



2016 SSC CGL 02 Sep Evening Shift

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Reasoning

Instructions

For the following questions answer them individually

Question 1

Select the related word/letters/numbers from the given alternatives:

Words : Sentence :: Paragraph : ?

- A TYPING
- B Essay
- C Letters
- D Phrase

Answer: B

Explanation:

Combination of words forms a sentence, similarly combination of paragraph forms an essay.

=> Ans - (B)

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Question 2

Select the related word/letters/numbers from the given alternatives:

BDCE : GIHJ :: QSRT : ?

- A VWXY
- B UWMX
- C VXWY
- D UWNX

Answer: C

Explanation:

Expression = BDCE : GIHJ :: QSRT : ?

The pattern followed is =

B	D	C	E
(+5)	(+5)	(+5)	(+5)
G	I	H	J

Similarly, for QSRT :

Q	S	R	T
(+5)	(+5)	(+5)	(+5)
V	X	W	Y

=> Ans - (C)

Question 3

Select the related word/letters/numbers from the given alternatives:

9 : 162 :: 8 : ?

- A 96

- B 112
- C 128
- D 160

Answer: C

Explanation:

Expression = $9 : 162 :: 8 : ?$

The pattern followed is = $n : 2n^2$

Eg = $9 : 2(9)^2 = 9 : 162$

Similarly, $2 \times (8)^2 = 2 \times 64 = 128$

=> Ans - (C)

Question 4

For the following questions

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

- A Apartment
- B Garage
- C Quarter
- D Flat

Answer: B

Explanation:

Apartment, Quarter and flats are places to live, while a garage is place to park, hence it is the odd one.

=> Ans - (B)

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Question 5

For the following questions

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

- A BDF
- B GIK
- C LMO
- D OQS

Answer: C

Explanation:

(A) : B (+2 letters) = D (+2 letters) = F

(B) : G (+2 letters) = I (+2 letters) = K

(C) : L (+1 letter) = M (+2 letters) = O

(D) : O (+2 letters) = Q (+2 letters) = S

=> Ans - (C)

Question 6

For the following questions

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

- A 5-21
- B 29-45
- C 48-68
- D 71-87

Answer: C

Explanation:

Difference between each pair :

(A) : $21 - 5 = 16$

(B) : $45 - 29 = 16$

(C) : $68 - 48 = 20$

(D) : $87 - 71 = 16$

=> Ans - (C)

Question 7

Arrange the following words as per order in the dictionary

1. Diffident
2. Difficult
3. Different
4. Diffidence

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

Answer: B

Explanation:

As per the dictionary,

= Different -> Difficult -> Diffidence -> Diffident

≡ 3,2,4,1

=> Ans - (B)

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Question 8

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

ACE, GJI, MQM, ?

- A SXQ
- B RWQ

C SUQ

D RXP

Answer: A

Explanation:

Expression : ACE, GJI, MQM, ?

The pattern followed is that for each letter :

1st letter : A (+6 letters) = G (+6 letters) = M (+6 letters) = S

2nd letter : C (+7 letters) = J (+7 letters) = Q (+7 letters) = X

3rd letter : E (+4 letters) = I (+4 letters) = M (+4 letters) = Q

Thus, missing number = **SXQ**

=> Ans - (A)

Question 9

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

6,11,21,36,56,?

A 42

B 51

C 81

D 91

Answer: C

Explanation:

The pattern followed is that multiples of 5 are added.

$$6 + 5 = 11$$

$$11 + 10 = 21$$

$$21 + 15 = 36$$

$$36 + 20 = 56$$

$$56 + 25 = \mathbf{81}$$

=> Ans - (C)

Question 10

If 4 cats can kill 4 rats in 4 minutes, how many minutes will it take 8 cats to kill 8 rats?

A 8

B 4

C 2

D 16

Answer: B

Explanation:

It is given that 4 cats can kill 4 rats in 4 minutes

$$\text{Number of cat-minutes} = 4 \times 4 = 16$$

So, in 16 cat-minutes, 4 rats are killed (i.e. one rat gets killed in 4 cat-minutes).

So, 8 rats will need 32 cat minutes.

∴ Time taken by 8 cats to kill 8 rats = $\frac{32}{8} = 4$ minutes

⇒ Ans - (B)

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Question 11

If the sum of three consecutive numbers is 15, what is the square of the middle number ?

- A 16
- B 25
- C 36
- D 9

Answer: B

Explanation:

Let the three consecutive numbers be $(x - 1)$, (x) , $(x + 1)$

$$\text{Sum} = (x - 1) + x + (x + 1) = 15$$

$$\Rightarrow 3x = 15$$

$$\Rightarrow x = \frac{15}{3} = 5$$

∴ Square of the middle number = $x^2 = 5^2 = 25$

⇒ Ans - (B)

Question 12

From the given words, select the word which cannot be formed using the letters of the given word.

ILLUSTRIOUS

- A Lust
- B Trust
- C Riot
- D Rust

Answer: B

Explanation:

The word ILLUSTRIOUS does not contain 2 'T', and thus the word 'Trust' cannot be formed.

⇒ Ans - (B)

Question 13

If A=1,
CAT=60,
then MAN=?

- A 27
- B 90

C 180

D 182

Answer: D

Explanation:

If the letters are represented by respective numbers, A = 1, B = 2, C = 3,, Z = 26

A = 1

CAT = $3 \times 1 \times 20 = 60$

MAN = $13 \times 1 \times 14 = 182$

=> Ans - (D)

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Question 14

If 'P' means '+', 'Q' means 'x', 'R' means '÷', and 'S' means '-', then $44Q9R12S6Q4P16=?$

A 25

B 36

C 112

D 12

Answer: A

Explanation:

Expression : $44Q9R12S6Q4P16=?$

$\equiv 44 \times 9 \div 12 - 6 \times 4 + 16$

$= 33 - 24 + 16 = 25$

=> Ans - (A)

Question 15

If $84+96=4842$, then $36+78=?$

A 3918

B 3678

C 3819

D 1839

Answer: A

Explanation:

Both the numbers are divided by 2 and the results are concatenated.

