



SSC CHSL 3 July 2019 Shift-1

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Reasoning

Instructions

For the following questions answer them individually

Question 1

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.

Year : June

- A Week : Calendar
- B Week : Thursday
- C Year : Century
- D April : Month

Answer: B

Explanation:

June is month and 12 months is equal to 1 year in the same way thursday is a day and 7 days equal to 1 week.

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Question 2

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.

MARK : FHMP :: LOAN : _____

- A SVEV
- B EVVS
- C EVSV
- D SVVE

Answer: B

Explanation:

M	A	R	K	L	O	A	N
-8	+8	-5	+5	-8	+8	-5	+5
F	H	M	P	E	V	V	S

M-7 = F
A+7 = H
R-5 = M
K+5 = P
MARS : FHMP

Similarly,
L-7 = E
O+7 = V
A-5 = V
N+5 = S
Hence, LOAN : EVVS.

Question 3

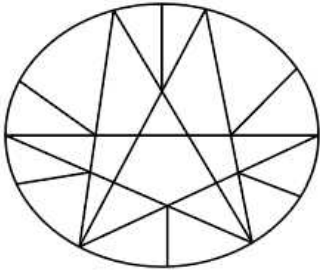
In a code language, LOGITECH is written as CFCEBAYD. How will INFORMATION be written as in that language?

- A EEBFIDBWFEE
- B EEBFIDWBEFE
- C EBEFDIWBEFE
- D EBEDIFBWFEE

Answer: B

Question 4

How many triangles are present in the following figure ?



- A 30
- B 28
- C 26
- D 24

Answer: B

Explanation:

Total of 28 triangles is available in the figure.

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Question 5

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

$$28 - 42 \div 2 + 276 \times 23 = -44$$

- A + and ÷
- B × and ÷
- C + and -
- D × and +

Answer: B

Explanation:

$$28 - 42 \div 2 + 276 \times 23 = -44$$

After interchanging × and ÷

$$28 - 42 \times 2 + 276 \div 23 = -44$$

$$28 - 84 + 12 = -44$$

$$-44 = -44$$

Question 6

If FINGER is coded as 15232112239 and MARKET is coded as 14192916252, then how will MILTON be coded as?

- A 2222213355
- B 21223239525
- C 22213235295
- D 22122353295

Answer: C

Explanation:

This can be understood as follows:

If we take the position of every alphabet as per the alphabetical series we get A = 1; B = 2, C = 3 and so on.

F	I	N	G	E	R
6	9	14	7	5	18
6+9	9+14	14+7	7+5	5+18	1+8
15	23	21	12	23	9

Hence FINGER = 15232112239

M	A	R	K	E	T
13	1	18	11	5	20
13+1	1+18	18+11	11+5	5+20	2+0
14	19	29	16	25	2

Hence MARKET = 14192916252

Similarly we get the code for MILTON as 22213235295

Question 7

Select the set in which the numbers are related in the same way as are the numbers of the following set. (11, 13, 288)

- A (19, 23, 828)
- B (3, 5, 31)
- C (7, 11, 162)
- D (13, 17, 415)

Answer: C

Explanation:

(11, 13, 288) pattern is $11+13 = 24/2 \times 24 = 288$

Question 8

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

- A AVZ
- B UPF
- C EZV
- D OKL

Answer: D

Explanation:

Sum of alphabetical order,

$$AVZ = 1+22+26=49$$

$$UPF = 21+16+6=43$$

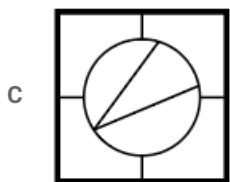
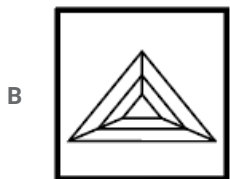
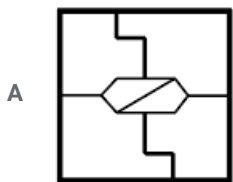
$$EZV = 5+26+22=53$$

$$OKL = 15+11+12=38$$

OKL sum is even numbers and rest are odd numbers.

Question 9

Select the option in which the given figure is embedded.



Answer: B

Explanation:

Basically we have to find square with triangle inside it. So we see the options closely then in option B the given figure is embedded.

Question 10

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

- A Surfing
- B Swimming
- C Driving
- D Parasailing

Answer: C

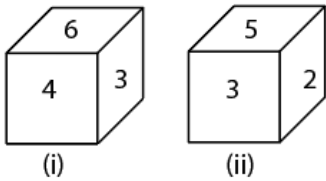
Explanation:

Except driving all activities are performed in the water.

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Question 11

Two different positions of the same dice are shown. Which number will be at the top if 2 is at the bottom ?



- A 6
- B 3
- C 4
- D 1

Answer: A

Explanation:

Take two dice which contain common numbers . ex.we take two dice 3 is same in both dice .

now start with common number and write in clockwise direction

3 4 6

3 5 2..now we see

4 is opposite of

6 is opposite to 2

Question 12

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 4842
- B 7261

C 2421

D 5472

Answer: B

Explanation:

7261 is a number whose factor is only prime numbers. So it is different.

Question 13

There are two Married couples in a family. % has two children. A is wife of @, who is brother of #. F is daughter of %. U is sister of S, who is son of @. T is son of #, who is a male.

How is A is related to %?

A Sister

B Brother

C Brother in law

D Sister in law

Answer: D

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Question 14

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

(11, 13, 17)

A (5, 7, 9)

B (19, 23, 29)

C (29, 31, 41)

D (31, 37, 43)

Answer: B

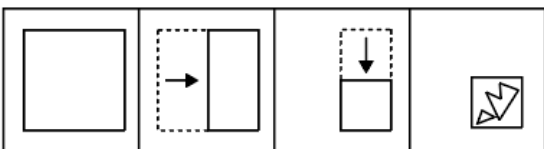
Explanation:

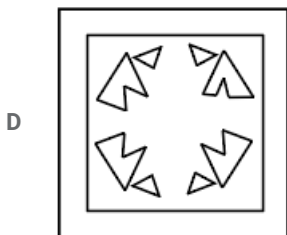
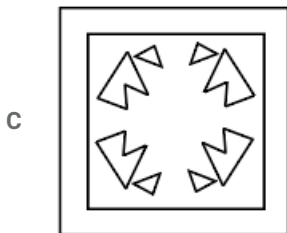
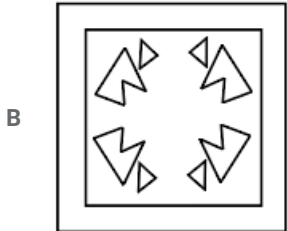
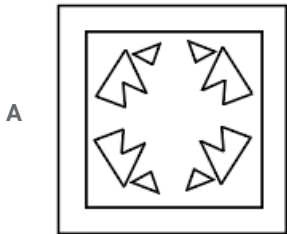
(11, 13, 17) pattern is $11+2=13$, $13+4=17$

In the same way (19, 23, 29) $19+4=23$, $23+6=29$

Question 15

A paper is folded and cut as shown in the following figures. How will it appear when unfolded ?





