



SSC CGL 4 June 2019 Shift-1

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Reasoning

Instructions

For the following questions answer them individually

Question 1

If DIG is coded as 25 and CUT is coded as 49. then how will KICK be coded as?

- A 43
- B 39
- C 41
- D 34

Answer: B

Explanation:

Coding is done in the following way :

Add the position of the letters + 5

$$\text{DIG} - 4 + 9 + 7 + 5 = 25$$

$$\text{CUT} - 3 + 21 + 20 + 5 = 49$$

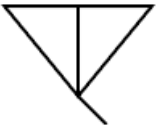
$$\text{KICK} - 11 + 9 + 3 + 11 + 5 = 39$$

So , the answer would be option b)39.

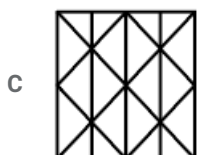
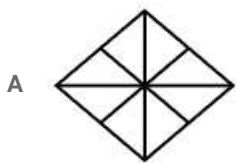
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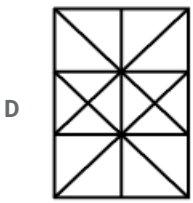
Question 2

Select the option in which the given figure is embedded.



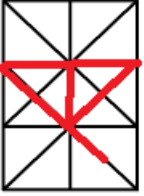
Rotation not allowed.





Answer: D

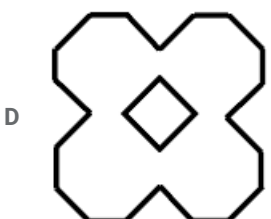
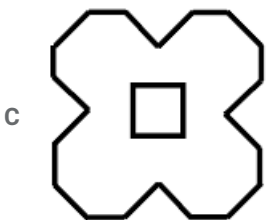
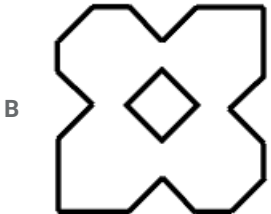
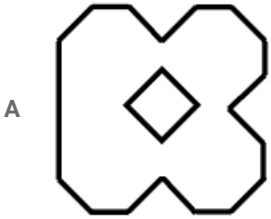
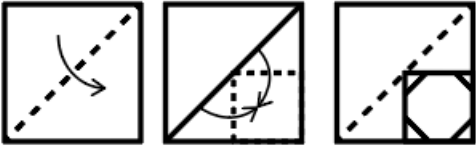
Explanation:



So, the answer would be option d.

Question 3

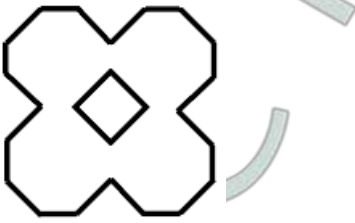
A paper is folded and cut as shown below. How will it appear when unfolded ?



Answer: D

Explanation:

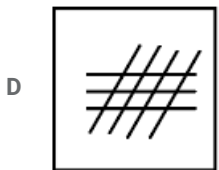
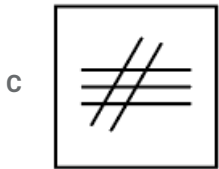
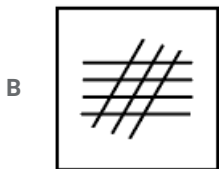
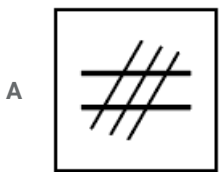
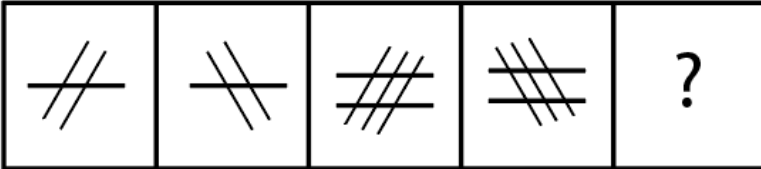
The figure after unfolding has to be symmetrical, only option d satisfies this condition.



So, the answer would be option d.

Question 4

Select the figure that will come next in the following figure series.



Answer: D

Explanation:

Pattern is that vertical line will be inclined first towards left first and then towards right. After that the number of line increases by 1 both horizontally and vertically.

So, the answer would be Option d.

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Question 5

Select the set in which the numbers are related in the same way as are the numbers of the following set.

(9,35,16)

A (16,50,64)

- B (25,30,4)
- C (36,55,25)
- D (81,65,36)

Answer: C

Explanation:

The pattern in the triplet is :

$$(9,35,16) \Rightarrow (3^2, (3 + 4) \times 5, 4^2)$$

$$(36,55,25) \Rightarrow (6^2, (6 + 5) \times 5, 5^2)$$

So, the answer would be option c)(36,55,25).

Question 6

Select the set in which the numbers are related in the same way as are the numbers of the following set.

(3,24,4)

- A (6,35,11)
- B (2,30,8)
- C (12,84,4)
- D (4,72,9)

Answer: D

Explanation:

The pattern in the triplet is

$$(x, 2 \times x \times y, y) \Rightarrow (3, 2 \times 3 \times 4, 4)$$

$$(4,72,9) \Rightarrow (4, 2 \times 4 \times 9, 9)$$

So, the answer would be option d)(4,72,9).

Question 7

Three of the following four letter-clusters are alike in a certain way and one is different. Pick the odd one out.

- A CFIL
- B GHIJ
- C MOQS
- D PSUX

Answer: D

Explanation:

In all the options except PSUX, the difference between position of letter is constant.

While in PSUX, differences are 2,1,2.

So, the answer would be option d)PSUX.

Question 8

Three of the following four numbers are alike in a certain way and one is different. Pick the number that is different from the rest.

- A 126
- B 189
- C 254
- D 217

Answer: C

Explanation:

All the options except 254 are divisible by 7.

So, the answer would be option c)254.

Question 9

In a family of eight persons, there are two couples. each having two children, B and D are brothers and each has two children. E is the aunt of A. who is the cousin brother of C. C is the sister of H. who is the cousin brother of G. F is the wife of B, How is H related to F?