Eg : $\frac{96}{2} = 48$ and $\frac{84}{2} = 42 \equiv 4842$

Similarly, $\frac{78}{2} = 39$ and $\frac{36}{2} = 18 \equiv 3918$

=> Ans - (A)

Question 16

Find the missing number from the given responses:

6	15	20
8	4	5
3	5	20
51	65	?

- A 12
- B 51
- C 56
- D 120

Answer: D

Explanation:

In the first column, the number at the end is obtained by multiplying the first two numbers and adding the result with the third number.

Eg: $(6 \times 8) + 3 = 48 + 3 = 51$

and $(15 \times 4) + 5 = 60 + 5 = 65$

Similarly, $(20 \times 5) + 20 = 100 + 20 = 120$

=> Ans - (D)

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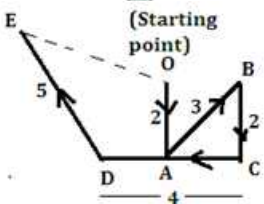
Question 17

Rajesh walks 2 km to south, then turns north-east, and walks 3 km. Then he turns south and walks 2 kms. Then he turns west and walks 4 kms. Finally, he turns north-west and walks 5 kms. In which direction is he from his starting point?

- A North-west
- B North-east
- C Souh-east
- D South-west

Answer: A

Explanation:



Let Rajesh starts from point O and walks 2 km south to reach A, then he travels north east for 3 km and reaches point B. Then again he turns south and walks for 2 km.

Then, he turns west and walks 4 km and reaches point D. Finally, he travels north west for 5 km and reach point E.

Thus, Rajesh is in north-west direction from his starting point.

=> Ans - (A)

Question 18

One statement is given followed by two conclusions/assumptions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions/assumptions can definitely be drawn from the given statement.

Statement:

- I) Quality has a price tag.
- II) India is allocating lots of funds to education.

Conclusions:

- I) Quality of education in India would improve.
- II) Funding alone can enhance quality of education.

- A Only Conclusion I follows
- B Only Conclusion II follows
- C Both the Conclusions I and II follow
- D Neither Conclusion I nor II follows

Answer: A

Explanation:

If India is allocating lots of funds to education, then quality of education will definitely improve in the country, thus conclusion I follows.

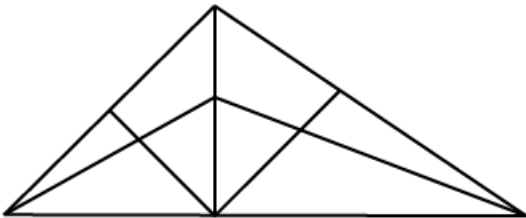
From the second conclusion, we cannot conclude that funding alone can help to enhance conclusion.

Thus, only Conclusion I follows

=> Ans - (A)

Question 19

How many triangles are there in the following figure?



- A 18
- B 13
- C 9
- D 5

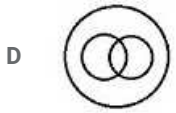
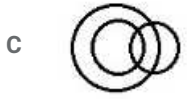
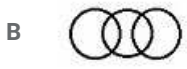
Answer: A

General Science Notes for SSC CGL

Question 20

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

Males, Fathers, Engineers



Answer: C

Explanation:

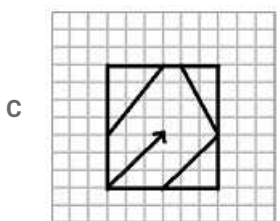
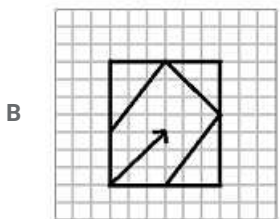
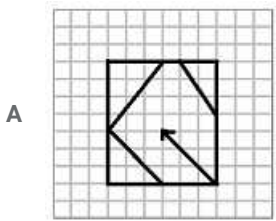
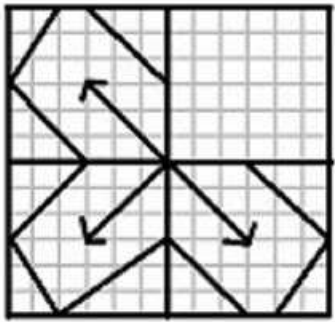
All fathers are definitely males, and the engineers can be either males or fathers.

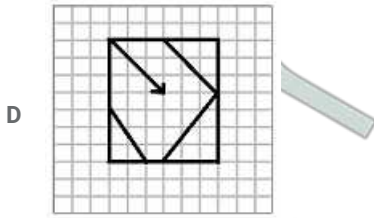
Thus, the third figure best represents the above relationship.

=> Ans - (C)

Question 21

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





Answer: B

Explanation:

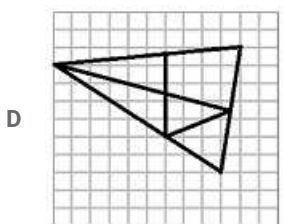
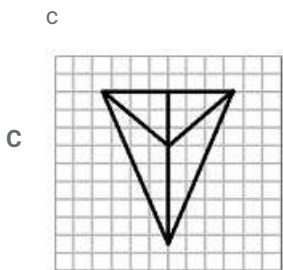
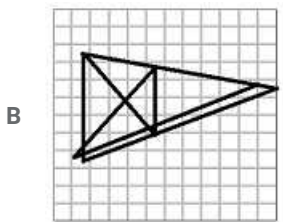
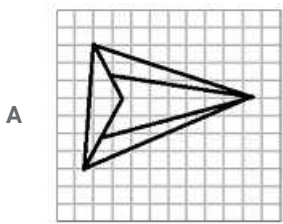
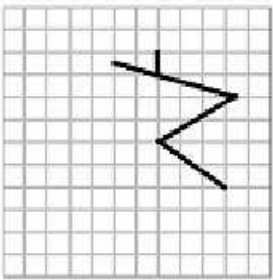
By symmetry, the missing figure will have an arrow which will point top right, hence first and last options are not possible.