Answer: A

Explanation:

If we see from the last figure then we observe that figure of option A will appear after unfolded.

Question 16

Select the option that is related to the third number in the same way as the second number is related to the first number.

68 : 100 :: 45 : _____

A 41

B 141

C 14

D 114

Answer: A

Explanation:

$$6^2 + 8^2 = 36 + 64 = 100$$

Using the same logic,

$$4^2 + 5^2 = 16 + 25 = 41$$

∴ 68 : 100 :: 45 : 41

Hence, the correct answer is Option A

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Question 17

Three 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:

Some tractors are boats.

All cups are boats.

All jars are tractors.

Conclusions:

I. Some tractors are cups.

II. No jar is boat.

III. Some cups are jars.

A Only conclusions I and II follow.

B None of the conclusions follows.

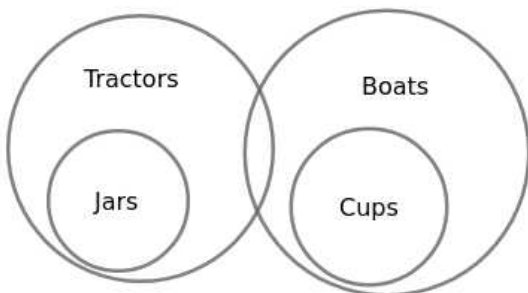
C Only conclusions II and III follow.

D Only conclusions I and III follow.

Answer: B

Explanation:

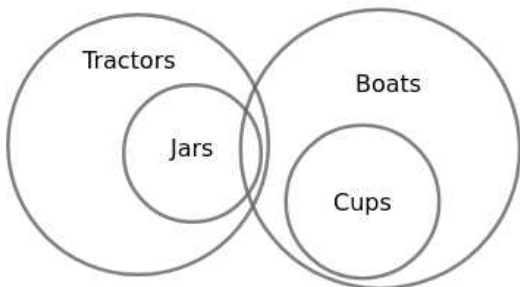
From the given statements, the basic diagram is



I. Some tractors are cups

From the basic diagram, No tractor is cup. Hence Conclusion I do not follow.

II. No jar is boat



From the above possibility diagram, Some jars are boats. Hence Conclusion II do not follow.

III. Some cups are jars

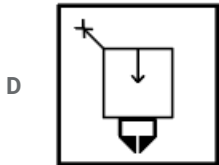
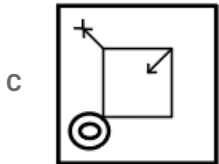
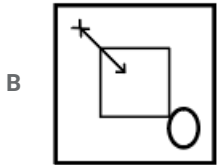
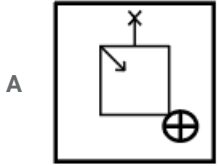
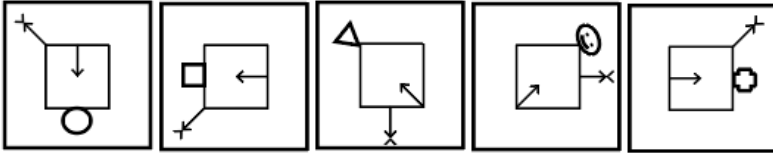
From the basic diagram, No cup is a jar. Hence Conclusion III do not follow.

∴ None of the conclusion follows

Hence, the correct answer is Option B

Question 18

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



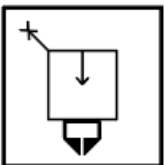
Answer: D

Explanation:

The arrow inside the square is moving two places (side to side or vertex to vertex of the square) and one place (side to vertex or vertex to side of the square) alternatively.

The arrow outside the square is moving two places (side to side or vertex to vertex of the square) and one place (side to vertex or vertex to side of the square) alternatively.

∴ The figure that will come next in the following figure series is



Hence, the correct answer is Option D

Question 19

Twenty teams take part in a football tournament. Each team has to play every other team. How many games would be played in the tournament?

- A 180
- B 170
- C 190

D 195

Answer: C



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Question 20

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: A

Explanation:

When the mirror is placed to the right of the figure,

The facing of the figure to the left and right direction changes to opposite direction in mirror image (right facing changes to left and vice versa).

The three lines on the right side will be on the left side in the mirror image

∴ The mirror image of the given figure is

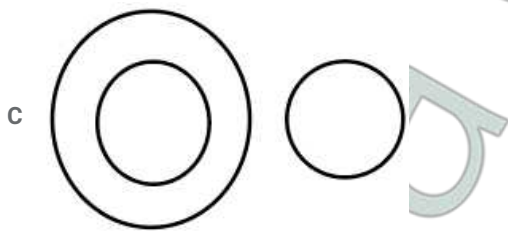
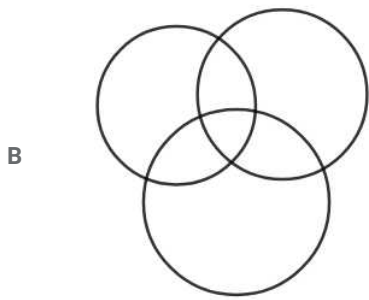
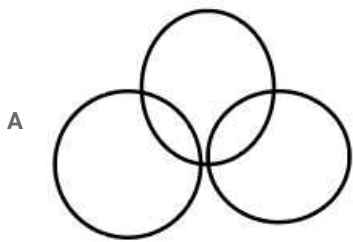


Hence, the correct answer is Option A

Question 21

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

Lecturers, Singers, Men



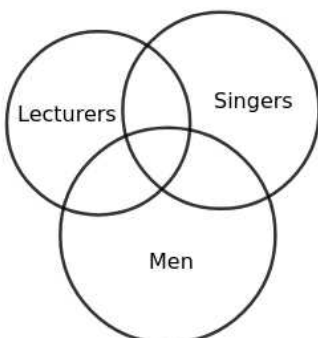
Answer: B

Explanation:

Lecturers can be Singers and Men

Singers can be Lecturers and Men

∴ The diagram that best illustrates the relationship between them is



Hence, the correct answer is Option B

Question 22

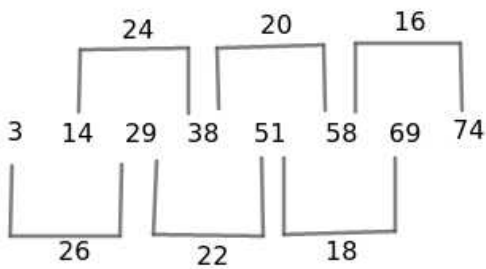
Which number will replace the question mark (?) in the following series?