- A Nephew
- B Son-in-law
- C Son
- D Brother-in-law

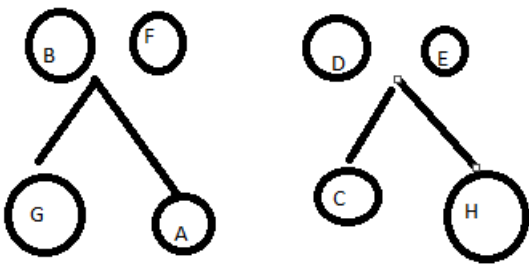
Answer: A

Explanation:

B and D are brothers and they have 2 children => So , B & D would play the role of husband in couples.

It is given , A , G , C & H are the children , and F is wife of B , so E would be wife of D.

Now , draw family diagram.



So, the answer would be option a)Nephew.

Question 10

Arrange the following words in a logical and meaningful order.

1. Buy
2. Dinner
3. Market
4. Vegetables
5. Cook

- A 1,4,5,3,2
- B 3,5,4,1,2

C 4,5,3,1,2

D 3,4,1,5,2

Answer: D

Explanation:

The correct order would be going to market , buying vegetables and cooking dinner.

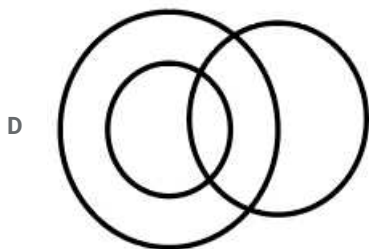
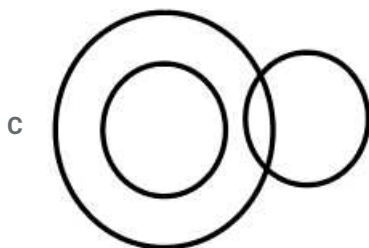
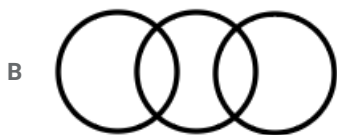
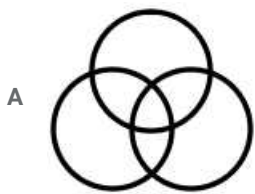
So, the correct option would be Option d) 3,4,1,5,2.

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Question 11

Select the Venn diagram that best illustrates the relationship between the following classes.

Uncle. Relatives. Rich



Answer: D

Explanation:

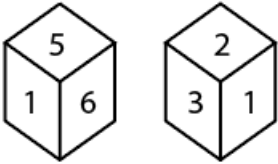
Uncles is a subset of Relatives, so uncles set will be inside the set of Relatives.

While rich may or may not overlap with both uncle and relatives.

So , the answer would be option d).

Question 12

Two different positions of the same dice are shown. Which number will be at the top if 6 is at the bottom ?



- A 4
- B 3
- C 5
- D 2

Answer: D

Explanation:

1 is common in both the figures, so we will start with that side only.

Already in first picture 6 is on one side of 1 , so the other side will be 3.

Also in picture 1 , 1's upper side has 5 , so the lower side will be 3.

And the remaining side will be 4.

If 6 is kept in bottom , 2 will be on the upper side

So , the answer would be option .d)2.

Question 13

'Lawyer' is related to 'Justice' in the same way as 'Arbitrator' is related to '_____':

- A Judgment
- B Injustice
- C Settlement
- D Communication

Answer: C

Explanation:

A lawyer works on cases to provide justice to the client. Similarly , Arbitrator provides settlement to the client.

So, the correct option would be c)Settlement.

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Question 14

Three of the following four words are alike in a certain way and one is different. Pick the odd word out.

- A Groundnut
- B Mustard
- C Cumin
- D Fennel

Answer: A

Explanation:

Except groundnut, rest all are used as spices while cooking. So, the answer would be Option a) Groundnut.

Question 15

Two statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts. decide which of the conclusions logically follow(s) from the statements.

Statements:

All rulers are machines.

Some machines are costly items.

Conclusions:

I. Some rulers are costly items.

II. Some costly items are machines.

III. All costly items are machines.

A Both conclusions Hand III follow

B Both conclusions I and II follow

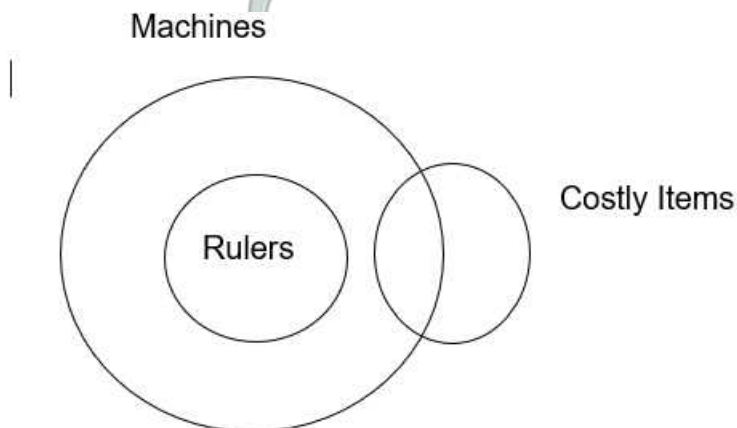
C Only conclusion II follows

D Only conclusion I follows

Answer: C

Explanation:

Draw a venn diagram to represent the sets for Machines, Costly items & Rulers.



So the answer would be Option c) Only conclusion II follows.

Question 16

Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.

CEGI : AGEK :: DFHJ : ?

A CHFI

B CGIK

C BHFL

D BDJK

Answer: C

Explanation:

The pattern in first two clusters is :

CEGI : A(C - 2) G(E + 2) E(G - 2) K(I + 2)

For DFHJ : B(D - 2) H(F + 2) E(G - 2) K(I + 2) = BHFL

So, the answer would be option c)BHFL.

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Question 17

Select the combination of letters that when sequentially placed in the gaps of the given letter series will complete the series.

b_bab_bc_abbb_ba_b

A cbbac

B cbabc

C cbbcb

D bcbab

Answer: C

Explanation:

The pattern in letter series is :

bc ba bb and it gets repeated thrice.

So, the answer would be option c)cbbcb.

Question 18

Which number will replace the question mark (?) in the following series?