Also, in the third option the polygon circumscribing the arrow is not a pentagon, hence it is invalid.

=> Ans - (B)

Question 22

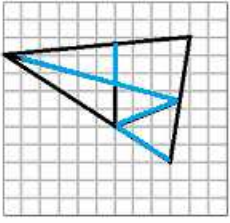
From the given answer figures, select the one in which the question figure is hidden/embedded.



Answer: D

Explanation:

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

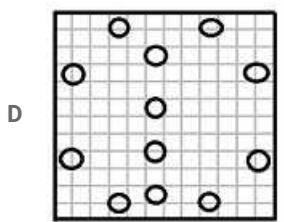
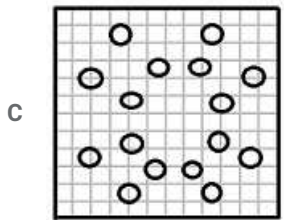
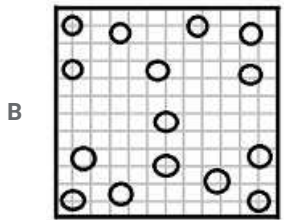
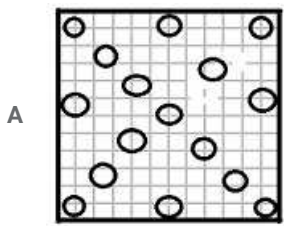
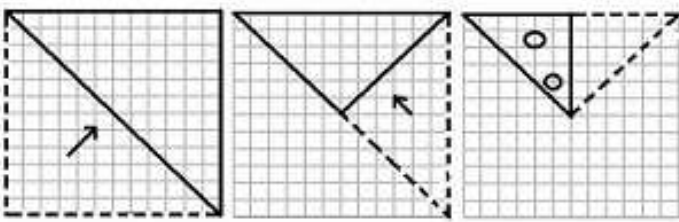


=> Ans - (D)

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Question 23

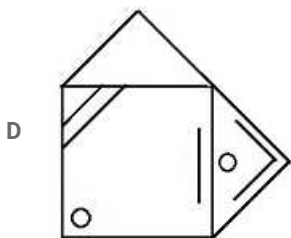
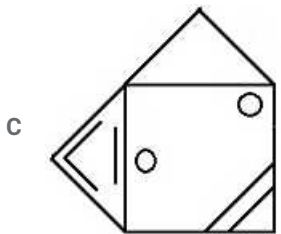
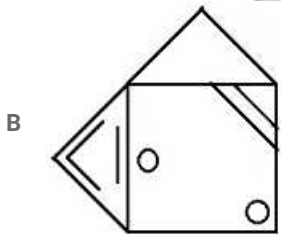
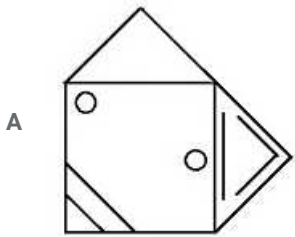
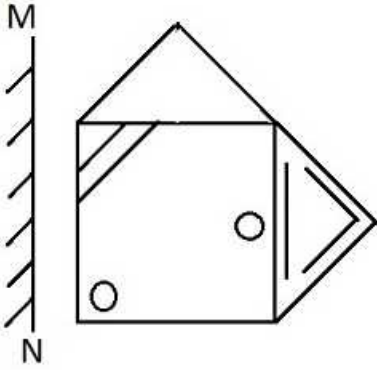
A piece of paper is folded and cut as shown below in the question figure. From the given answer figures, indicate how it will appear when opened.



Answer: C

Question 24

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



Answer: B

Explanation:

A vertical mirror is placed, so the object at the left will appear at the right and vice-versa. So, the triangle in the right side of square will appear on its left in the mirror, thus first and last options are eliminated.

Also, the small circle at bottom left will appear at bottom right, hence third option is not possible.

=> Ans - (B)

Question 25

In this question, the sets of numbers given in the alternatives are represented. 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., A can be represented by 02,10, etc., and 'B' can be represented by 57, 65, etc. Similarly you have to identify the set for the word 'FADE'

Matrix - I

	0	1	2	3	4
0	I	E	A	O	U
1	A	O	U	I	E
2	E	I	O	U	A
3	O	U	E	A	I
4	U	A	I	E	O

Matrix - II

	5	6	7	8	9
5	F	D	B	G	H
6	B	G	H	F	D
7	D	F	G	H	B
8	G	H	D	B	F
9	H	B	F	G	D

A 76, 02, 75, 32

B 68, 20, 57, 14

C 55, 33, 65, 23

D 89, 10, 96, 41

Answer: A

Explanation:

(A) : 76, 02, 75, 32 = FADE

(B) : 68, 20, 57, 14 = FEBE

(C) : 55, 33, 65, 23 = FABU

(D) : 89, 10, 96, 41 = FABA

=> Ans - (A)

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General Awareness

Instructions

For the following questions answer them individually

Question 26

Chief Ministers of States are members of _____

A NITI Commission(Aayog)

B Finance Commission

C National Development Council

D Election Commission

Answer: C

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Question 27

When the demand for a good increases with an increase in income, such a good is called _____

- A Superior good
- B Giffin good
- C Inferior good
- D Normal good

Answer: D

Question 28

Which of the following is the most important raw material for generation of power in India?