3, 14, 29, 38, 51, 58, 69, ?

- A 47
- B 73
- C 74
- D 37

Answer: C

Explanation:



∴ The required number is 74

Hence, the correct answer is Option C

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Question 23

'Painter' is related to 'Paintbrush' in the same way as 'Farmer' is related to '_____':

- A Plough
- B Colour
- C Harvest
- D Crops

Answer: A

Explanation:

Painter uses Paintbrush where as Farmer uses Plough

∴ 'Painter' is related to 'Paintbrush' in the same way as 'Farmer' is related to 'Plough'.

Hence, the correct answer is Option A

Question 24

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

a_b_aad_ca_dbc_adb_a

- A dbcaca
- B dcbaac
- C dcabca

D dcabac

Answer: B

Explanation:

By Trial and Error method,

Option A

adbba | adcca | adbcc | adbaa

The above letters do not form a series. Hence option A is incorrect.

Option B

adbca | adbca | adbca | adbca

The above letters form a series.

Hence, the correct answer is Option B

Question 25

Arrange the following words in the order as they would appear in English dictionary.

1. Denote
2. Destiny
3. Diagonal
4. Demand
5. Density

A 4, 3, 2, 1, 5

B 3, 5, 1, 4, 2

C 4, 1, 2, 5, 3

D 4, 1, 5, 2, 3

Answer: D

Explanation:

First letter of all the words are same so verifying the second letter.

The second letter of all the words except Diagonal are 'e' where diagonal has 'i', so Diagonal will be the last word in the order.

The third letter of remaining four words are n,s,m,n where 'm' comes first and 's' comes later in the alphabetical order, so Demand is the first word in the order. Destiny is the fourth word in the order.

The fourth letter of remaining words Denote and Density are 'o' and 's' where 'o' comes before 's' in the alphabetical order, so Denote is the second word in the order and Density is the third word in the order.

∴ The order of the given words according to English dictionary is Demand, Denote, Density, Destiny, Diagonal

Hence, the correct answer is Option D

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General knowledge

Instructions

For the following questions answer them individually

Question 26

Which popular Indian band of the 90s released their first album 'Boondein' with Mohit Chauhan as the lead?

A 13AD

- B Pentagram
- C Lost Stories
- D Silk Route

Answer: D

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Question 27

In January 2019, which panel was setup by the RBI to suggest measures to strengthen the safety of the digital payments ecosystem in India?

- A Raghuram Rajan Panel
- B Nandan Nilekani Panel
- C Sudha Murthy Panel
- D Urjit Patel Panel

Answer: B

Question 28

In which state is Sasthamcotta Lake located?

- A Telangana
- B Kerala
- C Tamil Nadu
- D Karnataka

Answer: B

Question 29

In April 2018, the United Nations General Assembly declared 3rd June as _____.

- A World Bicycle Day
- B World Water Transport Day
- C World Automobile Day
- D World Motorcycle Day

Answer: A

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Question 30

Indira Sagar Dam which is a concrete gravity dam is located in which of the following states of India?

- A Maharashtra

- B Madhya Pradesh
- C Uttar Pradesh
- D Chattisgarh

Answer: B

Question 31

For which specific reason is Pingali Venkayya remembered even today?

- A He helped in the annexation of Goa
- B He helped in the annexation of Hyderabad
- C He designed the Indian National Flag
- D He composed the music for the National Anthem

Answer: C

Question 32

When pressure is applied to a fluid, the pressure change is transmitted to every part of the fluid without any loss. Which of the following laws explains this phenomenon?

- A Hooke's Law
- B Pascal's Law
- C Avogadro's Law
- D Bernoulli's Law

Answer: B

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Question 33

The world body governing of which sport has introduced a new game format called "Triples"?

- A Badminton
- B Table tennis
- C Tennis
- D Squash

Answer: A

Question 34

Reliance Infrastructure has bagged a Rs 648 crore contract from the Airport Authority of India to build a new airport at which of the following locations of Gujarat?

- A Keshod
- B Hirasar

C Ambaji

D Veraval

Answer: B

Question 35

Who is the Asian cricketer named as the first non-British president of the prestigious Marylebone Cricket Club (MCC)?

A Mahela Jayawardene

B Kumar Sangakkara

C Wasim Akram

D Sunil Gavaskar

Answer: B

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Question 36

In the new 2019 Narendra Modi cabinet, which portfolio is assigned to Smriti Irani?

A Ministry of Law and Justice

B Ministry of Women and Child Development

C Ministry of Human Resource Development

D Ministry of External Affairs

Answer: B

Question 37

In which year was the Central Board of Revenue Act in India promulgated?

A 1963

B 1953

C 1983

D 1973

Answer: A

Question 38

Who among the following has been appointed as the Ethics Officer of the Indian cricket board in March 2019?

A D.K.Jain

B Suresh Babu

C Dinesh Kumar Verma

D Milind Kharat

Answer: A

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Question 39

The distributory of which river takes the name 'Padma' in Bangladesh?

- A Indus
- B Jhelum
- C Ganga
- D Brahmaputra

Answer: C

Question 40

The Valley of Flowers National Park is located in _____.

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

Answer: B

Question 41

In which year the Indian cricket team won the ODI World Cup for men for the second time?

- A 2003
- B 2011
- C 2015
- D 2007

Answer: B

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Question 42

Pandit Shivkumar Sharma, who is a recipient of Padma Vibhushan, is associated with which of the following instruments?

- A Flute
- B Santoor
- C Tabla
- D Violin

Answer: B

Question 43

Which of the following is NOT one of the tools of Robotics Process Automation?

- A Ui Path
- B Automation Anywhere
- C PowerCenter
- D Blue Prism

Answer: C

Question 44

In which year was the State Financial Corporation Act passed? The Act provides for the establishment of state financial corporations.

- A 1951
- B 1972
- C 1983
- D 1947

Answer: A

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Question 45

Which committee was appointed to give a detailed report on the Non Performing Assets of public sector banks?

- A Malegam Committee
- B Pannir Selvam Committee
- C Mandal Committee
- D Srikrishna Committee

Answer: B

Question 46

Dolomite is an ore of which of the following metals?