3, 7, 16, 35, ?, 153

A 84

B 74

C 78

D 63

Answer: B

Explanation:

Lets try to figure out the pattern in the series.

3

$$(3 \times 2) + 1 = 7$$

$$(7 \times 2) + 2 = 16$$

$$(16 \times 2) + 3 = 35$$

$$(35 \times 2) + 4 = 74$$

$$(74 \times 2) + 5 = 153$$

So , the answer would be Option b)74.

Question 19

In a code language. VICTORY is written as CIVSYRO. How will TRAITOR be written as in that language?

A RATHORT

- B RTAJORT
- C ARTJOTR
- D ARTHROT

Answer: D

Explanation:

The pattern between VICTORY and CIVSYRO is

VICTORY
XIX
CIVSYRO

and T is replaced by S, a letter before that.

Following the same logic, TRAITOR will be ARTHROT.

So, the answer would be option d) ARTHROT.

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Question 20

Select the number-pair in which the two numbers are related in the same way as me the two numbers of the following number-pair.

36 : 84

- A 27 : 63
- B 21 : 51
- C 57 : 135
- D 45 : 95

Answer: A

Explanation:

36 : 84 = 3 : 7

Similarly, 27 : 63 = 3 : 7

So, the answer would be Option a) 3 : 7.

Question 21

₹1875 is divided among A, B and C in such a way that A's share is half of the combined share of B and C. and B's share is one-fourth of the combined share of A and C. By what amount is C's share more than that of A ?

- A ₹500
- B ₹225
- C ₹250
- D ₹200

Answer: C

Explanation:

Let the amount for A is a, for B is b and for C is c.

A/c to question,

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

$$b = \frac{a+c}{4} \Rightarrow 4b = a+c$$

$$a = 4b - c$$

$$2a = 8b - 2c$$

$$b+c = 8b - 2c$$

$$3c = 7b \text{ ---(1)} \Rightarrow b:c = 3:7$$

$$2a = b + c$$

Using (1),

$$3a = 5b \Rightarrow a:b = 5:3$$

Using the above equations, we get the ratio between a, b & c.

$$a:b:c = 5:3:7$$

Since 1875 is the total sum,

$$1875 = (5+3+7)x$$

$$x=125$$

So, difference between C's share and A's share = 250

So, the answer would be option c) 250.

Question 22

Select the word-pair in which the two words are related in the same way as are the two words in the following word-pair.

Book : Thesaurus

- A Tree : Forest
- B Reptile : Python
- C Furniture : Wood
- D Tennis : Ball

Answer: B

Explanation:

Thesaurus is a book, similarly Python is a reptile. Other options don't have similar relation. So, the answer would be Option b) Reptile : Python.

General Science Notes for SSC CGL

Question 23

Which two signs should be interchanged in the following equation to make it correct?

$$12 - 8 + 12 \times 9 \div 3 = 9$$

- A + and \div
- B + and \times
- C - and \div
- D + and -

Answer: A

Explanation:

$$12 - 8 + 12 \times 9 \div 3 = 9$$

In order to correct the above equation , following changes need to be made.

$$12 - 8 \div 12 \times 9 + 3$$

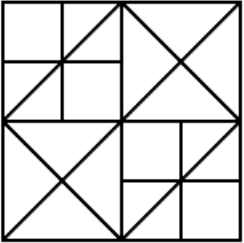
$$= 12 - \frac{2}{3} \times 9 + 3$$

$$= 12 - 6 + 3 = 9$$

So , the answer would be option a) $+$ and \div .

Question 24

How many squares are there in the following figure ?



A 12

B 16

C 13

D 14

Answer: D

Explanation:

First count the ones which have sides at the outer edge including the middle square - 6

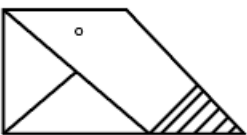
Count the inner ones - 8

So , total would be 14.

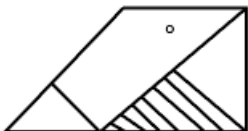
So, the answer would be option d) 14.

Question 25

Select the correct mirror image of the given figure when the mirror is placed to the right of the figure.



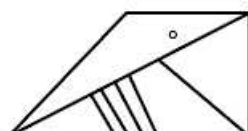
A



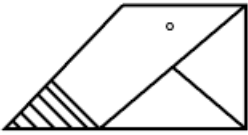
B



C



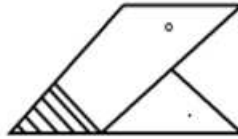
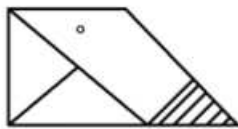
D



Answer: D

Explanation:

If the mirror is placed to the right side, then option d would be correct answer.



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General knowledge

Instructions

For the following questions answer them individually

Question 26

dance, performed by Buddhists to ward off evil spirits, is a dance form of Himachal Pradesh.

- A Chham
- B Natya
- C Dham
- D Gogra

Answer: A

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Question 27

The Musi and Bhima are tributaries of the river.

- A Mahanadi
- B Krishna
- C Kaveri
- D Brahmaputra

Answer: B

Question 28

The Malimath Committee Report deals with:

- A judicial delays
- B textile sector reforms
- C criminal justice system reforms
- D stock market reforms

Answer: C

Question 29

Who attacked and looted the famous Somnath temple in 1026 AD?

- A Muhammad Ghori
- B Mahmud of Ghazni
- C Nadir Shah
- D Genghis Khan

Answer: B

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Question 30

Which country was the first to implement Goods and Services Tax (GST)?

- A France
- B USA
- C Germany
- D Canada

Answer: A

Question 31

Which of the following is mined in the Badampahar mines of Odisha?

- A Azurite
- B Dolomite
- C Bauxite
- D Hematite

Answer: D

Question 32

Sundari, a well known species of trees, is found in:

- A tropical rainforests
- B Himalayan mountains
- C tropical deciduous forests
- D mangrove forests

Answer: D

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Question 33

The Tata Iron and Steel Company (TISCO) was established by Dorabji Tata in:

- A 1919
- B 1913
- C 1907
- D 1911

Answer: C

Question 34

Who was the first female Director General of Police in Puducherry?