- A Mineral Oil
- B Natural Gas
- C Uranium
- D Coal

Answer: D

Question 29

Which of the following is the treatment of water pollution?

- A Bag house filter
- B Windrow composting
- C Venturi scrubber
- D Reverse Osmosis

Answer: D

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Question 30

The Comptroller and Auditor General is closely connected with which of the following Committees of Parliament?

- A The Estimates Committee
- B The Committee on Public Undertakings
- C The Public Accounts Committee
- D All of these

Answer: C

Question 31

The demand of a commodity is a direct demand but the demand of a factor of production is called a

- A Crossed demand
- B Joint demand

- C Derived demand
- D Independent demand

Answer: D

Question 32

Depreciation is loss in value of _____

- A Final goods
- B Machinery
- C Capital stock
- D Stock of inventory

Answer: B

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Question 33

What is the Mehrauli Pillar in the complex of Qutub Minar primarily famous for?

- A Proverbial height
- B Skilful stone cutting
- C Excellent quality steel
- D Statue of Buddha on top

Answer: C

Question 34

Harvesting season of Kharif crop in India is _____

- A January-March
- B February-April
- C September-October
- D November-January

Answer: C

Question 35

Which activity produces the most solid waste ?

- A Agriculture
- B Nuclear Power Plants
- C Manufacturing
- D Packaging Industry

Answer: C

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Question 36

Potassium Permanganate is used for purifying drinking water, because_____

- A It is a reducing agent
- B It is an oxidising agent
- C It is a sterilising agent
- D It dissolves the impurities of water

Answer: B

Question 37

Spraying of DDT on crops causes pollution of _____

- A Air & Soil
- B Crops & Air
- C Soil & Water
- D Air & Water

Answer: C

Question 38

Which cells in pancreas produce Insulin ?

- A Thymus
- B Estrogen
- C Corpus epididymis
- D Islets of Langerhans

Answer: D

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Question 39

When we see an object, the image formed on the retina is _____

- A Real and inverted
- B Real and erect
- C Virtual and erect
- D Virtual and inverted

Answer: A

Question 40

Find the "odd one out".

- A Linux
- B Windows 98
- C C++
- D Windows 7

Answer: C

Question 41

Kinetic energy depends on which quantities?

- A the velocity or speed of the moving body.
- B the mass of the moving body
- C the pressure of the moving body
- D both mass and velocity of the moving body

Answer: D

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Question 42

In which form is the supplied heat energy stored during change in temperature of substance?

- A Heat energy
- B Kinetic energy
- C Potential energy
- D Both kinetic and potential energy

Answer: B

Question 43

Atoms of same element having different mass numbers are called_____

- A Isobars
- B Isotopes
- C Isotones
- D Isomers

Answer: B

Question 44

Which script was used in Ashoka's inscriptions?

- A Brahmi
- B Devanagiri
- C Gurmukhi
- D Sanskrit

Answer: A

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Question 45

The ideas of Liberty, Equality and Fraternity, which influenced the Indian National Movement, was taken from _____

- A American Revolution
- B Russian Revolution
- C Chinese revolution
- D French revolution

Answer: D

Question 46

The Kaushal Kendra (skilling center) under the Pradhan Mantri Mudra Yojana has been inaugurated in the city of _____

- A Noida
- B Kolkata
- C Mumbai
- D Hyderabad

Answer: A

Question 47

Which one of the following is not the official language of the UNO?

- A French
- B Arabic
- C Spanish
- D Japanese

Answer: D

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Question 48

With the participation in the Rio Olympics who has become the first tennis player in the world to have 7 appearances in Olympics?

- A Martina Navratilova
- B Serena Williams
- C Leander Paes
- D Roger Federer

Answer: C

Question 49

How many rings are there in the Olympic flag?

- A 4
- B 5
- C 6
- D 7

Answer: B

Question 50

Indian Army's School of Artillery is located at _____

- A Khadakvasala
- B Dehradun
- C Deolali
- D Roorkee

Answer: C

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Mathematics

Instructions

For the following questions answer them individually

Question 51

A and B together can do a piece of work in 12 days while A alone can do the same work in 30 days. B alone can do it in

- A 18 days
- B 20 days
- C 15 days
- D 22 days

Answer: B

Explanation:

Let total work to be done = 60 units

A can complete the work in 30 days

$$\Rightarrow \text{A's efficiency} = \frac{60}{30} = 2 \text{ units/day}$$

$$\text{Similarly, (A+B)'s 1 day's work} = \frac{60}{12} = 5 \text{ units/day}$$

$$\Rightarrow \text{B's efficiency} = 5 - 2 = 3 \text{ units/day}$$

$$\therefore \text{B alone can do the work in} = \frac{60}{3} = 20 \text{ days}$$

\Rightarrow Ans - (B)

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Question 52

The diagonal of a cube is $\sqrt{192}$ cm. Its volume is (cm^3) will be

A 216

B 432

C 512

D 624

Answer: C

Explanation:

Let side of cube = a cm

$$\Rightarrow \text{Diagonal of cube} = \sqrt{3}a \text{ cm}$$

$$\Rightarrow \sqrt{3}a = \sqrt{192}$$

$$\Rightarrow a = \sqrt{\frac{192}{3}} = \sqrt{64}$$

$$\Rightarrow a = 8 \text{ cm}$$

$$\therefore \text{Volume of cube} = (a)^3$$

$$= (8)^3 = 512 \text{ cm}^3$$

\Rightarrow Ans - (C)

Question 53

A watch is listed for Rs.230 and is sold at a discount of 12%, then the sale price of the watch is

A Rs.27.6

B Rs.276

C Rs.202.4

D Rs.257.6

Answer: C

Explanation:

Marked price of watch = Rs. 230

Discount % = 12%

$$\Rightarrow \text{Selling price} = \frac{88}{100} \times 230$$

$$= 88 \times 2.3 = \text{Rs. } 202.4$$

=> Ans - (C)

Question 54

Ravi has a road map with a scale of 1.5 cm for 18 km. He drives on that road for 72 km. What would be his distance covered in that map.

