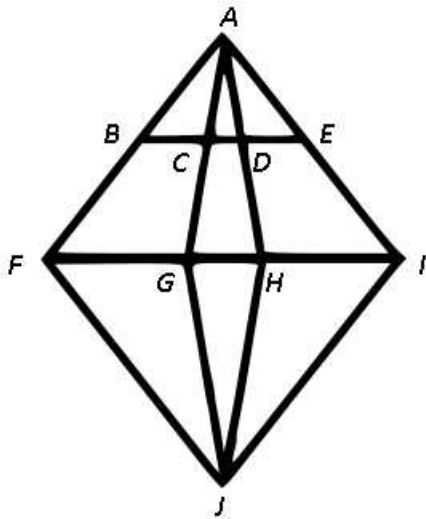
B 16

C 18

D 20

Answer: C

Explanation:



Smaller triangles = (ABC) , (ACD) , (ADE) , (FGJ) , (GHJ) , (HIJ)

Triangles made by combination of 2 triangles = (ABD) , (ACE) , (AFG) , (AGH) , (AHI) , (FHJ) , (GIJ)

Triangles made by combination of 3 triangles = (ABE) , (FIJ)

Triangles made by combination of 4 triangles = (AFH) , (AGI)

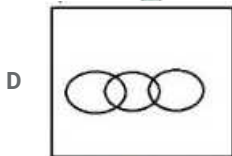
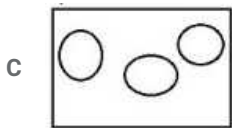
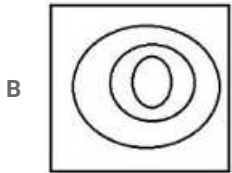
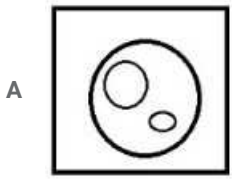
Triangles made by combination of 6 triangles = (AFI)

Thus, total triangles = 18

=> Ans - (C)

Question 45

Which of the answer figures best indicates the relationship between:
Doctors, Nurses, Hospital



Answer: A

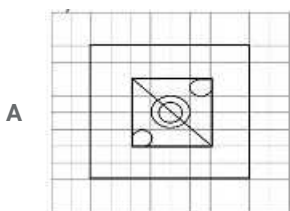
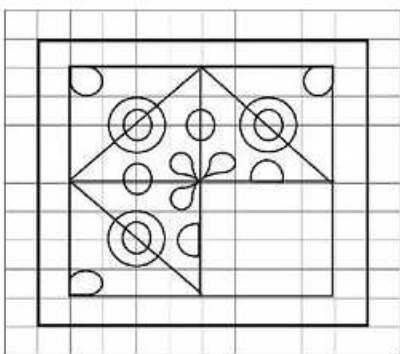
Explanation:

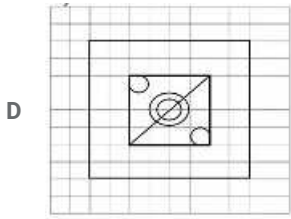
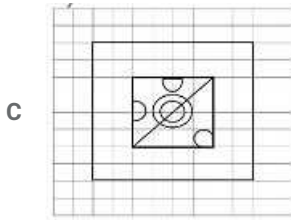
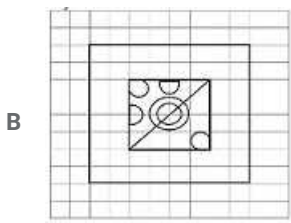
Both doctors and nurses are part of the hospital but are completely different from each other, thus the first figure best describes above relationship.

=> Ans - (A)

Question 46

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





Answer: B

Explanation:

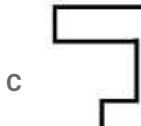
By symmetry, to complete the bottom right part of the figure, we need a right diagonal (to complete the fourth side of rhombus), hence first option is eliminated. Also, we need a circular figure at top left corner (to complete the circular pattern at the centre of the figure), hence third option is eliminated.

Also, we need to have 2 semi circles each on the left and top side of square to complete symmetry as shown in second figure.