- A Aswathy Tonge
- B Kanchan Choudhary
- C Kiran Bedi
- D Sundari Nanda

Answer: D

Question 35

Which of the following elements is a metalloid?

- A Tin
- B Bismuth
- C Silicon
- D Phosphorus

Answer: C

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Question 36

Methyl propane is an isomer of:

- A n-hexane
- B n-butane
- C n-propane
- D n-pentane

Answer: B

Question 37

According to The Economist Intelligence Unit report 'Worldwide Cost of Living Survey 2019', which of the following is NOT one of the three cheapest cities in India?

- A Mumbai
- B Bengaluru
- C New Delhi
- D Chennai

Answer: A

Question 38

Which of the following places was ruled by the Wadiyar dynasty?

- A Mysore
- B Guwahati
- C Jabalpur
- D Patna

Answer: A

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Question 39

Name the first ever judge of the Supreme Court against whom the motion of impeachment was introduced into Parliament in Independent India.

- A Justice Viraswami
- B Justice Ramaswami
- C Justice Mahajan
- D Justice Subba Rao

Answer: B

Question 40

In March 2019, was sworn in as the new chief minister of Goa, following the demise of Manohar Parrikar.

- A Vasundhara Raje

- B H D Kumaraswamy
- C Ashok Gehlot
- D Pramod Sawant

Answer: D

Question 41

J J Thomson received the Nobel Prize in Physics for the discovery of.

- A protons
- B electrons
- C neutrons
- D positrons

Answer: B

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Question 42

Which queen died fighting Mughal armies while defending Garha Katanga in 1564?

- A Rani Avantibai
- B Rani Rudrambara
- C Rani Durgavati
- D Rani Ahilyabai

Answer: C

Question 43

Which gas in its solid state is also known as dry ice?

- A Nitrogen
- B Carbon dioxide
- C Oxygen
- D Hydrogen

Answer: B

Question 44

The Olympic Council of Asia (OCA) has decided to reintroduce in the 2022 Asian Games to be held at Hangzhou, China after it was dropped in 2018.

- A fencing
- B cricket
- C soccer

D volleyball

Answer: B

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Question 45

The property of catenation is predominant in.

A sulphur

B nitrogen

C silicon

D carbon

Answer: D

Question 46

'Thoda' a sport dance belongs to which of the following states?

A Sikkim

B Andhra Pradesh

C Haryana

D Himachal Pradesh

Answer: D

Question 47

The lone gold medal for India was won by at the 38th GeeBee Boxing Tournament held at Helsinki, Finland.

A Kavinder Singh Bisht

B Naveen Kumar

C Mohammed Hussamuddin

D Shiva Thapa

Answer: A

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Question 48

The edition of the India-Indonesia coordinated patrol (IND-INDO CORPAT) held from 19 March to 4th April 2019 was inaugurated at Port Blair, Andaman and Nicobar Islands.

A 23rd

B 42nd

C 45th

D 33rd

Answer: D

Question 49

_____ is the founder of Facebook.

A Mark Zuckerberg

B Brian Acton

C Jimmy Wales

D Larry Page

Answer: A

Question 50

The Indian National Association was established in 1876 by in Calcutta.

A Badruddin Tyabji

B v K Chiplunkar

C Anand Mohan Bose

D Sisir Kumar Ghosh

Answer: C

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Quant

Instructions

For the following questions answer them individually

Question 51

A circle is inscribed in a triangle ABC. It touches the sides AB, BC and AC at the points R, P and Q respectively. If $AQ = 4.5$ cm, $PC = 5.5$ cm and $BR = 6$ cm then the perimeter of the triangle ABC is:

A 30.5 cm

B 28 cm

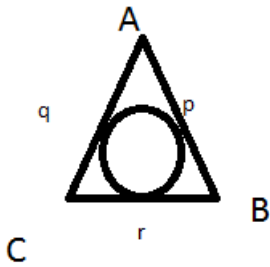
C 32 cm

D 26.5 cm

Answer: C

Explanation:

We know that length of the tangents drawn from an external point are equal.



Here if external point is A , $AQ = AR \Rightarrow AR = 4.5$ cm

If external point is C , $PC = CQ, CA = 5.5$ cm

If external point is B , $PB = BR, PB = 6$ cm

Perimeter of $\triangle ABC = 4.5 + 4.5 + 6 + 6 + 5.5 + 5.5 = 32$ cm

So, the answer would be option c) 32 cm.

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Question 52

The table shows the production of different types of cars (in thousands).

Years → Cars ↓	2012	2013	2014	2015	2016
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

If the data related to the production of cars of type E is represented by a pie chart. then the central angle of the sector representing the data of production of cars in 2013 will be:

- A 102°
- B 84°
- C 70°
- D 80°

Answer: B

Explanation:

Total production of cars = 180

If 180 corresponds to 360° ,

the production of cars in 2013 i.e 42 will be represented by 84° .

So , the answer would be option b) 84° .

Question 53

A truck covers a distance of 384 km at a certain speed. If the speed is decreased by 16 km/h. it will take 2 hours more to cover the same distance. 75% of its original speed (in km/h) is:

- A 45
- B 54
- C 48

D 42

Answer: C

Explanation:

Let the speed be s km/hr.

$$\frac{384}{s-16} - \frac{384}{s} = 2$$

$$384 \left\{ \frac{1}{s-16} - \frac{1}{s} \right\} = 2$$

$$384 \times 8 = s^2 - 16s$$

$$s^2 - 16s - 3072 = 0$$

$$s = 64 \text{ km/hr}$$

75% of its original speed (in km/h) is: $\frac{75}{100} \times 64 = 48 \text{ km/hr}$

So, the answer would be 48 km/hr.

Question 54

The ratio of the ages of A and B, four years ago, was 4 : 5. Eight years from now, the ratio of the ages of A and B will be 11 : 13. What is the sum of their present ages?

A 80 years

B 96 years

C 72 years

D 76 years

Answer: A

Explanation:

Four years ago,

$$\frac{A'age}{B'age} = \frac{4}{5}$$

Suppose A's age = $4x$ and B's age = $5x$

Eight years later,

$$\frac{A'age}{B'age} = \frac{11}{13}$$

$$\frac{4x+12}{5x+12} = \frac{11}{13}$$

$$52x + 156 = 55x + 132$$

$$x = 24 / 3 = 8$$

Present ages of A = $4x + 4 = 36$ and B = $5x + 4 = 44$

Sum of their present ages = 80

So, the answer would be option a) 80.