- A 4 cm
- B 6 cm
- C 8 cm
- D 7 cm

Answer: B

Explanation:

According to the road map $18 \text{ km} \equiv 1.5 \text{ cm}$

$$\Rightarrow 72 \text{ km} \equiv \frac{1.5}{18} \times 72$$

$$= 1.5 \times 4 = 6 \text{ cm}$$

=> Ans - (B)

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Question 55

The profit (in Rs.) after selling an article for Rs.524 is the same as the loss (in Rs.) after selling it for Rs.452. The cost price of the article is:

- A Rs.480
- B Rs.485
- C Rs.488
- D Rs.500

Answer: C

Explanation:

Let the cost price of the article = Rs. x

When selling price = Rs. 524

$$\Rightarrow \text{Profit} = \text{Rs. } (524 - x)$$

Similarly, when selling price = Rs. 452

$$\Rightarrow \text{Loss} = \text{Rs. } (x - 452)$$

$$\text{According to ques, } \Rightarrow (524 - x) = (x - 452)$$

$$\Rightarrow x + x = 524 + 452$$

$$\Rightarrow 2x = 976$$

$$\Rightarrow x = \frac{976}{2} = \text{Rs. } 488$$

=> Ans - (C)

Shortcut : $CP = \frac{524+452}{2} = \frac{976}{2} = \text{Rs. } 488$

Question 56

A circle and a square have same area. The ratio of the side of the square to the radius of the circle will be:

- A $\sqrt{\pi} : 1$
- B $1 : \sqrt{\pi}$
- C $\pi^2 : 1$
- D $1 : \pi$

Answer: A

Explanation:

Let side of square = s and radius of circle = r

Also, area of square = area of circle

$$\Rightarrow (s)^2 = \pi r^2$$

$$\Rightarrow \frac{s^2}{r^2} = \pi$$

$$\Rightarrow \frac{s}{r} = \sqrt{\pi}$$

\therefore Ratio of the side of the square to the radius of the circle = $\sqrt{\pi} : 1$

\Rightarrow Ans - (A)

Question 57

How long does a train, 75 m long, moving at 60 km/hr take to pass a certain telegraph post?

- A 3.5 seconds
- B 4.5 seconds
- C 5 seconds
- D 5.4 seconds

Answer: B

Explanation:

Length of train = 75 m

Speed of train = 60 km/hr

$$= (60 \times \frac{5}{18}) \text{ m/sec} = \frac{50}{3} \text{ m/sec}$$

\Rightarrow Time taken to pass a certain telegraph post = distance/speed

$$= 75 \div \frac{50}{3}$$

$$= 75 \times \frac{3}{50} = \frac{9}{2}$$

$$= 4.5 \text{ sec}$$

\Rightarrow Ans - (B)

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Question 58

If $2x - \frac{2}{x} = 1 (x \neq 0)$, then the value of $x^3 - \frac{1}{x^3}$ is

- A $\frac{13}{4}$
- B $\frac{13}{8}$
- C $\frac{17}{4}$
- D $\frac{17}{8}$

Answer: B

Explanation:

Expression : $2x - \frac{2}{x} = 1$

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

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

Cubing both sides, we get :

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

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

Substituting value from equation (i)

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

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

$\Rightarrow x^3 - \frac{1}{x^3} = \frac{1+12}{8} = \frac{13}{8}$

\Rightarrow Ans - (B)

Question 59

If $(a + \frac{1}{a})^2 = 3$, then the value of $a^2 + \frac{1}{a^2}$ will be

- A 0
- B 1
- C 2
- D 3

Answer: B

Explanation:

Expression : $(a + \frac{1}{a})^2 = 3$

$= a^2 + \frac{1}{a^2} + 2(a)(\frac{1}{a}) = 3$

$\Rightarrow a^2 + \frac{1}{a^2} + 2 = 3$

$\Rightarrow a^2 + \frac{1}{a^2} = 3 - 2 = 1$

\Rightarrow Ans - (B)

Question 60

The point equidistant from the vertices of a triangle is called its

- A incentre
- B circumcentre

C orthocentre

D centroid

Answer: B

Explanation:

The point equidistant from the vertices of a triangle is called its **circumcentre**.

=> Ans - (B)

General Science Notes for SSC CGL

Question 61

If one angle of a triangle is equal to half the sum of the other two equal angles, then the triangle is

A isosceles

B scalene

C equilateral

D right angled

Answer: C

Explanation:

Let the angles of the triangle be α, α and β

According to ques,

$$\Rightarrow \beta = \frac{\alpha + \alpha}{2}$$

$$\Rightarrow 2\beta = 2\alpha$$

$$\Rightarrow \beta = \alpha$$

\therefore All the angles of the triangle are equal, thus the triangle is equilateral triangle.