=> Ans - (B)

Question 47

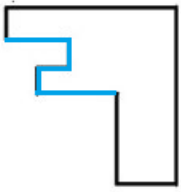
From the given answer figures, select the one in which the question figure is hidden/embedded



Answer: D

Explanation:

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

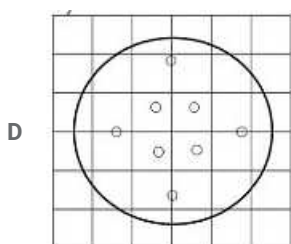
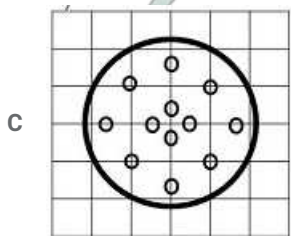
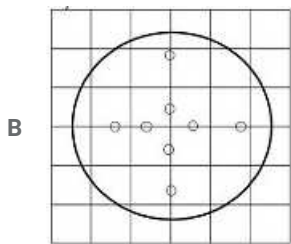
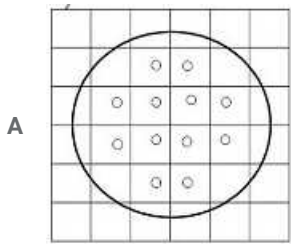


=> Ans - (D)

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Question 48

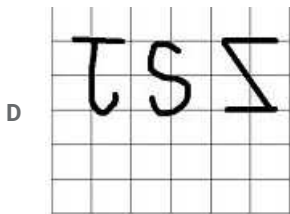
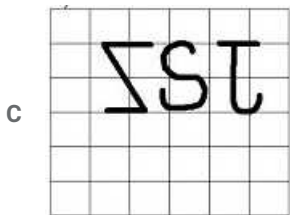
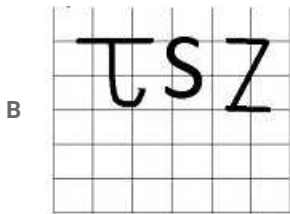
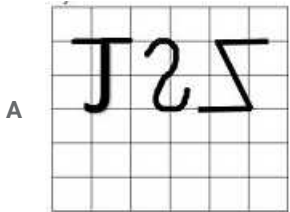
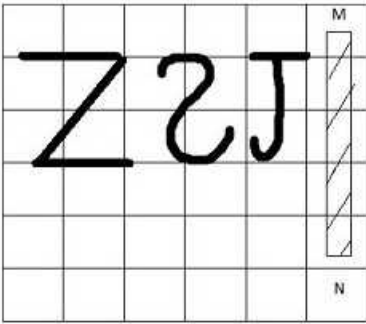
A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



Answer: A

Question 49

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



Answer: D

Explanation:

A vertical mirror is placed, so the positions of the letters will change, Z will appear at the right and J at the left, thus third option is eliminated.

Also, the shape of letters is also reversed.

=> Ans - (D)

Question 50

In the question, 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 in two matrices given below. 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, e.g., 'G' can be represented by 01 and 'P' can be represented by 10, 44, etc. Similarly you have to identify the set for the word 'BARK'

Matrix - I

| | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 0 | K | G | E | A | S |
| 1 | P | V | H | R | Y |
| 2 | N | U | N | R | K |
| 3 | W | S | B | O | J |
| 4 | T | U | A | I | P |

Matrix - II

| | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|
| 5 | A | H | U | W | N |
| 6 | Y | R | B | T | V |
| 7 | O | I | H | B | Q |
| 8 | V | O | E | I | S |
| 9 | E | T | K | W | P |

- A 32, 55, 69, 24
- B 32, 03, 66, 57
- C 67, 42, 66, 00
- D 23, 30, 66, 97

Answer: C

Explanation:

- (A) : 32, 55, 69, 24 = BAVK
 - (B) : 32, 03, 66, 57 = BARU
 - (C) : 67, 42, 66, 00 = **BARK**
 - (D) : 23, 30, 66, 97 = RWRK
- => Ans - (C)

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Mathematics

Instructions

For the following questions answer them individually

Question 51

Find the least number which must be subtracted from 18265 to make it a perfect square

- A 30
- B 38
- C 40
- D 45

Answer: C

Explanation:

Square root of 18265 = $\sqrt{18265} \approx 135.14$
=> $(135)^2 < 18265 < (136)^2$
Now, $(135)^2 = 18225$

=> Least number which must be subtracted from 18265 to make it a perfect square = $18265 - 18225 = 40$

=> Ans - (C)

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Question 52

A and B together can do a piece of work in 36 days, B and C together can do it in 24 days. A and C together can do it in 18 days. The three working together can finish the work in

- A 8 days
- B 16 days
- C 30 days
- D 32 days

Answer: B

Explanation:

Let total work to be done = 72 units

Let the efficiency of A, B and C alone be a , b and c units/day respectively.