- A Aluminium
- B Potassium
- C Strontium
- D Calcium

Answer: D

Question 47

The terms systolic and diastolic are used in the context of _____

- A Counting blood platelets
- B Measuring blood pressure
- C Detecting problems in eye sight
- D Finding blood vessels

Answer: B

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Question 48

The quote "Bombs and pistols do not make a revolution. The sword of revolution is sharpened on the whetting-stone of ideas" belongs to which of the following freedom fighters?

- A Bhagat Singh
- B Bal Gangadhar Tilak
- C Subhash Chandra Bose
- D Lala Lajpat Rai

Answer: A

Question 49

In the context of Cloud Computing, what is the full form of PaaS?

- A Platform as a Service
- B Protocol as a Service
- C Performance as a Service
- D Payment as a Service

Answer: A

Question 50

Which of the following banks was founded by Muttaiya Chidambaram Chettiar Muthiah Chidambaram Chettiar in Chennai in 1937?

- A Indian Overseas Bank
- B Canara Bank
- C Syndicate Bank
- D Dhanlaxmi Bank

Answer: A

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Quant

Instructions

For the following questions answer them individually

Question 51

An article is marked at a price which is 1.2 times its cost price. After allowing a certain discount on the marked price, the profit reduces to 10%. The discount percent is:

A 9

B $8\frac{1}{3}$

C $8\frac{2}{3}$

D 10

Answer: B

Explanation:

Let cost price = Rs. 100

So, marked price = $1.2 \times 100 = \text{Rs. } 120$

So profit = Rs. 110.

Sp after discount = $120 - 110 = 10$.

Discount percent = $\frac{10}{120} \times 100 = \frac{100}{12} = 8\frac{1}{3}$.

SSC CGL Free Mock Test (Latest Pattern)

Question 52

If $x + y + z = 2$, $xy + yz + zx = -11$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is:

A 70

B 148

C 74

D 152

Answer: C

Explanation:

As we know, $x^3 + y^3 + z^3 - 3xyz = (x+y+z)(x^2 + y^2 + z^2 - xy - yz - zx)$ -----(1)

Given - $(x+y+z) = 2$ and $xy + yz + zx = -11$

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

$(2)^2 = x^2 + y^2 + z^2 + 2(-11)$

$4 = x^2 + y^2 + z^2 - 22$

$4 + 22 = x^2 + y^2 + z^2$

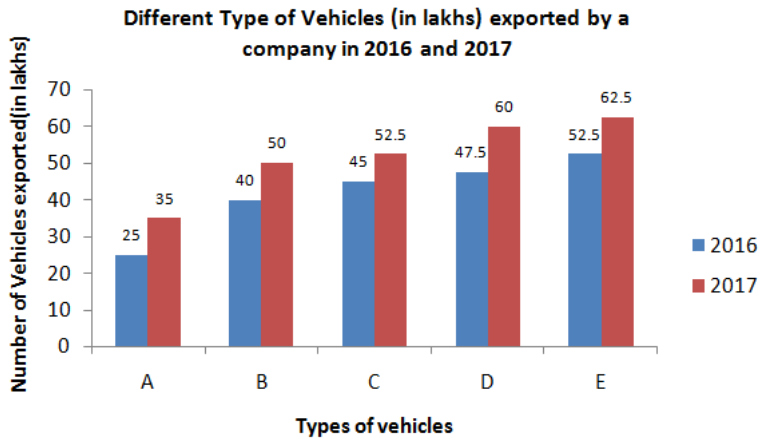
$26 = x^2 + y^2 + z^2$

putting all these values in equation (1)

$x^3 + y^3 + z^3 - 3xyz = 2(26 - (-11)) = 2(26 + 11) = 2(37) = 74$

Question 53

The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.



The average number of all types of vehicles exported by the company in 2016 is what percent less than the number of type B vehicles exported in 2017 ?

- A 15
- B 16
- C 18
- D 12

Answer: B

Question 54

If $\frac{(\sin \theta - \operatorname{cosec} \theta)(\cos \theta - \sec \theta)}{\tan^2 \theta - \sin^2 \theta} = r^3$, then $r =$

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

Answer: D

Explanation:

$$\frac{(\sin \theta - \operatorname{cosec} \theta)(\cos \theta - \sec \theta)}{\tan^2 \theta - \sin^2 \theta} = r^3$$

we know that $\operatorname{cosec} \theta = \frac{1}{\sin \theta}$ & $\sec \theta = \frac{1}{\cos \theta}$ and $\tan \theta = \frac{\sin \theta}{\cos \theta}$

$$\frac{(\sin \theta - \frac{1}{\sin \theta})(\cos \theta - \frac{1}{\cos \theta})}{\frac{\sin^2 \theta}{\cos^2 \theta} - \sin^2 \theta} = r^3$$

$$\frac{(\sin^2 \theta - 1) \left(\frac{\cos^2 \theta - 1}{\cos^2 \theta} \right)}{\frac{\sin^2 \theta + \sin^2 \theta \cos^2 \theta}{\cos^2 \theta}} = r^3$$

from identity $\sin^2 \theta + \cos^2 \theta = 1$

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

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

$$\frac{\left(\begin{matrix} \cos^2 \theta & \sin^2 \theta \\ \sin^2 \theta & \cos^2 \theta \end{matrix} \right)}{\cos^2 \theta} = r^3$$

$$\frac{\cos \theta}{\sin^4 \theta} = r^3$$

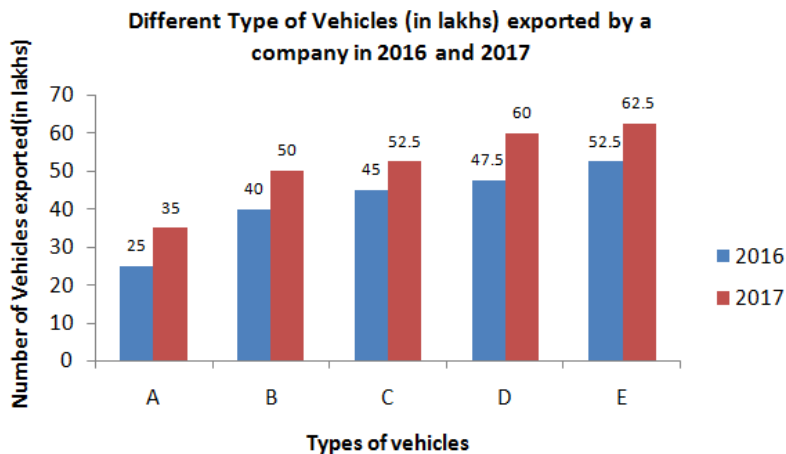
$$\frac{\cos^3 \theta}{\sin^3 \theta} = r^3$$

$$r = \cot \theta$$

SSC CHSL Important Questions and Answers (Download PDF)

Question 55

The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.