=> Ans - (C)

Question 62

If $\sin^2\theta - \cos^2\theta = \frac{1}{4}$, then the value of $\sin^4\theta - \cos^4\theta$ is

A $\frac{3}{4}$

B $\frac{1}{4}$

C $\frac{1}{16}$

D $\frac{1}{2}$

Answer: B

Explanation:

Given : $\sin^2\theta - \cos^2\theta = \frac{1}{4}$ -----(i)

To find : $\sin^4\theta - \cos^4\theta$

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

$$\therefore (\sin^2\theta + \cos^2\theta = 1) \text{ -----(ii)}$$

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

$$= \binom{1}{4} \times 1 = \frac{1}{4}$$

=> Ans - (B)

Question 63

The least number, which when divided by 5, 6, 7 and 8 leaves a remainder 3 in each case, but when divided by 9 leaves no remainder, is:

- A 1677
- B 1683
- C 2523
- D 3363

Answer: B

Explanation:

L.C.M. of 5, 6, 7 and 8 = 840

Thus, required number is of the form = $840k + 3$

Least value of k for which $(840k + 3)$ is divisible by 9 is $k = 2$

∴ Required number = $840 \times 2 + 3 = 1683$

=> Ans - (B)

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Question 64

A cricketer, whose bowling average was 12.4 runs/wicket takes 5 wickets for 22 runs in a match, thereby decreases his average by 0.4. The number of wickets, taken by him before this match was:

- A 78
- B 87
- C 95
- D 105

Answer: C

Explanation:

Let the number of wickets taken = x

Bowling average = 12.4

=> Total runs conceded by the bowler = $12.4x$

After the match, new bowling average = $12.4 - 0.4 = 12$

$$\Rightarrow \frac{12.4x + 22}{x + 5} = 12$$

$$\Rightarrow 12.4x + 22 = 12x + 60$$

$$\Rightarrow 12.4x - 12x = 60 - 22$$

$$\Rightarrow 0.4x = 38$$

$$\Rightarrow x = \frac{38}{0.4} = 95$$

=> Ans - (C)

Question 65

Sum of the factors of $4b^2c^2 - (b^2 + c^2 - a^2)^2$ is

- A $a + b + c$
- B $2(a + b + c)$
- C 0
- D 1

Answer: B

Explanation:

Expression : $4b^2c^2 - (b^2 + c^2 - a^2)^2$

$$= (2bc)^2 - (b^2 + c^2 - a^2)^2$$

Using, $x^2 - y^2 = (x - y)(x + y)$, where $x = 2bc$ and $y = b^2 + c^2 - a^2$

$$= (2bc - b^2 - c^2 + a^2)(2bc + b^2 + c^2 - a^2)$$

$$= [a^2 - (-2bc + b^2 + c^2)][(2bc + b^2 + c^2) - a^2]$$

$$= [a^2 - (b - c)^2][(b + c)^2 - a^2]$$

$$= [(a - b + c)(a + b - c)][(b + c - a)(b + c + a)]$$

Thus, sum of factors = $(a - b + c) + (a + b - c) + (b + c - a) + (b + c + a)$

$$= 2a + 2b + 2c = 2(a + b + c)$$

=> Ans - (B)

Question 66

If $[\frac{1}{2}(a - b)]^2 + ab = p(a + b)^2$, then the value of p is

- A $p = 4$
- B $p = 1/2$
- C $p = 1/4$
- D $p = 2$

Answer: C

Explanation:

Expression : $[\frac{1}{2}(a - b)]^2 + ab = p(a + b)^2$

$$\Rightarrow \frac{a^2 + b^2 - 2ab}{4} + ab = p(a + b)^2$$

$$\Rightarrow \frac{a^2 + b^2 - 2ab + 4ab}{4} = p(a + b)^2$$

$$\Rightarrow a^2 + b^2 + 2ab = 4p(a + b)^2$$

$$\Rightarrow (a + b)^2 = 4p(a + b)^2$$

$$\Rightarrow 4p = 1$$

$$\Rightarrow p = \frac{1}{4}$$

=> Ans - (C)

Question 67

The sum of two angles of a triangle is 116° and their difference is 24° . The measure of smallest angle of the triangle is

- A 38°
- B 28°
- C 46°
- D 64°

Answer: C

Explanation:

Let the angles of the triangle be α, β and θ

Here, $\alpha + \beta = 116^\circ$ -----(i)

and $\alpha - \beta = 24^\circ$ -----(ii)

Adding equations (i) and (ii)

$$\Rightarrow 2\alpha = 116 + 24 = 140^\circ$$

$$\Rightarrow \alpha = \frac{140}{2} = 70^\circ$$

Substituting it in equation (i), $\Rightarrow \beta = 116 - 70 = 46^\circ$

Also, in a triangle, $\alpha + \beta + \theta = 180^\circ$

$$\Rightarrow 70^\circ + 46^\circ + \theta = 180^\circ$$

$$\Rightarrow \theta = 180 - 116 = 64^\circ$$

Thus, the smallest angle = $\beta = 46^\circ$

\Rightarrow Ans - (C)

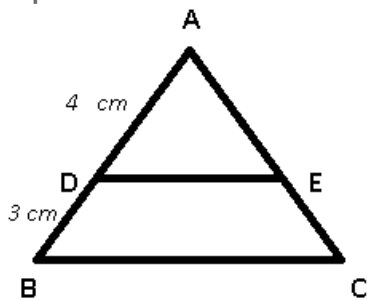
Question 68

In a ΔABC , $DE \parallel BC$. D and E lie on AB and AC respectively. If $AB = 7$ cm and $BD = 3$ cm, then find $BC:DE$

- A 2:2
- B 3:2
- C 3.5 : 2
- D 7:2

Answer: C

Explanation:



Given : $AB = 7$ cm and $BD = 3$ cm

To find : $BC : DE = ?$

Solution : DE is parallel to BC

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

$$\Rightarrow \frac{BC}{DE} = \frac{7}{4}$$

Dividing both numerator and denominator by '2'

$$\Rightarrow \frac{BC}{DE} = \frac{3.5}{2}$$

\Rightarrow Ans - (C)

Question 69

The value of $\frac{\sin^2 63^\circ + \sin^2 27^\circ}{\cos^2 17^\circ + \cos^2 73^\circ}$ is