A and B together can do work in 36 days

$$\Rightarrow a + b = \frac{72}{36} = 2 \text{ units/day}$$

$$\text{Similarly, } b + c = \frac{72}{24} = 3 \text{ units/day}$$

$$\text{and } a + c = \frac{72}{18} = 4 \text{ units/day}$$

Adding the above three equations, we get :

$$\Rightarrow 2(a + b + c) = 2 + 3 + 4 = 9$$

$$\Rightarrow a + b + c = \frac{9}{2} = 4.5$$

$$\therefore \text{Time taken by all of them to finish the work together} = \frac{72}{4.5} = 16 \text{ days}$$

=> Ans - (B)

Question 53

Two adjacent sides of a parallelogram are 21 cms and 20 cms. The diagonal joining the end points of these two sides is 29 cms. The area of the parallelogram (in sq.cms) is

- A 240
- B 120
- C 210
- D 420

Answer: D

Explanation:

A diagonal divides the parallelogram into two triangles of equal areas.

Sides of triangle, $a = 29$ cm, $b = 21$ cm and $c = 20$ cm

$$\text{Semi-perimeter, } s = \frac{a+b+c}{2} = \frac{29+21+20}{2}$$

$$\Rightarrow s = \frac{70}{2} = 35 \text{ cm}$$

Area of triangle using Heron's Formula = $\sqrt{s(s-a)(s-b)(s-c)}$

= $\sqrt{35(35-29)(35-21)(35-20)}$

= $\sqrt{35 \times 6 \times 14 \times 15}$

= $\sqrt{44100} = 210 \text{ cm}^2$

=> Area of parallelogram = $2 \times 210 = 420 \text{ cm}^2$

=> Ans - (D)

Question 54

A dealer marks his goods 20% above cost price. He then allows some discount on it and makes a profit of 8%. The rate of discount is

- A 4%
- B 6%
- C 10%
- D 12%

Answer: C

Explanation:

Let the cost price of the goods = $Rs.100x$

Markup % = 20%

=> Marked price = $100x \times \frac{120}{100} = Rs.120x$

Profit % = 8 %

=> Selling price = $100x \times \frac{108}{100} = Rs.108x$

Discount % = $\frac{120x-108x}{120x} \times 100$

= $\frac{100}{10} = 10\%$

=> Ans - (C)

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Question 55

Sum of two numbers is thrice their difference. Their ratio is

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

Answer: B

Explanation:

Let the two numbers be x and y

According to ques,

=> $x + y = 3(x - y)$

=> $x + y = 3x - 3y$

$$\Rightarrow 3x - x = y + 3y$$

$$\Rightarrow 2x = 4y$$

$$\Rightarrow \frac{x}{y} = \frac{4}{2} = \frac{2}{1}$$

Ratio of numbers = 2 : 1

\Rightarrow Ans - (B)

Question 56

The average age of 36 students in a group is 14 years. When the teacher's age is included in it, the average increases by one. The teacher's age in years is

A 31

B 51

C 36

D 50

Answer: B

Explanation:

Let the teacher's age = x years and the sum of ages of 36 students = y years

$$\text{Average age of 36 students} = \frac{y}{36} = 14$$

$$\Rightarrow y = 14 \times 36 = 504$$

When teacher's age is included, new average is $14 + 1 = 15$

$$\Rightarrow \frac{x+504}{37} = 15$$

$$\Rightarrow x + 504 = 15 \times 37 = 555$$

$$\Rightarrow x = 555 - 504 = 51$$

\Rightarrow Ans - (B)

Question 57

A dishonest dealer professes to sell his goods at cost price but uses a weight of 875 gms for the kilogram weight. His gain in percentage is

A 17%

B $14\frac{5}{7}$ %

C $14\frac{2}{7}$ %

D 14%

Answer: C

Explanation:

Let the cost price of the shopkeeper = Rs. 1000/kg

\Rightarrow He buys 1 gm for Rs. 1

Since, he uses false weight of 875 gms, selling price = Rs. $\frac{1000}{875}$ gm

$$\Rightarrow \text{He sells 1 gm for} = \frac{1000}{875} = \text{Rs. } \frac{8}{7}$$

$$\therefore \text{Profit \%} = \frac{SP-CP}{CP} \times 100$$

$$= \frac{\frac{8}{7}-1}{1} \times 100$$

$$= \frac{100}{7} = 14\frac{2}{7}\%$$

=> Ans - (C)

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Question 58

A's salary is 50% more than that of B. Then B's salary is less than that of A by

A 50%

B $33\frac{1}{3}$

C $33\frac{1}{4}$

D $44\frac{1}{2}$

Answer: B

Explanation:

Let B's salary = Rs. $100x$

A's salary is 50% more than that of B, => A's salary = $100x + \frac{50}{100} \times 100x = \text{Rs. } 150x$