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Question 55

In $\triangle ABC$, F and E are the points on sides AB and AC, respectively, such that $FE \parallel BC$ and FE divides the triangle in two parts of equal area. If $AD \perp BC$ and AD intersects FE at G, then $GD : AG = ?$

A $\sqrt{2} : 1$

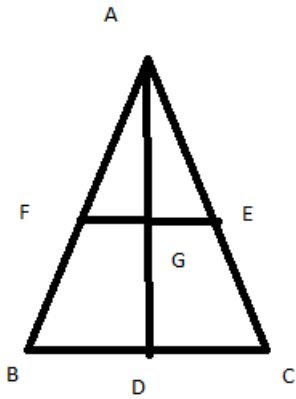
B $(\sqrt{2} - 1) : 1$

C $2\sqrt{2} : 1$

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

Answer: B

Explanation:



It is given that FE divides $\triangle ABC$ into two equal parts.

Area of $\triangle ABC = 2 \times \triangle AFE$

$$\frac{1}{2} \times BC \times AD = \frac{1}{2} \times FE \times AG \times 2$$

$$BC \times AD = 2 \times FE \times AG$$

$$\frac{BC}{FE} = \frac{2AG}{AD}$$

Also .

Area of $\triangle AFE =$ Area of trapezium BFEC

$$\Rightarrow \frac{1}{2} \times FE \times AG = \frac{1}{2} \times (BC + FE) \times DG$$

$$\Rightarrow \frac{1}{2} \times FE \times AG = \frac{1}{2} \times BC \times DG + \frac{1}{2} \times FE \times DG$$

$$\Rightarrow 1 = \frac{BC \times DG}{AG \times FE} + \frac{DG}{AG}$$

$$\Rightarrow 1 = \frac{2DG}{AD} + \frac{DG}{AG}$$

$$\Rightarrow 1 - \frac{DG}{AG} = \frac{2DG}{AD}$$

$$\Rightarrow \frac{AD}{2DG} = 1 - \frac{1}{AG}$$

$$\Rightarrow \frac{AG + GD}{2DG} = 1 - \frac{1}{AG}$$

$$\Rightarrow \frac{AG}{DG} + 1 = 1 - \frac{2}{AG}$$

Let $\frac{DG}{AG}$ be x.

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

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

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

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

So , the answer would be option b) $(\sqrt{2} - 1) : 1$

Question 56

If $4 - 2 \sin^2 \theta - 5 \cos \theta = 0, 0^\circ < \theta < 90^\circ$, then the value of $\sin \theta + \tan \theta$ is:

- A $\frac{3\sqrt{2}}{2}$
- B $\frac{3\sqrt{3}}{2}$
- C $3\sqrt{2}$
- D $2\sqrt{3}$

Answer: B

Explanation:

$$4 - 2 \sin^2 \theta - 5 \cos \theta = 0$$

Using the equation ,

$$\sin^2 \theta + \cos^2 \theta = 1$$
 , in above equation ,

$$4 - 2(1 - \cos^2 \theta) - 5 \cos \theta = 0$$

$$4 - 2 + 2\cos^2 \theta - 5 \cos \theta = 0$$

$$2\cos^2 \theta - 5 \cos \theta + 2 = 0$$

$$\cos \theta = \frac{5 \pm \sqrt{25 - 16}}{4}$$

$$\cos \theta = \frac{5 \pm 3}{4}$$

$$\cos \theta = 2 \text{ or } \frac{1}{2}$$

$\cos \theta$ can't be more than 1, so $\cos \theta = \frac{1}{2}$

$$\sin \theta = \frac{\sqrt{3}}{2}$$

$$\tan \theta = \sqrt{3}$$

$$\sin \theta + \tan \theta = \frac{\sqrt{3}}{2} + \sqrt{3} = \frac{3\sqrt{3}}{2}$$

So , the answer would be Option b) $\frac{3\sqrt{3}}{2}$.

Question 57

The table shows the production of different types of cars (in thousands).

Years →	2012	2013	2014	2015	2016
Cars ↓					
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

What is the ratio of the total production of cars of type A in 2014 and type C in 2013 taken together to the total production of cars of type B in 2016 and type E in 2015 taken together?

- A 12 : 13
- B 11 : 12
- C 10 : 11
- D 12 : 11

Answer: A

Explanation:

the total production of cars of type A in 2014 and type C in 2013 = 48 + 36 = 84

the total production of cars of type B in 2016 and type E in 2015 = 56 + 35 = 91

$$\text{Ratio} = \frac{84}{91} = \frac{12}{13}$$

So, the answer would be option a) 12:13.

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Question 58

If decreasing 120 by $x\%$ gives the same result as increasing 40 by $x\%$, then $x\%$ of 210 is what percent less than $(x+20)\%$ of 180?

A $\frac{1}{3}$

B 18

C $\frac{2}{3}$

D 20

Answer: C

Explanation:

According to question,

$$\frac{(100 - x)}{100} \times 120 = \frac{(100 + x)}{100} \times 40$$

$$x = 50$$

$$x\% \text{ of } 210 = \frac{(50)}{100} \times 210 = 105$$

$$(x+20)\% \text{ of } 180 = \frac{(70)}{100} \times 180 = 126$$

$$\text{Required answer} = \frac{(21)}{126} \times 100 = \frac{2}{3}$$

So, the answer would be $\frac{2}{3}$.