A 0

B 1

C 2

D -1

Answer: B

Explanation:

Expression : $\frac{\sin^2 63^\circ + \sin^2 27^\circ}{\cos^2 17^\circ + \cos^2 73^\circ}$

$$= (\sin^2 63^\circ + \sin^2 (90 - 63)^\circ) \div (\cos^2 17^\circ + \cos^2 (90 - 17)^\circ)$$

Using, $\sin(90^\circ - \theta) = \cos \theta$ and $\cos(90^\circ - \theta) = \sin \theta$

$$= (\sin^2 63^\circ + \cos^2 63^\circ) \div (\cos^2 17^\circ + \sin^2 17^\circ)$$

Using, $(\sin^2 \theta + \cos^2 \theta = 1)$

$$= (1) \div (1) = 1$$

\Rightarrow Ans - (B)

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Question 70

The difference between the compound interest and the simple interest on Rs. 6250 at 8% per annum in 2 years is

A Rs.30

B Rs.40

C Rs.50

D Rs.60

Answer: B

Explanation:

Principal (P) = Rs. 6250

Rate of interest (r) = 8% and time period (t) = 2 years

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

$$= \frac{6250 \times 8 \times 2}{100}$$

$$= 62.5 \times 16 = \text{Rs. } 1000$$

$$\text{Compound interest} = P \left[\left(1 + \frac{r}{100} \right)^t - 1 \right]$$

$$= 6250[(1 + \frac{8}{100})^2 - 1]$$

$$= 6250[(\frac{27}{25})^2 - 1]$$

$$= 6250 \times (\frac{104}{625})$$

$$= \text{Rs. } 1040$$

$$\therefore \text{C.I. - S.I.} = 1040 - 1000 = \text{Rs. } 40$$

=> Ans - (B)

Question 71

If the angle of elevation of the top of a pillar from the ground level is raised from 30° to 60° , the length of the shadow of a pillar of height $50\sqrt{3}$ will be decreased by

A 60 m

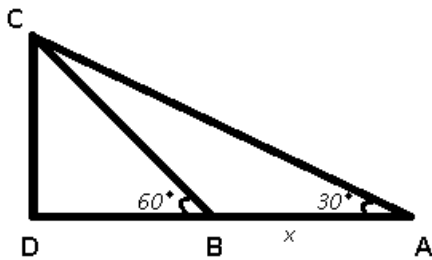
B 75 m

C 100 m

D 50 m

Answer: C

Explanation:



Given : CD is the pillar = $50\sqrt{3}$ m

To find : AB = x = ?

Solution : In $\triangle BCD$,

$$\Rightarrow \tan(60^\circ) = \frac{CD}{DB}$$

$$\Rightarrow \sqrt{3} = \frac{50\sqrt{3}}{DB}$$

$$\Rightarrow DB = \frac{50\sqrt{3}}{\sqrt{3}}$$

$$\Rightarrow DB = 50 \text{-----(i)}$$

Again, in $\triangle ACD$,

$$\Rightarrow \tan(30^\circ) = \frac{CD}{AD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{50\sqrt{3}}{x+50} \quad [\text{Using (i)}]$$

$$\Rightarrow x + 50 = 50\sqrt{3} \times \sqrt{3} = 150$$

$$\Rightarrow x = 150 - 50 = 100 \text{ m}$$

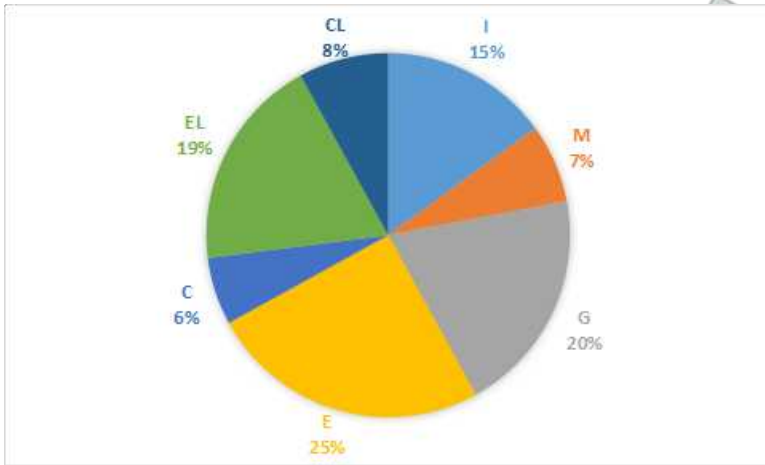
=> Ans - (C)

Instructions

Study the following pie-chart and answer the questions.

Budget estimated by a family for their monthly expenses.

Total salary = ₹ 32000 per month



G - Grocery

E - Education

C - Call bill

EL - Electricity

CL - Clothing

I - Investment

M - Miscellaneous

Question 72

The budget estimated by the family on Clothing and Grocery together is

A Rs.8950

B Rs.8960

C Rs.8850

D Rs.8860

Answer: B

Explanation:

$$\text{Budget estimated on clothing} = \frac{8}{100} \times 32000 = 2560$$

$$\text{Budget estimated on grocery} = \frac{20}{100} \times 32000 = 6400$$

$$\text{Total} = 2560 + 6400 = 8960$$

(METHOD II)

$$\text{Total \% sum on clothing and grocery} = 8+20 = 28\%$$

$$\text{Estimated budget on both} = \frac{28}{100} \times 32000 = 8960$$

=> Ans - (B)

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Question 73

Due to sudden marriage, the family incurs miscellaneous expenditure of Rs. 3040 in total. Then the increase in the amount under this head from that budgeted is

- A Rs.810
- B Rs.1738
- C Rs.234
- D Rs.800

Answer: D

Explanation:

Estimated budget on miscellaneous = $\frac{7}{100} \times 32000 = \text{Rs. } 2240$

Expenditure incurred on miscellaneous = Rs. 3040 (given)

Increase in amount = $3040 - 2240 = \text{Rs. } 800$

=> Ans - (D)

Question 74

The difference in the amount estimated by the family on Electricity and Call bill is:

- A Rs.4560
- B Rs.4470
- C Rs.4168
- D Rs.4160

Answer: D

Explanation:

Amount estimated on electricity = $\frac{19}{100} \times 32000 = \text{Rs. } 6080$

Amount estimated on cell bill = $\frac{6}{100} \times 32000 = \text{Rs. } 1920$

Difference between both bills = $6080 - 1920 = \text{Rs. } 4160$

(METHOD II)

% difference in electricity and cell bill = $19 - 6 = 13\%$

Estimated difference = $\frac{13}{100} \times 32000 = \text{Rs. } 4160$

=> Ans - (D)

Question 75

The family actually spent Rs.4672 on Grocery. Then the difference in the amount budgeted and spent on grocery is:

- A Rs.1528
- B Rs.1728
- C Rs.1278
- D Rs.1628

Answer: B

Explanation:

Estimated budget on grocery = $\frac{20}{100} \times 32000 = \text{Rs. } 6400$

Actual spent on grocery = Rs. 4672 (given)

Difference in both amounts = $6400 - 4672 = \text{Rs. } 1728$

=> Ans - (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.

MASTICATE

- A CHEW
- B CHOKE
- C BITE
- D SWALLOW

Answer: A

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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.

FEROCIOUS

- A MILD
- B SWEET
- C BRUTAL
- D WILD

Answer: A

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 Alleviate
- B Allviate
- C Alliveate
- D Allaevate

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.

The reason Janet came dressed (a) / as Lady Gaga was because she'd been told (b) / it was a costume party (c) / No error (d).

- A The reason Janet came dressed
- B as Lady Gaga was because she'd been told
- C it was a costume party
- D No error

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.

The path to (a) / the famous church passes (b) / through a forest (c) / No error (d).

- A The path to
- B the famous church passes
- C through a forest
- D No error

Answer: D

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.

A first European sailor (a) / who came to India (b) / was Vasco-da-Gama (c) / No error (d).

- A A first European sailor
- B who came to India
- C was Vasco-da-Gama
- D No error

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.

Legislation was passed to punish brokers who _____ their client's funds.

- A devastate
- B devour

C defalcate

D dawdle

Answer: C

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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.

His father was _____ the same business.

A managing over

B engaged in

C endowed with

D enlisted in

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.

It is due to this lethargy that the plan fell _____

A off

B out

C through

D away

Answer: C

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.

Bad blood

A Shooting

B Anaemia

C Enmity

D Mourning

Answer: C

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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.

To beat about the bush

- A To try to win favours
- B To talk well
- C To talk about relevant things
- D To talk about irrelevant things

Answer: D

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.

Maiden speech

- A Bachelor's speech
- B First speech
- C Last speech
- D Extempore speech

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 place where money is coined.

- A Bank
- B Mint
- C Firm
- D Parliament

Answer: B

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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.

The process by means of which plants and animals breathe.

- A Respiration
- B Germination

- C Absorption
- D Transpiration

Answer: A

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 sneers at the aims and beliefs of his fellow men.

- A Critic
- B Connoisseur
- C Pedant
- D Cynic

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".

He started at the bottom rung of the ladder and then gained success.

- A bottom rung of the stair
- B lower rung of the ladder
- C lower rung of the stair
- D No improvement

Answer: D

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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".

The judge gave the verdict against the Government.

- A pronounced
- B declared
- C sentenced
- D No improvement

Answer: A

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".

The fire service personnel put off the fire with much difficulty.

- A put on
- B put out
- C put away
- 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".

He has the irritating habit of playing his own trumpet all the time.

- A blowing his own trumpet
- B pumping his own trumpet
- C bringing up his own trumpet
- D No improvement

Answer: A

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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".

His illness means he must resign his chairmanship impromptu.

- A fast
- B forthwith
- C earliest
- D No improvement

Answer: B

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.

There is a growing parallel between India and Europe in terms of language policy and challenges of maintaining a balance between regional languages, minority languages and the rising demand for English.

The EU's language policy promotes multinationalism and the idea that every EU citizen should learn and speak at least two foreign

languages in addition to their mother tongue. In practice, the foreign language curriculum in European countries is dominated now by the need to learn English. So the defacto policy is that children should, in addition to the language of their member state, learn English and one other European language. English has become not only the language of business across Europe, but also the corporate language of many French, German, Dutch and Spanish enterprises.

The trend across Europe is for schools to begin teaching English in Class I, treating it as a basic skill rather than a foreign language. This trend began in earnest only after 2000. However, the methods to teach English are diverse - an increasingly popular trend is towards bilingual schools, which teach through more than one language medium.

Question 96

There is a parallel between India and Europe as regards

- A language policy
- B trade policy
- C foreign policy
- D cultural policy

Answer: A

Question 97

According to the passage, the foreign language policy in the EU aims to foster.

- A English
- B Multilingualism
- C Bilingualism
- D Only native language

Answer: B

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Question 98

The passage says that the rising demand for English in the EU is because of

- A immigrants
- B emigrants
- C Government policy
- D trade and commerce

Answer: D

Question 99

EU schools regard English as

- A a foreign language
- B a difficult language
- C a basic skill

D an adult skill

Answer: C

Question 100

In Europe the usual pattern is that

A children should study English late in life

B children should start learning English from class I

C children may not study English when they are at school

D children ought to study English just as a lingua franca

Answer: B

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