∴ B's salary is less than that of A by = $\frac{150x - 100x}{150x} \times 100$

$$\Rightarrow \frac{100}{3} = 33\frac{1}{3}\%$$

=> Ans - (B)

Question 59

Speed of a boat along and against the current are 14 kms/hr and 8 kms/hr respectively. The speed of the current is

A 11 kms/hr

B 6 kms/hr

C 5.5 kms/hr

D 3 kms/hr

Answer: D

Explanation:

If Upstream speed = x km/hr and downstream speed = y km/hr

The, speed of boat = $\frac{x+y}{2}$ km/hr and speed of current = $\frac{y-x}{2}$ km/hr

According to ques, upstream speed (x) = 8 km/hr

Downstream speed (y) = 14 km/hr

$$\Rightarrow \text{Speed of current} = \frac{14-8}{2}$$

$$= \frac{6}{2} = 3 \text{ km/hr}$$

=> Ans - (D)

Question 60

If the simple interest on Rs. 1 for 1 month is 1 paisa, then the rate percent per annum will be

A 10%

- B 8%
 C 12%
 D 6%

Answer: C

Explanation:

Principal amount (P) = Rs. 1

Time period (t) = 1 month = $\frac{1}{12}$ years

Simple interest = 1 paisa = Rs. $\frac{1}{100}$

Let r be the rate of interest

$$\Rightarrow \text{S.I.} = \frac{P \times r \times t}{100}$$

$$\Rightarrow \frac{1 \times r \times \frac{1}{12}}{100} = \frac{1}{100}$$

$$\Rightarrow r \times \frac{1}{12} = 1$$

$$\Rightarrow r = 12\%$$

\Rightarrow Ans - (C)

General Science Notes for SSC CGL

Question 61

If $a/b + b/a = 1$, then the value of $a^3 + b^3$ will be

- A 1
 B 0
 C -1
 D 2

Answer: B

Explanation:

Given : $\frac{a}{b} + \frac{b}{a} = 1$

$$\Rightarrow \frac{a^2 + b^2}{ab} = 1$$

$$\Rightarrow a^2 + b^2 = ab \text{ -----(i)}$$

We know that, $(a^3 + b^3) = (a + b)(a^2 + b^2 - ab)$

Substituting value from equation (i), we get :

$$\Rightarrow (a^3 + b^3) = (a + b)(ab - ab)$$

$$\Rightarrow (a^3 + b^3) = (a + b) \times 0 = 0$$

\Rightarrow Ans - (B)

Question 62

If $p = 99$, then the value of $p(p^2 + 3p + 3)$ will be

- A 999999

- B 1000000
- C 1000001
- D 999998

Answer: A

Explanation:

Given : $p = 99$

Adding 1 on both sides,

$$\Rightarrow p + 1 = 100$$

Cubing both sides, we get :

$$\Rightarrow (p + 1)^3 = (100)^3$$

$$\Rightarrow p^3 + 1^3 + 3p^2 + 3p = 1000000$$

$$\Rightarrow p^3 + 3p^2 + 3p = 1000000 - 1$$

$$\Rightarrow p(p^2 + 3p + 3) = 999999$$

\Rightarrow Ans - (A)

Question 63

If $a-b=1$ and $a^3 - b^3 = 61$, then the value of ab will be

- A -20
- B 20
- C 30
- D 60

Answer: B

Explanation:

Given : $(a - b) = 1$ and $(a^3 - b^3) = 61$

We know that, $(a^3 - b^3) = (a - b)(a^2 + b^2 + ab)$

$$\Rightarrow 61 = 1(a^2 + b^2 + ab)$$

$$\Rightarrow a^2 + b^2 + ab = 61$$

$$\Rightarrow a^2 + b^2 = 61 - ab \text{ -----(i)}$$

$$\text{Also, } (a - b)^2 = a^2 + b^2 - 2ab$$

Substituting value from equation (i)

$$\Rightarrow (1)^2 = (61 - ab) - 2ab$$

$$\Rightarrow 1 = 61 - 3ab$$

$$\Rightarrow 3ab = 61 - 1 = 60$$

$$\Rightarrow ab = \frac{60}{3} = 20$$

\Rightarrow Ans - (B)

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Question 64

If $\frac{x}{a+b} + 1 = \frac{x}{a-b} + \frac{a-b}{a+b}$, then value of x is

- A $2a-b$
- B $a+b$
- C $a-b$
- D $2a+b$

Answer: C

Explanation:

Expression: $\frac{x}{a+b} + 1 = \frac{x}{a-b} + \frac{a-b}{a+b}$

$$\Rightarrow \frac{x}{a+b} - \frac{x}{a-b} = \frac{a-b}{a+b} - 1$$

$$\Rightarrow \frac{x(a-b) - x(a+b)}{(a+b)(a-b)} = \frac{(a-b) - (a+b)}{a+b}$$

$$\Rightarrow \frac{-2bx}{a-b} = -2b$$

$$\Rightarrow x = (a-b)$$

\Rightarrow Ans - (C)

Question 65

The point where the 3 medians of a triangle meet is called

- A centroid
- B Incentre
- C Circumcentre
- D orthocentre

Answer: A

Explanation:

The point where the 3 medians of a triangle meet is called the **centroid** of the triangle.

\Rightarrow Ans - (A)

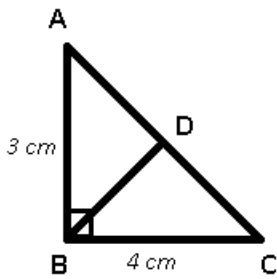
Question 66

ABC is a right angled triangle in which $\angle B = 90^\circ$. If $BD \perp AC$, $AB = 3$ cm and $BC = 4$ cm, then what is the value of BD (in cm)?

- A 3cms
- B 4 cms
- C 2.4 cms
- D 5.5 cms

Answer: C

Explanation:



In $\triangle ABC$,

$$\Rightarrow (AC)^2 = (AB)^2 + (BC)^2$$

$$\Rightarrow (AC)^2 = (3)^2 + (4)^2$$

$$\Rightarrow (AC)^2 = 9 + 16 = 25$$

$$\Rightarrow AC = \sqrt{25} = 5 \text{ cm}$$

$$\text{Now, area of } \triangle ABC = \frac{1}{2} \times (AB)(BC) = \frac{1}{2} \times (AC)(BD)$$

$$\Rightarrow BD = \frac{3 \times 4}{5}$$

$$\Rightarrow BD = \frac{12}{5} = 2.4 \text{ cm}$$

\Rightarrow Ans - (C)

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Question 67

$\triangle ABC$ is an equilateral triangle and D, E are midpoints of AB and AC respectively. Then the area of $\triangle ABC$: the area of the trapezium BDEC is

A 5:3

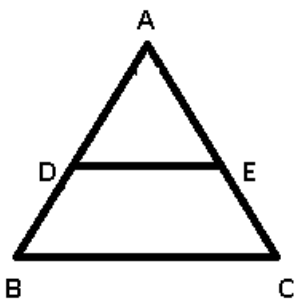
B 4:1

C 8:5

D 4:3

Answer: D

Explanation:



Given : ABC is an equilateral triangle and D and E are mid points of AB and AC respectively.

To find : Area of $\triangle ABC$: the area of the trapezium BDEC

Solution : Let the side of triangle AB = 2 cm

$$\Rightarrow AD = DB = 1 \text{ cm}$$

Clearly, $\triangle ADE \sim \triangle ABC$

Ratio of areas of two similar triangles is equal to the ratio of squares of corresponding sides.

$$\Rightarrow \frac{\text{ar}(ADE)}{\text{ar}(ABC)} = \left(\frac{AD}{AB}\right)^2$$

$$\Rightarrow \frac{\text{ar}(ADE)}{\text{ar}(ABC)} = \left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

Let $\text{ar}(\triangle ADE) = x$ and $\text{ar}(\triangle ABC) = 4x$

$$\Rightarrow \text{ar}(BDEC) = \text{ar}(\triangle ABC) - \text{ar}(\triangle ADE)$$

$$= 4x - x = 3x$$

$$\therefore \frac{\text{ar}(ABC)}{\text{ar}(BDEC)} = \frac{4x}{3x}$$

$$= 4 : 3$$

\Rightarrow Ans - (D)

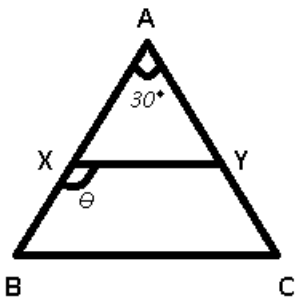
Question 68

In an isosceles triangle ABC, $AB=AC$, XY parallel to BC. If $\angle A = 30^\circ$, then $\angle BXY =$

- A 75°
- B 30°
- C 150°
- D 105°

Answer: D

Explanation:



Given : $AB = AC$ and thus $\angle B = \angle C$ and XY is parallel to BC

To find : $\angle BXY = \theta = ?$

Solution : In $\triangle ABC$, sum of all angles = 180°

$$\Rightarrow \angle A + \angle B + \angle C = 180^\circ$$

$$\Rightarrow 30^\circ + 2\angle B = 180^\circ$$

$$\Rightarrow 2\angle B = 180^\circ - 30^\circ = 150^\circ$$

$$\Rightarrow \angle B = \frac{150}{2} = 75^\circ$$

Now, $\because XY$ is parallel to BC , thus BX is transversal

$$\Rightarrow \angle B + \angle BXY = 180^\circ \quad [\text{Angles on the same side of transversal}]$$

$$\Rightarrow 75^\circ + \theta = 180^\circ$$

$$\Rightarrow \theta = 180^\circ - 75^\circ = 105^\circ$$

\Rightarrow Ans - (D)

Question 69

The value of $\sec^2 17^\circ - \tan^2 73^\circ - \sin 17^\circ \sec 73^\circ$

- A 1
- B 0
- C -1
- D 2

Answer: B

Explanation:

Expression : $\sec^2 17^\circ - \tan^2 73^\circ - \sin 17^\circ \sec 73^\circ$

Using, $\sec(90^\circ - \theta) = \operatorname{cosec} \theta$ and $\cot(90^\circ - \theta) = \tan \theta$

$$= [\sec^2 17^\circ - \cot^2 73^\circ] - [\sin 17^\circ \times \sec(90^\circ - 17^\circ)]$$

$$= [\sec^2 17^\circ - \tan^2(90^\circ - 17^\circ)] - [\sin 17^\circ \times \operatorname{cosec} 17^\circ]$$

Using, $\sin \theta \operatorname{cosec} \theta = 1$ and $(\sec^2 \theta - \tan^2 \theta = 1)$

$$= (\sec^2 17^\circ - \tan^2 17^\circ) - 1$$

$$= 1 - 1 = 0$$

=> Ans - (B)

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Question 70

If $x = a \cos \theta \cos \phi$, $y = a \cos \theta \sin \phi$ and $z = a \sin \theta$, then the value of $x^2 + y^2 + z^2$ is

- A $2a^2$
- B $4a^2$
- C $9a^2$
- D a^2

Answer: D

Explanation:

Expression 1 : $x = a \cos \theta \cos \phi$

Squaring both sides, => $x^2 = a^2 \cos^2 \theta \cos^2 \phi$ -----(i)

Expression 1 : $y = a \cos \theta \sin \phi$

Squaring both sides, => $y^2 = a^2 \cos^2 \theta \sin^2 \phi$ -----(ii)

Expression 1 : $z = a \sin \theta$

Squaring both sides, => $z^2 = a^2 \sin^2 \theta$ -----(iii)

Adding equations (i),(ii) and (iii)

$$\Rightarrow x^2 + y^2 + z^2 = (a^2 \cos^2 \theta \cos^2 \phi) + (a^2 \cos^2 \theta \sin^2 \phi) + (a^2 \sin^2 \theta)$$

$$\Rightarrow x^2 + y^2 + z^2 = a^2 \cos^2 \theta (\cos^2 \phi + \sin^2 \phi) + a^2 \sin^2 \theta$$

$$\Rightarrow x^2 + y^2 + z^2 = a^2 \cos^2 \theta + a^2 \sin^2 \theta$$

$$\Rightarrow x^2 + y^2 + z^2 = a^2 (\cos^2 \theta + \sin^2 \theta)$$

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

=> Ans - (D)

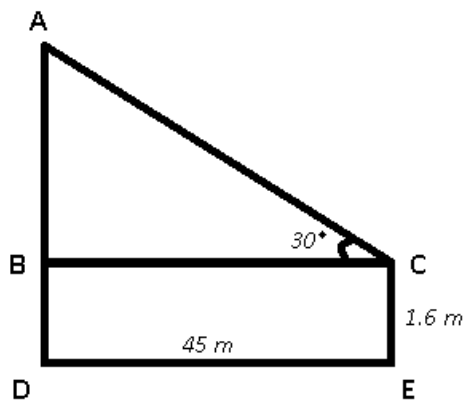
Question 71

A 1.6 m tall observer is 45 meters away from a tower. The angle of elevation from his eye to the top of the tower is 30° , then the height of the tower in meters is (Take $\sqrt{3} = 1.732$)

- A 25.98
- B 26.58
- C 27.58
- D 27.98

Answer: C

Explanation:



Given : CE is the observer of height = 1.6 m and he is at distance of DE = 45 m from tower

To find : Height of tower AD = ?