Question 59

If $(5\sqrt{5}x^3 - 81\sqrt{3}y^3) \div (\sqrt{5}x - 3\sqrt{3}y) = (Ax^2 + By^2 + Cxy)$, then the value of $(6A + B - \sqrt{15}C)$ is:

A 10

B 9

C 15

D 12

Answer: D

Explanation:

$$(5\sqrt{5}x^3 - 81\sqrt{3}y^3) \div (\sqrt{5}x - 3\sqrt{3}y)$$

Using the formula,

$$(a^3 - b^3) = (a - b)(a^2 + ab + b^2)$$

$$(5\sqrt{5}x^3 - 81\sqrt{3}y^3) \div (\sqrt{5}x - 3\sqrt{3}y)$$

$$= 5x^2 + 3\sqrt{15}xy + 9\sqrt{3}y^2$$

$$A = 5, B = 27, C = 3\sqrt{15}$$

Putting these values in,

$$(6A + B - \sqrt{15}C) = 30 + 27 - 45 = 12$$

So, the answer would be Option d) 12.

Question 60

If a nine-digit number $985x3678y$ is divisible by 72. then the value of $(4x - 3y)$ is:

- A 5
- B 4
- C 6
- D 3

Answer: B

Explanation:

985x3678y is divisible by 72, so it is divisible by both 9 & 8.

Divisibility rule of 8 : Last 3 digits of a whole number should be divisible by 8.

So $y = 4$

Divisibility rule of 9 : Sum of all the digits in whole number should be divisible by 9.

Sum = $50 + x$

$x = 4$

$4x - 3y = 4 \implies 4 \times 4 - 3 \times 4 = 4$

So, the answer would be option b) 4.

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Question 61

If $\sin \theta = \frac{p^2 - 1}{p^2 + 1}$, then $\cos \theta$ is equal to:

- A $\frac{2p}{1+p^2}$
- B $\frac{p}{p^2-1}$
- C $\frac{p}{1+p^2}$
- D $\frac{2p}{p^2-1}$

Answer: A

Explanation:

$\sin \theta = \frac{p^2 - 1}{p^2 + 1}$

We know that $\sin^2 \theta + \cos^2 \theta = 1$

$\implies \cos^2 \theta = 1 - \sin^2 \theta$

$\implies \cos \theta = \sqrt{1 - \sin^2 \theta}$

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

$= \sqrt{1 - \frac{(p^4 + 1 - 2p^2)(p^4 + 1 + 2p^2)}{(p^2 + 1)^2}}$

$= \sqrt{\frac{p^4 + 1 + 2p^2 - p^4 - 1 + 2p^2}{(p^2 + 1)^2}}$

$= \sqrt{\frac{4p^2}{(p^2 + 1)^2}}$

$= \frac{2p}{1+p^2}$

So, the answer would be Option a) $\frac{2p}{1+p^2}$.

Question 62

The ratio of the efficiencies of A, B and C is 2 : 5 : 3. Working together, they can complete a work in 27 days. B and C together can complete $\frac{4}{9}$ the part of that work in:

- A 27 days

- B 15 days
- C $17\frac{1}{7}$ days
- D 24 days

Answer: B

Explanation:

Total 1 day work = $2d + 5d + 3d = 10d$

Work completed in 27 days

\Rightarrow total Work = $27 \times 10d = 270d$

$4/9$ th part of work = $(4/9) \times 270d = 120d$

B & C's 1 day work = $5d + 3d = 8d$

B and C together can complete $4/9$ th part of that work in = $120d \div 8d = 15$

So, the answer would be option b) 15.

Question 63

The average of twelve numbers is 42. The average of the last five numbers is 40, and that of the first four numbers is 44. The 6th number is 6 less than the fifth and 5 less than the 7th number. The average of the 5th and the 7th numbers is:

- A 44
- B 44.5
- C 43
- D 43.5

Answer: B

Explanation:

Average of twelve numbers = 42

Sum of twelve numbers = $42 \times 12 = 504$

Average of the last five numbers = 40

Sum of the last five numbers = 200

Average of first four numbers = 44

Sum of first four numbers = 176

Sum of 5th, 6th and 7th term = $504 - 200 - 176 = 128$

Now, let's suppose 6th term is x .

5th term would be $(x+6)$ and 7th term would be $(x+5)$.

$x+5 + x + x+6 = 128$

$x=39$

6th term = 45 & 7th term = 44

Average of 6th & 7th term = $\frac{89}{2} = 44.5$

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Question 64

If $x + y + z = 19$, $x^2 + y^2 + z^2 = 133$ and $xz = y^2$, then the difference between z and x is:

- A 5
- B 3
- C 6
- D 4

Answer: A

Explanation:

$$x + y + z = 19$$

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

$$361 = 133 + 2(xy + yz + zx)$$

$$xy + yz + zx = 114$$

Substituting $xz = y^2$

$$xy + yz + y^2 = 114$$

$$y(x + y + z) = 114$$

$$y = 6$$

$$x + z = 13$$

$$xz = y^2 = 36$$

$$x - z = \sqrt{(x + z)^2 - 4xz}$$

$$= \sqrt{169 - 144}$$

$$= 5$$

So, the answer would be Option a)5.

Question 65

$\frac{2 + \tan^2 \theta + \cot^2 \theta}{\sec \theta \operatorname{cosec} \theta}$ is equal to:

- A $\cot \theta$
- B $\cos \theta \sin \theta$
- C $\sec \theta \operatorname{cosec} \theta$
- D $\tan \theta$

Answer: C

Explanation:

$$\frac{2 + \tan^2 \theta + \cot^2 \theta}{\sec \theta \operatorname{cosec} \theta}$$

$$= \frac{1 + \tan^2 \theta + 1 + \cot^2 \theta}{\sec \theta \operatorname{cosec} \theta}$$

$$= \frac{\sec^2 \theta + \operatorname{cosec}^2 \theta}{\sec \theta \operatorname{cosec} \theta}$$

$$= \frac{\frac{1}{\cos^2 \theta} + \frac{1}{\sin^2 \theta}}{\frac{1}{\sin \theta \cos \theta}}$$

$$= \frac{1}{\sin \theta \cos \theta}$$

$$= \sec \theta \operatorname{cosec} \theta$$

So, the answer would be option c) $\sec \theta \operatorname{cosec} \theta$.