The export of which type of vehicle in 2017 is approximately 18.3% more than the export of same type of vehicle in 2016?

A E

B B

C D

D C

Answer: D

Question 56

The average weight of the students in a group was 75.4 kg. Later on, four students having weights, 72.9 kg, 73.8 kg, 79.5 kg and 87.4 kg joined the group. As a result, the average weight of all the students in the group increased by 0.24 kg. What was the number of students in the group, initially?

A 36

B 48

C 46

D 50

Answer: C

Question 57

If x is real, and $x^4 - 5x^2 - 1 = 0$, then the value of $(x^6 - 3x^2 + \frac{3}{x^2} - \frac{1}{x^6} + 1)$ is:

- A 110
- B 96
- C 126
- D 116

Answer: C

SSC CHSL Study Material

Question 58

PQRS is a cyclic quadrilateral. If $\angle P$ is four times $\angle R$ and $\angle S$ is three times $\angle Q$, then the sum of $\angle Q$ and $\angle R$ is:

- A 86°
- B 73°
- C 81°
- D 77°

Answer: C

Explanation:

As PQRS is a cyclic quadrilateral, and in a cyclic quadrilateral sum of two opposite angles is 180 degree,

so, angle P + angle R = 180 degree-----(1) and angle S + angle Q = 180 degree-----(2)

It is given that angle P is 4 times angle R ($P = 4R$)-----(3)

also, angle S is 3 times angle Q ($S = 3Q$)-----(4)

so, from (1) and (3) $P + R = 180$

$$P + 4R = 180$$

$$5R = 180$$

$$R = 180/5 = 36 \text{ degree.}$$

from (2) and (4) $S + Q = 180$

$$3Q + Q = 180$$

$$4Q = 180$$

$$Q = 180/4 = 45 \text{ degree.}$$

So, $Q + R = 36 + 45 = 81$ degrees.

Question 59

The simplified value of $3 \times 2 \div 3 \text{ of } 2 \times 3 \div (5 + 5 \times 5 \div 5 \text{ of } 5 - 5 \div 10 \text{ of } \frac{1}{5})$ is:

- A $\frac{6}{7}$
- B $\frac{17}{5}$
- C $\frac{30}{59}$
- D $\frac{2}{3}$

Answer: A

Question 60

A 360 m long train running at a uniform speed, crosses a platform in 55 seconds and a man standing on the platform in 24 seconds. What is the length (in metre) of the platform?

- A 465
- B 445
- C 480
- D 410

Answer: A

Explanation:

The train with length 360 m passes by a man standing at the platform in 24 seconds. The speed of the train is

$$V = 360/24 = 15 \text{ m/s}$$

Let the length of the platform be L

$$(L + 360)/55 = 15$$

$$L + 360 = 15 \times 55$$

$$L + 360 = 825$$

$$L = 825 - 360$$

$$L = 465 \text{ m.}$$

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Question 61

If an eleven-digit number $5y5888406x6$ is divisible by 72, then what is the value of $(9x - 2y)$, for the least value of x?

- A 7
- B 3
- C 5
- D 4

Answer: B

Explanation:

First step take the easiest factor of 72

It's 12×6

Make your factor as smallest as that

Again factorise it.. You will get only 2 and 3

We all know the Divisibility rule of 2 and 3

For checking Divisibility of 2 we just need to check the unit number if it is even then that number will be divisible by 2

For checking Divisibility of 3 we just need to add all the numbers if the total is divisible by 3 then the whole digit will be divisible by 3.

So, $5y5888406x6$ is our digit see the unit digit is even so it is divisible by 2.

$$5 + y + 5 + 8 + 8 + 8 + 4 + 0 + 6 + x + 6 = 50$$

For making it divisible by 3 you should have to assume the number. If you select x as 1 and y as 3 then it will be 54 and divisible by 3.

Why we take x as 1 because our question says you have to take x as least number.

So ans is 3

Question 62

A circle circumscribes a rectangle whose sides are in the ratio 4 : 3. If the perimeter of the rectangle is 56 cm, then what is the area (in cm^2) of the circle?

- A 100π
- B 90π
- C 96π
- D 70π

Answer: A

Explanation:

we know

perimeter of rectangle is $2(l+b)$ which is equals to 56 as given where L is the length and B is the breadth of the rectangle and area of circle is pi to the square of radius

Question 63

In $\triangle ABC$, D and E are the points on sides AC and AB, respectively such that $\angle ADE = \angle B$. If AE = 8 cm, CD = 3 cm, DE = 6 cm and BC = 9 cm, then AD is equal to:

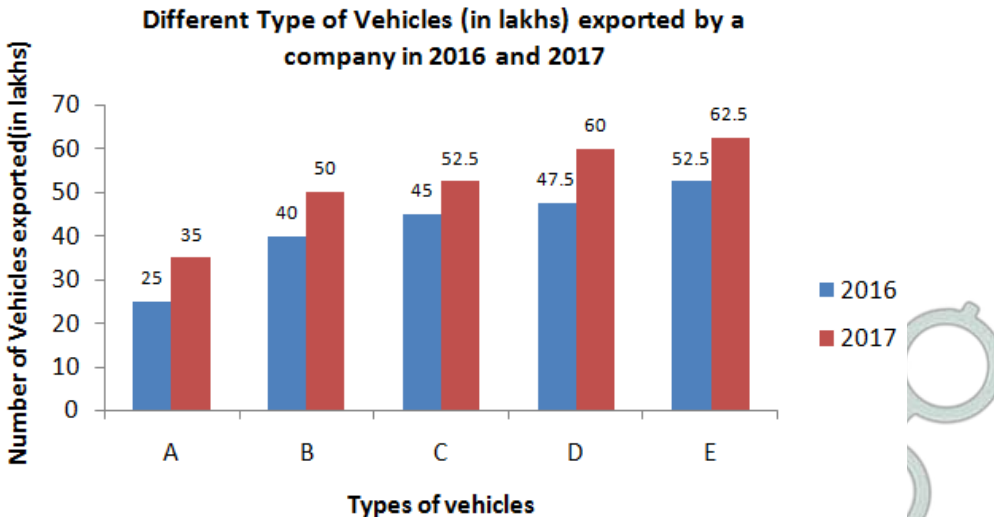
- A 9 cm
- B 7.5 cm
- C 6 cm
- D 8 cm

Answer: A

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Question 64

The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.