Solution : By symmetry, BC = DE = 45 m and BD = CE = 1.6 m

In $\triangle ABC$,

$$\Rightarrow \tan(\angle ACB) = \frac{AB}{BC}$$

$$\Rightarrow \tan(30^\circ) = \frac{AB}{45}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{AB}{45}$$

$$\Rightarrow AB = \frac{45}{\sqrt{3}} = 15\sqrt{3} \text{ m}$$

$$\Rightarrow AB = 15 \times 1.732 = 25.98 \text{ m}$$

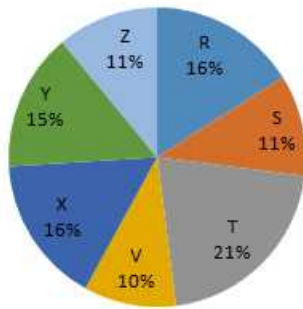
\therefore Height of tower, AD = AB + BD

$$= 25.98 + 1.6 = 27.58 \text{ m}$$

\Rightarrow Ans - (C)

Question 72

The following pie chart shows proportion of poverty population of seven villages in 2009. Study the pie chart and answer the questions that follows :



If the below poverty line population of the village 'X' is 12160, then the poverty population of village 'S' is

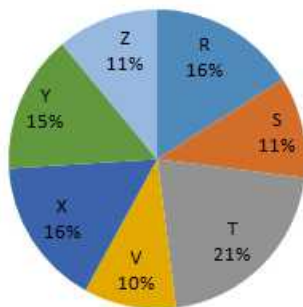
- A 8360
- B 2050
- C 2200
- D 8200

Answer: A

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Question 73

The following pie chart shows proportion of population of seven villages in 2009. Study the pie chart and answer the questions that follows :



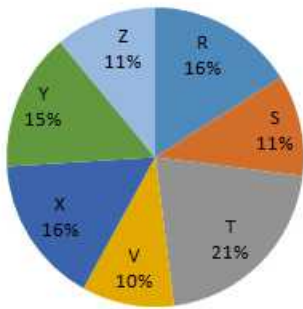
The ratio of the below poverty line population of village 'T' to that of the below poverty line population of village 'Z' is

- A 11:23
- B 13:11
- C 23:11
- D 11:13

Answer: C

Question 74

The following pie chart shows proportion of population of seven villages in 2009. Study the pie chart and answer the questions that follows :



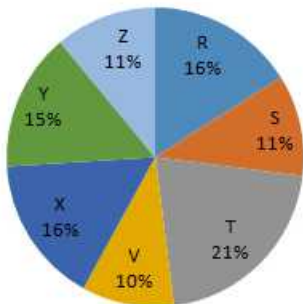
If the population of the village 'R' is 32000, then the below poverty line population of village 'Y' is

- A 14100
- B 15600
- C 16500
- D 17000

Answer: B

Question 75

The following pie chart shows proportion of population of seven villages in 2009. Study the pie chart and answer the questions that follows :



In 2010, the population of 'Y' and 'V' increases by 10% each and the percentage of population below poverty line remains unchanged for all the villages. If in 2009, the population of village Y was 30,000, then the below poverty line population of village 'V' in 2010 is

- _____
- A 11250
 - B 12760
 - C 13140
 - D 13780

Answer: B

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English

Instructions

For the following questions answer them individually

Question 76

In the following question, out of the four alternatives, choose the word which best expresses the meaning of the given word and click the button corresponding to it.

PALLID

- A FRIENDLY
- B PALE
- C WORTHLESS
- D COMFORTING

Answer: B

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Question 77

In the following question, out of the four alternatives, choose the word which is opposite in meaning to the given word and click the button corresponding to it.

INTANGIBLE

- A ETHEREAL
- B CONCRETE
- C INSUBSTANTIAL
- D ABSTRACT

Answer: B

Question 78

Four words are given, out of which only one word is spelt correctly. Choose the correctly spelt word and click the button corresponding to it.

- A Pontifical
- B Pontiffical
- C Pontifecal
- D Pontificol

Answer: A

Question 79

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

I always enjoy (A)/ to read (B)/ books (C)/ No Error (D)

- A A
- B B
- C C

D D

Answer: B

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Question 80

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

Variety (A)/ is (B)/ spice of life (C)/ No Error (D)

A A

B B

C C

D D

Answer: C

Question 81

In the following questions, one part of the sentence may have an error. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

Neither of the scout leaders know (A)/ how to trap wild animals (B)/ or how to prepare them for mounting (C)/ No Error (D)

A A

B B

C C

D D

Answer: A

Question 82

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

We can _____ see anything in the dim light.