Question 66

In a circle of radius 10 cm, with centre O. PQ and PR are two chords each of length 12 cm PO intersects chord QR at the points S. The length of OS is:

- A 2.8 cm
- B 2.5 cm
- C 3.2 cm
- D 3 cm

Answer: A

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Question 67

A sum amounts to ₹8,028 in 3 years and to ₹12,042 in 6 years at a certain rate percent per annum, when the interest is compounded yearly. The sum is:

- A ₹5,352
- B ₹5,235
- C ₹5,325
- D ₹5,253

Answer: A

Explanation:

Formula for Amount when compound interest is applied

$$\text{Amount} = P \times \left(1 + \frac{r}{100}\right)^n$$

where

P = Principal

r = Rate of Interest

n = Number of years

Let the Principal be Rs.x .

According to question ,

$$8,028 = x \left(1 + \frac{r}{100}\right)^3 \quad \text{----- 1}$$

$$12,042 = x \left(1 + \frac{r}{100}\right)^6 \quad \text{----- 2}$$

Dividing 2 by 1 , we get ,

$$1.5 = \left(1 + \frac{r}{100}\right)^3$$

Using this value in 1 , we get ,

$$8,028 = x \left(1 + \frac{r}{100}\right)^3$$

$$8,028 = x \times 1.5$$

$$x = 8028 / 1.5 = 5352$$

So , the answer would be Option a) Rs 5352 .

Question 68

The value of $2 \times 3 \div 2$ of $3 \times 2 \div (4 + 4 \times 4 \div 4$ of $4 - 4 \div 4 \times 4)$ is:

- A 8
- B 1

C 4

D 2

Answer: D

Explanation:

Following BODMAS,

$$\begin{aligned} & \$2 \times 3 \div 2 \text{ of } 3 \times 2 \div (4 + 4 \times 4 \div 4 \text{ of } 4 - 4 \div 4 \times 4) \$\$ \\ & = \$2 \times 3 \div 6 \times 2 \div (4 + 4 \times 4 \div 16 - 4 \div 4 \times 4) \$\$ \\ & = \$2 \times \frac{1}{2} \times 2 \div (4 + 4 \times \frac{1}{4} - 4 \div 4 \times 4) \$\$ \\ & = \$2 \div (4 + 1 - 1 \times 4) \$\$ \\ & = \$2 \div (5 - 4) \$\$ \\ & = 2 \end{aligned}$$

So, the answer would be option d) 2.

Question 69

If the marked price of the article is Rs. 720 and two successive discount of x% are offered. A total discount of 259.2 is offered then what is the value of x?

A 18

B 24

C 20

D 25

Answer: C

Explanation:

Discount % offered = x

Let y = 100 - x

A/c to question,

$$\frac{y^2}{100^2} \times 720 = 720 - 259.2$$

$$y = 80$$

$$x = 100 - 80 = 20$$

So, the answer would be option c) 20.

General Science Notes for SSC CGL

Question 70

A solid cube of volume 13824 cm^3 is cut into 8 cubes of equal volumes. The ratio of the surface area of the original cube to the sum of the surface areas of three of the smaller cubes is:

A 2 : 3

B 4 : 3

C 8 : 3

D 2 : 1

Answer: B

Instructions

The table shows the production of different types of cars (in thousands).

Years →	2012	2013	2014	2015	2016
Cars ↓					
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

Question 71

The total production of type B cars in 2012, 2014 and 2015 taken together is approximately what percent more than the total production of type A cars in 2013 and 2016 taken together?

- A 31.9
- B 33.2
- C 36.3
- D 34.4

Answer: A

Explanation:

The total production of type B cars in 2012, 2014 and 2015 = $42 + 40 + 38 = 120$

The total production of type A cars in 2013 and 2016 = $35 + 56 = 91$

Required answer

$$120 = (100 + x) \div 100 \times 91$$

$$x = 31.86$$

So, the answer would be Option a) 31.9.

Question 72

The number of years, in which the production of cars of type B is less than the average production of type D cars over the years, is:

- A 1.4
- B 1
- C 3
- D 2

Answer: D

Explanation:

Average production of type D cars over the years

$$= (51 + 24 + 30 + 46 + 54) \div 5 = 41$$

Production of cars of type B is less than the average production of type D cars for years 2014 & 2015.

So, the answer would be Option d) 2.

Instructions

For the following questions answer them individually

Question 73

A person sold an article at a loss of 15%. Had he sold it for ₹30.60 more, he would have gained 9%. To gain 10%, he should have sold it for:

- A ₹140.25
- B ₹132
- C ₹130
- D ₹128.40

Answer: A

Explanation:

Let the C.P of article be Rs.x .

S.P would be Rs. 0.85x .

According to question ,

$$0.85x + 30.6 = 1.09x$$

$$x = \frac{30.6}{0.24} = 127.5$$

To gain 10% on C.P , S.P should be $1.1 \times \text{C.P} = 1.1 \times 127.5 = 140.25$

So , the answer would be Option a)140.25.

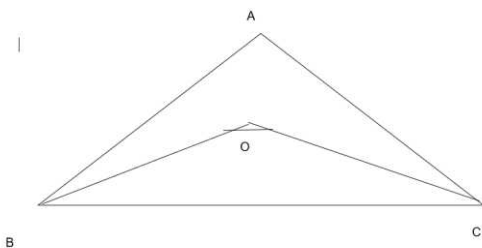
Question 74

In a $\triangle ABC$, the bisectors of $\angle B$ and $\angle C$ meet at point O, inside the triangle. If $\angle BOC = 122^\circ$, then the measure of $\angle A$ is

- A 64°
- B 62°
- C 72°
- D 68°

Answer: A

Explanation:



In $\triangle OBC$,

$$\angle OBC + \angle BOC + \angle OCB = 180^\circ$$

$$\angle OBC + \angle OCB = 180^\circ - 122^\circ = 58^\circ$$

$$\angle B + \angle C = 2 \times 58^\circ = 116^\circ$$

$$\angle A = 180^\circ - 116^\circ = 64^\circ$$

So , the answer would be Option a) 64° .

Question 75

If $x^4 + x^{-4} = 194$, $x > 0$, then the value of $(x - 2)^2$ is:

- A 1
- B 6
- C 2
- D 3

Answer: D

Explanation:

$$x^4 + x^{-4} = 194$$

$$(x^2 + x^{-2})^2 = x^4 + x^{-4} + 2 = 194 + 2 = 196$$

$$(x^2 + x^{-2}) = 14$$

$$(x + x^{-1})^2 = (x^2 + x^{-2}) + 2 = 14 + 2 = 16$$

$$x + x^{-1} = 4$$

$$x^2 - 4x + 1 = 0$$

$$(x - 2)^2 = x^2 - 4x + 4 = x^2 - 4x + 1 + 3 = 0 + 3 = 3$$

So, the answer would be Option d)3.