What is the ratio of the total number of vehicles of type D and E exported by the company in 2016 to that of vehicles of type C and E exported in 2017 ?

A 10 : 11

B 4 : 5

C 5 : 6

D 20 : 23

Answer: D

Explanation:

from the given data we know that

total type D vehicles exported by company in the year 2016 is 47.5

and total type E vehicle exported by company in the same year is 52.5

now when we add the data of type D and E vehicles in 2016 we get 100 and

silimilarly

total type C vehicles exported by the company in the year 2017 is 52.5

and total type E vehicle exported by the company in the year 2017 is 62.5

now adding the data of type C and E vehicles in 2017 we get 115 as total

so the ratio is 100:115 i.e 20: 23

Question 65

In $\triangle ABC$, $BD \perp AC$. E is point on BC such that $\angle BEA = x^\circ$. If $\angle EAC = 38^\circ$ and $\angle EBD = 40^\circ$, then the value of x is:

A 78°

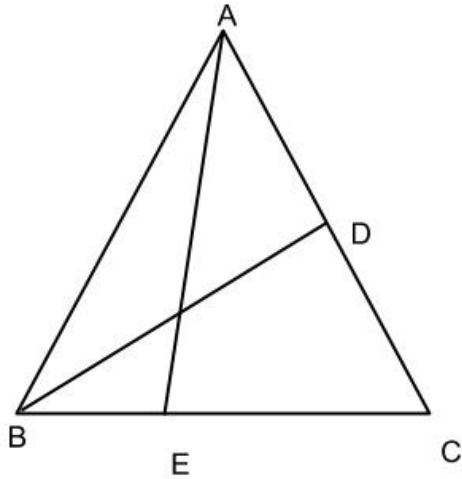
B 68°

C 72°

D 88°

Answer: D

Explanation:



$BD \perp AC$

$$\Rightarrow \angle BDC = 90^\circ$$

In $\triangle BDC$,

$$\angle DBC + \angle BDC + \angle BCD = 180^\circ$$

$$\Rightarrow 40^\circ + 90^\circ + \angle BCD = 180^\circ$$

$$\Rightarrow \angle BCD = 50^\circ$$

In $\triangle AEC$

$\angle AEB$ is the exterior angle at E is equal to the sum of the interior angle at A and C

$$\Rightarrow \angle AEB = \angle EAC + \angle ACE$$

$$\Rightarrow x^\circ = 38^\circ + 50^\circ$$

$$\Rightarrow x^\circ = 88^\circ$$

Hence, the correct answer is Option D

Question 66

Pipes A and B can fill a tank in 8 hours and 12 hours respectively whereas pipe C can empty the full tank in 6 hours. A and B are opened for 3 hours and then closed and C is opened instantly. C will empty the tank in:

A $3\frac{3}{4}$ hours

B $4\frac{1}{2}$ hours

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

D $3\frac{1}{2}$ hours

Answer: A

Explanation:

given information,

A fills a tank in 8 hours and B fills the same tank in 12 hours

where as C empty the same tank in 6 hours

so work done by A in one hour will be

A does 1 work in 8 hours so work done in 1 hour is $\frac{1}{8}$

similarly work done by B in one hour is $\frac{1}{12}$

work done by C in one hour $\frac{1}{6}$

therefore work done by A and B together in three hours is $\frac{3}{8} + \frac{3}{12} = \frac{5}{8}$

so time required by C to empty $\frac{5}{8}$ portion of tank is $\frac{5}{8} \div \frac{1}{6}$

$$= \frac{15}{4}$$
$$= 3 \frac{3}{4}$$

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Question 67

Eight years ago, the ratio of ages of A and B was 9 : 10. The ratio of their ages 4 years from now will be 12 : 13. What is the age (in years) of C now, if his age is 6 years more than that of A ?

A 56

B 42

C 50

D 48

Answer: C

Explanation:

let the ages of A and B eight years ago be $9x$ and $10x$ respectively

present age of A and B after 8 years will be

$$9x+8, 10x+8$$

therefore age of A and B after 4 more years will be $9x+12, 10x+12$

and the given ratio of ages after 4 years is 12:13 so equating this we get

$$\frac{9x+12}{10x+12} = \frac{12}{13} \text{ solving this we get } x=4$$

so age of A 8 years ago is $(9)(4) = 36$

so age of A after 8 years is $36+8=44$

as, we know C is 6 years elder than A hence age of C is $44+6=50$

Question 68

If $\cot \theta = \sqrt{6}$, then the value of $\frac{\operatorname{cosec}^2 \theta + \sec^2 \theta}{\operatorname{cosec}^2 \theta - \sec^2 \theta}$ is:

A $\frac{7}{5}$

B $\frac{48}{35}$

C $\frac{49}{36}$

D $\frac{43}{36}$

Answer: A

Explanation:

given

$$\cot \theta = \sqrt{6}$$

now squaring both side we get

$$\cot^2 \theta = 6$$

we also know $\cot^2 \theta = \frac{\cos^2 \theta}{\sin^2 \theta}$

$$\cos^2 \theta = 6 \sin^2 \theta$$

now adding both side 1 we get

$$\cot^2 \theta + 1 = 6 + 1 \text{ i.e } 7$$

therefore $\operatorname{cosec}^2 \theta = 7$

now

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

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

$$\frac{\cos^2 \theta + \sin^2 \theta}{\cos^2 \theta - \sin^2 \theta}$$

$\frac{1}{\cos^2 \theta - \sin^2 \theta}$ now applying the value we get

$$6 \frac{1}{\sin^2 \theta - \sin^2 \theta}$$

$$\frac{1}{5 \sin^2 \theta}$$

$$\frac{1}{5} \operatorname{cosec}^2 \theta$$

therefore $\frac{7}{5}$ is the answer

Question 69

A sum of ₹10000 amounts to ₹11664 in 2 years, at a certain rate percent per annum, when the interest is compounded yearly. What will be the simple interest on the same sum for $5\frac{2}{5}$ years at the same rate?