A badly

B scarcely

C fairly

D rather

Answer: B

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Question 83

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

Few countries can _____ India in variety, colour and the richness of dance forms.

- A compare
- B rival
- C perform
- D prevail

Answer: B

Question 84

The sentences given with blanks are to be filled with an appropriate word(s). Four alternatives are suggested for each question. For each question, choose the correct alternative and click the button corresponding to it.

The scheme allows students from different countries to communicate _____.

- A each other
- B with each others
- C themselves
- D with one another

Answer: D

Question 85

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Straw in the wind

- A A light-weight object
- B A lucky charm
- C A game that kids play
- D An indication of what might happen

Answer: D

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Question 86

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Face the music

- A Be applauded
- B Be ridiculed
- C Be punished

D Be dismissed

Answer: C

Question 87

In each of the questions, four alternatives are given for the Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase and click the button corresponding to it.

Curry favour

A Seek impartial judgement

B Seek favourable attention

C Prepare a dish

D Attract attention

Answer: B

Question 88

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

A brief or short stay at a place

A Solitude

B Soiree

C Sojourn

D Solistice

Answer: C

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Question 89

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

That which can be believed

A Miraculous

B Creditable

C Credible

D Gullible

Answer: C

Question 90

Out of the four alternatives, choose the one which can be substituted for the given words/sentences and click the button corresponding to it.

One who is indifferent to pain or pleasure

A Eccentric

- B Philosopher
- C Fatalist
- D Stoic

Answer: D

Question 91

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

Knowing that the area was prone to earthquakes, all the buildings were reinforced with additional concrete.

- A On being prone to earthquakes,
- B Having been knowing that the area was prone to earthquakes,
- C Since the area was known to be prone to earthquakes,
- D No improvement

Answer: C

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Question 92

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

I will not buy some mangoes.

- A a little
- B much
- C any
- D No improvement

Answer: C

Question 93

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

He would surely assist me if I had requested him to do so.

- A would surely assisted me
- B would have surely assisted me
- C will have surely assisted me
- D No improvement

Answer: B

Question 94

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

The alarming report of the plane crash left everyone in a state of shock.

- A alarmed report
- B alarmed reporting
- C reported alarm
- D No improvement

Answer: D

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Question 95

A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

We were not the wiser after hearing the explanation

- A none
- B neither
- C nevertheless
- D No improvement

Answer: A

Instructions

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives and click the button corresponding to it.

Another marvel on the far side of the lake was a little farm that felt like a secret in the city. Some of the gaunt Karnataka labourers even looked away when children came to dig and eat. But the greatest pleasure, this side of the lake, was the jamun tree. A few months back, Kalu and Sunil had a feast in the branches, shaking down a few berries for Mirchi.

That's when they came to know the second-coolest thing about the jamun tree : There were parrots nesting in it. Since then, some other road boys had been capturing the parrots one by one to sell at the Marol Market, but Sunil had brought Kalu around to the belief that the birds should be left as they were. Sunil listened for their squawks each morning, to make sure they hadn't been abducted in the night. Kalu's expertise was in the recycling bins inside airline catering compounds. Private waste collectors emptied these dumpsters on a regular basis, but Kalu had mastered the trash truck's schedules. The night before pickup, Kalu would climb over the barbed-wire fences and raid the overflowing bins.

Kalu's routine had become known by the local police, however. He kept getting caught, until some constables proposed a different arrangement. Kalu could keep his metal scrap if he'd pass on information he picked up on the road about local drug dealers.

Question 96

What was the greatest pleasure this side of the lake?

- A A secret farm
- B The Jamun tree
- C Feasting on the branches of the Jamun tree

D Labourers looking away when the children came to dig and eat

Answer: B

Question 97

What was the second coolest thing about the Jamun tree?

- A Shaking down the berries for Mirchi
- B There were parrots nesting in the tree
- C Selling parrots in the Marol Market
- D Capturing parrots in the tree

Answer: B

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Question 98

What did Sunil think of parrots?

- A That they should be captured and sold.
- B That they had been abducted in the night.
- C That they should not be captured and sold.
- D That they squawked every morning.

Answer: C

Question 99

How did Kalu manage to raid the airline recycling bins before they were emptied?

- A He was an expert
- B He jumped over the barbed wire fences.
- C He had mastered the trash trucks schedules.
- D He worked at night

Answer: C

Question 100

Why was a different arrangement proposed?

- A Because Kalu's routine was known by the police
- B So that Kalu would be able to keep his metal scrap.
- C So that Kalu could pass on information about local drug dealers
- D Because Kalu kept getting caught

Answer: D

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