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English

Instructions

In the following passage some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

Comprehension:

Seoul's city government is asking people for help to correct poorly translated street signs with prizes on offer for (1)_____ who spot the most errors. It's running (2)_____ two-week campaign calling on Koreans and foreigners (3)_____ to keep their eyes peeled for (4)_____ in English, Japanese and Chinese text, the Korea Times reports. There's a (5)_____ focus on public transport signs, maps and information signs at historic sites, as part of a drive to improve the experience of foreign tourists in the South Korean capital.

Question 76

Select the most appropriate option for blank No.1.

- A this
- B those
- C that
- D these

Answer: B

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Question 77

Select the most appropriate option for blank No.2.

- A one
- B the
- C an
- D a

Answer: D

Question 78

Select the most appropriate option for blank No.3.

- A same
- B similarly
- C alike
- D likely

Answer: C

Question 79

Select the most appropriate option for blank No.4.

- A guffaws
- B blunder
- C oversight
- D mistakes

Answer: D

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Question 80

Select the most appropriate option for blank No.5.

- A particular
- B important
- C signifying
- D meticulous

Answer: A

Instructions

For the following questions answer them individually

Question 81

Select the synonym of the given word.

COERCE

- A enchant
- B pressurize
- C cajole
- D leave

Answer: B

Question 82

In the sentence identify the segment which contains the grammatical error.
We had to decline several orders in case that the production was held up due to labour strike.

- A in case that
- B the production was held up
- C due to labour strike
- D We had to decline

Answer: A

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Question 83

Select the most appropriate word to fill in the blank.
His company has the _____ of producing the best cricket balls in the country.

- A opinion
- B brand
- C reputation
- D position

Answer: C

Question 84

Select the antonym of the given word.
EXPANSION

- A inflation
- B augmentation
- C extension
- D compression

Answer: D

Question 85

Select the antonym of the given word.
SCARCE

- A scanty
- B few
- C seldom
- D plentiful

Answer: D

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Question 86

Select the wrongly spelt word.

- A calander
- B career
- C callous
- D carriage

Answer: A

Question 87

Select the most appropriate word to fill in the blank.

Around sixty bands in colourful ____ took part in the Notting Hill Carnival.

- A clothings
- B costumes
- C apparels
- D dressing

Answer: B

Question 88

Select the word which means the same as the group of words given.

A person, animal or plant much below the usual height

- A wizard
- B dwarf
- C creature
- D witch

Answer: B

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Question 89

Select the most appropriate option to substitute the underlined segment in the given sentence. If no substitution is required, select **No improvement**.

The workers of this textile factory demand higher wages for a long time.

- A have been demanding higher wages
- B demanded higher wages
- C No improvement
- D has demanded higher wages

Answer: A

Question 90

Select the most appropriate option to substitute the underlined segment in the given sentence. If no substitution is required, select **No improvement**.

If you park your car here, the traffic police has fined you.

- A will fine you
- B No improvement
- C fine you
- D fined you

Answer: A

Question 91

Given below are four jumbled sentences. Select the option that gives their correct order.

- A. The cafe's owner says he's interested in conservation, and hopes customers will realise the animals are worth saving, even though they often have a bad reputation.
- B. None of them are venomous, meaning customers can get up close and personal with the reptiles.
- C. Here you sip your drink in the company of 35 snakes.
- D. This cafe, which has just opened in Tokyo, is not for the faint-hearted.

- A DBCA
- B DCBA
- C ABCD
- D ABDC

Answer: C

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Question 92

Given below are four jumbled sentences. Select the option that gives their correct order.

- A. An environmental group performed a necropsy on the animal and found about 40 kilograms of plastic, including grocery bags and rice sacks.
- B. A 4.7-metre long whale died on Saturday in Phillipines where it was stranded a day earlier.
- C. "It's very disgusting and heartbreaking," he said. "We've done necropsies on 61 dolphins and whales in the last 10 years and this is one of the biggest amounts of plastic we've seen".
- D. "The animal died from starvation and was unable to eat because of the trash filling its stomach," said Darrell Blatchley, Director of D' Bone Collector Museum Inc..

A ABCD

B DABC

C BADC

D BACD

Answer: C

Question 93

Select the most appropriate meaning of the given idiom.

To play ducks and drakes

A to use recklessly

B to change places

C to be friendly

D to act cleverly

Answer: A

Question 94

In the sentence identify the segment which contains the grammatical error.

Cyclone Idai killed at least 157 people in Zimbabwe and Mozambique although it tore across Southern Africa.

A Cyclone Idai killed

B it tore across

C although

D at least 157 people

Answer: C

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Question 95

Select the correct active form of the given sentence.

Every passing vehicle was being thoroughly checked by the guards.

A The guards were thoroughly checking every passing vehicle.

B The guards have thoroughly checked every passing vehicle.

- C Every passing vehicle were thoroughly checking the guards.
D The guards have been thoroughly checking every passing vehicle.

Answer: A

Question 96

Select the wrongly spelt word.

- A exploite
B explicit
C expire
D explode

Answer: A

Question 97

**Select the synonym of the given word.
CHRONIC**

- A ordinary
B persistent
C common
D temporary

Answer: B

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Question 98

**Select the most appropriate meaning of the given idiom.
At daggers drawn**

- A deceiving somebody
B without hope
C friendly with each other
D bitterly hostile

Answer: D

Question 99

**Select the word which means the same as the group of words given.
A student who idly or without excuse absents himself/herself from school**

- A truant
B vagrant
C itinerant

D migrant

Answer: A

Question 100

Select the correct passive form of the given sentence.
Do not buy medicines without the doctor's prescription.

- A Medicines should not be bought without the doctor's prescription.
- B Medicines need not be bought without the doctor's prescription
- C Medicines might not be bought without the doctor's prescription
- D Medicines could not be bought without the doctor's prescription

Answer: A

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