A ₹3840

B ₹4320

C ₹4040

D ₹4160

Answer: B

Explanation:

with the given information we can say that

$$A = P(1 + r \div 100)^n$$

where n is the time for which the amount is invested

applying this we get

$$11664 = 10000 \times \frac{(100+r)^2}{(100)^2}$$

so we get

$$108^2 = (100 + r)^2$$

removing the square from both the sides we get

$$108 = 100 + r$$

therefore $r = 8$

so now for simple interest we know

$$SI = \frac{PRT}{100}$$

$$SI = \left(10000 \times 8 \times \frac{27}{5} \right) \div 100$$

$$SI = 4320$$

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Question 70

If $24\sqrt{3}x^3 + 5\sqrt{5}y^3 = (2\sqrt{3}x + \sqrt{5}y) \times (Ax^2 + Bxy + Cy^2)$, then what is the value of $(A^2 - B^2 + C^2)$?

A 139

B 128

C 108

D 109

Answer: D

Question 71

O is the centre of a circle to which PAX and PB Y are tangents from point P at points A and B. Q is a point on the circle, such that $\angle QAO = 49^\circ$ and $\angle QBO = 62^\circ$. What is the measure of $\angle AQB$?

A 63°

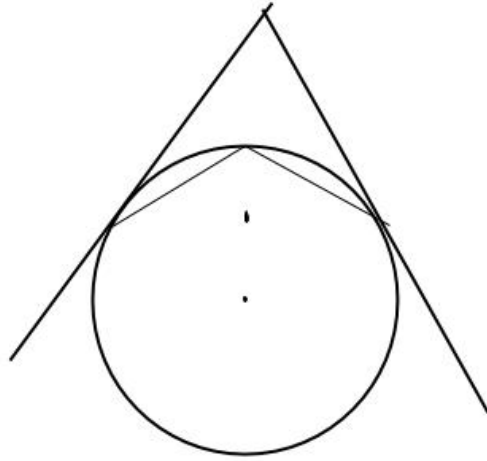
B 67°

C 59°

D 69°

Answer: D

Explanation:



Given,

$$\angle QAX = 49^\circ$$

$$\angle QBY = 62^\circ$$

PAX and QBY are tangents at A and B respectively to the circle

$$\Rightarrow \angle OAX = 90^\circ \text{ and } \angle OBY = 90^\circ$$

$$\angle OAX = 90^\circ$$

$$\Rightarrow \angle QAX + \angle QAO = 90^\circ$$

$$\Rightarrow 49^\circ + \angle QAO = 90^\circ$$

$$\Rightarrow \angle QAO = 41^\circ$$

$$\angle OBY = 90^\circ$$

$$\Rightarrow \angle QBY + \angle QBO = 90^\circ$$

$$\Rightarrow 62^\circ + \angle QBO = 90^\circ$$

$$\Rightarrow \angle QBO = 28^\circ$$

Angles opposite to equal sides in a triangle are equal

$$OA = OQ$$

$$\Rightarrow \angle AQO = 41^\circ$$

$$OB = OQ$$

$$\Rightarrow \angle BQO = 28^\circ$$

$$\therefore \angle AQB = \angle AQO + \angle BQO = 41^\circ + 28^\circ = 69^\circ$$

Hence, the correct answer is Option D

Question 72

If $\sin \theta \sec^2 \theta = \frac{2}{3}$, $0^\circ < \theta < 90^\circ$, then the value of $(\tan^2 \theta + \cos^2 \theta)$ is:

A $\frac{13}{12}$

B $\frac{11}{12}$

C $\frac{5}{4}$

D $\frac{7}{6}$

Answer: A

Explanation:

Given,

$$\sin \theta \sec^2 \theta = \frac{2}{3}, 0^\circ < \theta < 90^\circ$$

$$\Rightarrow \frac{\sin \theta}{\cos^2 \theta} = \frac{2}{3}$$

$$\Rightarrow \frac{\sin \theta}{1 - \sin^2 \theta} = \frac{2}{3}$$

$$\Rightarrow 3 \sin \theta = 2 - 2 \sin^2 \theta$$

$$\Rightarrow 2 \sin^2 \theta + 3 \sin \theta - 2 = 0$$

$$\Rightarrow 2 \sin^2 \theta + 4 \sin \theta - \sin \theta - 2 = 0$$

$$\Rightarrow 2 \sin \theta (\sin \theta + 2) - 1 (\sin \theta + 2) = 0$$

$$\Rightarrow (\sin \theta + 2) (2 \sin \theta - 1) = 0$$

$$\Rightarrow \sin \theta = -2 \text{ or } \sin \theta = \frac{1}{2}$$

$$\Rightarrow \sin \theta = \frac{1}{2}$$

$$\Rightarrow \cos \theta = \frac{\sqrt{3}}{2} \text{ and } \tan \theta = \frac{1}{\sqrt{3}}$$

$$\therefore \tan^2 \theta + \cos^2 \theta = \left(\frac{1}{\sqrt{3}}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 = \frac{1}{3} + \frac{3}{4} = \frac{13}{12}$$

Hence, the correct answer is Option A

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Question 73

A vendor bought 40 dozen of fruits for ₹2400. Out of these, 30 fruits were rotten and thrown away. At what rate per dozen should he sell the remaining fruits to make a profit of 25%?

A ₹84

B ₹72

C ₹80

D ₹90

Answer: C

Explanation:

we know

cost price of 40 dozen fruit is 2400

and 1 dozen = 12 fruits

i.e 40 dozen = $12 \times 40 = 480$

therefore cost of 1 fruit is $2400 \div 480 = 5$

now

to get 25% as profit he must sell the fruits at rs 3000

because 25% of 2400

$$[25 \div 100] \times 2400 = 600$$

and selling price = profit gained + cost price

now if 30 fruits are rotten than the

total number of fruits remaining is $480-30=450$

so now he must sell the remaining fruits at rs 3000 to get 25% profit

remaining fruits to be sold = 450

selling price is 3000

if he sells 450 fruits in 3000

than 1 fruits is sold at $3000 \div 450$

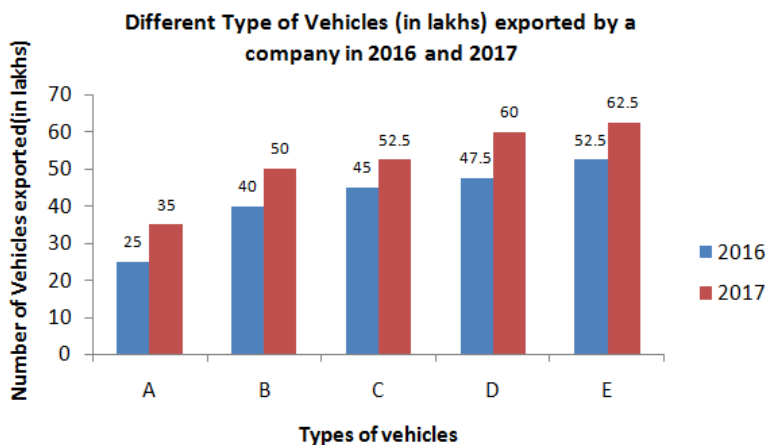
$$= \frac{20}{3}$$

so 12 fruits is sold at $\frac{20}{3} \times 12$

so he sells 12 fruits i.e one dozen fruits at 80 rupees

Question 74

The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.



The total number of vehicles of type C and E exported by the company in 2017 is what percentage (correct to one decimal place) more than the total number of vehicles of type A, B and C exported in 2016?

- A 5.4
- B 5.2
- C 4.5
- D 4.1

Answer: C

Explanation:

sum of total type c and type e sold in 2017 is = $52.5+62.5 = 115$

sum of total type a type b and type c in 2016 is = $25+40+45 = 110$

hence the percentage difference is $(115-110) \div 110 \times 100 = 4.5\%$

Question 75

Sudha spends 80% of her income. When her income is increased by 30%, she increases her expenditure by 25%. Her savings are:

- A Increased by 50%
- B Decreased by 5%
- C Decreased by 30%
- D Increased by 5%

Answer: A

Explanation:

let sudha's income be 100 units therefore amount she expends is 80% of income i.e 80units

after increment of 30% that is 30% of 100 units is 30 making her income to be 130 units

expenditure before is 80 units so 25% of 80 units is 20 making her total expenditure to be 100 units

hence, her saving now is $130-100=30$,

her saving earlier was $100-80=20$

therefore difference in saving is $30-20=10$ units

so percentage increase in saving = $10 \div 20 \times 100$

=50%

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English

Instructions

For the following questions answer them individually

Question 76

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

A sound that cannot be heard

- A inevitable
- B incomprehensible
- C inaudible
- D illegible

Answer: C

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Question 77

Select the most appropriate word to fill in the blank.

She was _____ to have worked with some renowned scientists of the world.

- A charmed
- B fortunate
- C favourable
- D affluent

Answer: B

Question 78

Select the most appropriate antonym of the given word.

DENOUNCE

- A criticise
- B vilify

C applaud

D blame

Answer: C

Question 79

Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order.

- A. There was an old apple tree in the centre of a village.
- B. The adults also sat in the shade and discussed important things.
- C. They remembered that they too had played around the tree when they were young.
- D. Children loved to play around the tree and pick delicious apples.

A CBAD

B ACBD

C ADBC

D DCAB

Answer: C

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Question 80

Select the most appropriate meaning of the given idiom.

The crux of the matter

- A the lesser issue
- B the unknown point
- C the interesting thing
- D the critical point

Answer: D

Question 81

Select the most appropriate meaning of the given idiom.

Four corners of the earth

- A from all parts of the world
- B from beginning to end
- C from the very beginning
- D from morning till night

Answer: A

Question 82

Select the word which means the same as the group of words given
a rabbit's dwelling.

- A lair
- B burrow
- C den
- D sty

Answer: B

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Question 83

Select the wrongly spelt word.

- A behaive
- B better
- C bliss
- D board

Answer: A

Question 84

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

She has been writing this novel for a year but she did not finish it yet.

- A has not finish it
- B No improvement
- C has not finished it
- D had not finished it

Answer: C

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:

China is the largest producer of pork, but it (1) _____ a big problem at the moment. There is an epidemic (2) _____ is killing its pigs. The virus was first (3) _____ in August last year, but one million pigs have died by now. It is a (4) _____ virus and when a pig catches it, it dies. China thinks that one third of (5) _____ pigs are going to die by the end of this year.

Question 85

Select the most appropriate option for blank No. 1.

- A faced
- B is facing
- C was facing

D face

Answer: B

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Question 86

Select the most appropriate option for blank No. 2.

A which

B what

C whom

D who

Answer: A

Question 87

Select the most appropriate option for blank No. 3.

A discovered

B learned

C searched

D invented

Answer: A

Question 88

Select the most appropriate option for blank No. 4.

A cruel

B deadly

C violent

D bloody

Answer: B

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Question 89

Select the most appropriate option for blank No. 5.

A its

B theirs

C hers

D his

Answer: A

Instructions

For the following questions answer them individually

Question 90

Select the most appropriate synonym of the given word.

FORTIFY

- A secure
- B neglect
- C harm
- D loosen

Answer: A

Question 91

Select the most appropriate antonym of the given word.

OPAQUE

- A clear
- B frosty
- C dull
- D hazy

Answer: A

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Question 92

Select the wrongly spelt word.

- A independence
- B inequality
- C inefficent
- D influence

Answer: C

Question 93

Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order.

- A. But after a while they all began to blur in our memories.
- B. When we arrived in Bangkok, we took a tour of the city's famous Buddhist temples.
- C. However there was one temple, the Temple of Golden Buddha, which left an indelible impression in our hearts and minds.
- D. We visited numerous temples that day.

- A BDAC
- B BACD

C ADBC

D DCBA

Answer: A

Question 94

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

They dissuaded me of visiting the War Memorial but I really wanted to see it.

A to visiting

B No improvement

C from visiting

D of visitc

Answer: C

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Question 95

Select the correct indirect form of the given sentence.

Bhola said to his mother, "Why is this charcoal so black?"

A Bhola asked his mother why that charcoal was so black.

B Bhola asked his mother why this charcoal is so black.

C Bhola told his mother why that charcoal was so black.

D Bhola asked his mother why was that charcoal so black.

Answer: A

Instructions

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

Question 96

The launch of the small electric car will depend to the willingness of buyers to pay more for it.

A of buyers to pay more for it

B depend to the willingness

C The launch of the

D small electric car will

Answer: B

Question 97

The promoters of Med Hospitals has agreed to sell their business to Pal Hospitals.

A to Pal Hospitals

- B Med Hospitals has agreed
- C to sell their business
- D The promoters of

Answer: B

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Instructions

For the following questions answer them individually

Question 98

Select the most appropriate synonym of the given word.

ENTHRALL

- A mesmerize
- B free
- C repel
- D disgust

Answer: A

Question 99

Select the correct passive form of the given sentence.

The merchant took out the dead parrot from the cage.

- A The dead parrot was taking out from the cage by the merchant.
- B The dead parrot took out from the cage by the merchant.
- C The dead parrot is taken out from the cage by the merchant.
- D The dead parrot was taken out from the cage by the merchant.

Answer: D

Question 100

Select the most appropriate word to fill in the blank.

Adali Khal is such a _____ village in Garhwal that hardly any tourist can reach there.

- A dreaming
- B remote
- C lonesome
- D lost

Answer: B

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