

SSC CHSL 7 Feb 2017 Morning Shift

Reasoning

Instructions

For the following questions answer them individually

Question 1

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

Scientist : Laboratory :: Astronomer : ?

- A Garage
- B Battlefield
- C Observatory
- D Hospital

Answer: C

Explanation:

Expression = Scientist : Laboratory :: Astronomer : ?

A scientist works in a laboratory, in the same way an astronomer works in an observatory.

=> Ans - (C)

Question 2

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

CGK : DHL :: UYC : ?

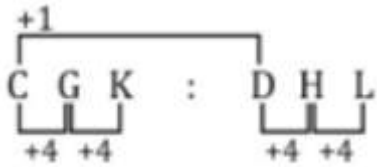
- A VZD
- B WZD
- C WZA
- D VAE

Answer: A

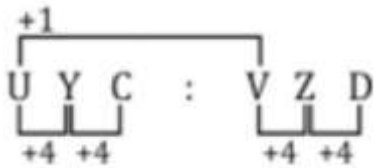
Explanation:

Expression = CGK : DHL

The pattern followed is =



Similarly, for UYC :



=> Ans - (A)

Question 3

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

BCD : DEG :: FIJ : ?

A HKN

B JLN

C FGH

D KLN

Answer: B

Explanation:

Expression = BCD : DEG

The pattern followed is =



Similarly, for FIJ :



=> Ans - (B)

Question 4

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

56 : 72 :: 90 : ?

A 96

B 97

C 100

D 110

Answer: D

Explanation:

Expression = $56 : 72 :: 90 : ?$

The pattern followed is that = $(7 \times 8) : (8 \times 9) = 56 : 72$

Similarly, the next numbers are = $(9 \times 10) : (10 \times 11) = 90 : 110$

=> Ans - (D)

Question 5

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

A Square

B Rectangle

C Rhombus

D Polygon

Answer: D

Explanation:

Except polygon others have four sides, hence polygon is the odd one out.

=> Ans - (D)

Question 6

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

A WYA

B MNO

C ACE

D EGI

Answer: B

Explanation:

(A) : W (+2 letters) = Y = (+2 letters) = A

(B) : M (+1 letter) = N = (+1 letter) = O

(C) : A (+2 letters) = C = (+2 letters) = E

(D) : E (+2 letters) = G = (+2 letters) = I

=> Ans - (B)

Question 7

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

A 243

B 264

C 333

D 405

Answer: B

Explanation:

Apart from 264, sum of digits of other numbers is 9, hence 264 is the odd one out.

=> Ans - (B)

Question 8

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

A 369

B 257

C 346

D 628

Answer: C

Explanation:

The pattern followed is that the sum of first two digits is equal to the third digit, but $3 + 4 \neq 6$, hence 346 is the odd one out.

=> Ans - (C)

Question 9

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

Red, Orange, Yellow, ?

- A Green
- B Violet
- C Indigo
- D Blue

Answer: A

Explanation:

According to VIBGYOR, starting from Red.

= Red -> Orange -> Yellow -> Green

=> Ans - (A)

Question 10

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

CM, EK, GI, ?

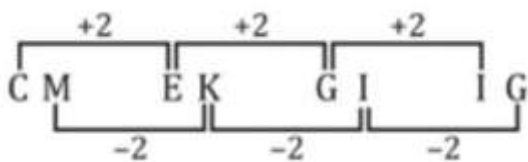
- A IK
- B IG
- C LM
- D PS

Answer: B

Explanation:

Expression : CM, EK, GI, ?

The pattern followed is :



Thus, missing term = **IG**

=> Ans - (B)

Question 11

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

FGH, NOP, VWX, ?

A FGH

B DEF

C EFG

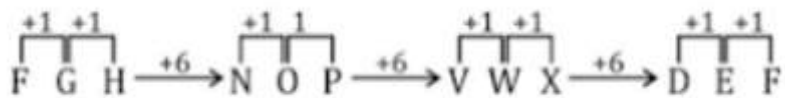
D FEH

Answer: B

Explanation:

Expression : FGH, NOP, VWX, ?

The pattern followed is :



Thus, missing term = DEF

=> Ans - (B)

Question 12

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

4, 9, 25, 64, 169, ?

A 441

B 225

C 289

D 256

Answer: A

Explanation:

The pattern followed is :

$$\begin{array}{cccccc} 4 & 9 & 25 & 64 & 169 & 441 \\ (2)^2 & (3)^2 & (5)^2 & (8)^2 & (13)^2 & (21)^2 \end{array}$$

Here $2+3=5$, $3+5=8$, $5+8=13$, $8+13=21$

Thus, missing number = 441

=> Ans - (A)

Question 13

In the following question, two statements are given each followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statement:

- (I) The DRDO has tested the Smart Anti Airfield Weapon from an Indian Air Force aircraft.
- (II) The lightweight high-precision guided bomb is one of the world class weapons systems.

Conclusions:

- (I) DRDO Chairman Dr. S. Christopher congratulated the DRDO and the IAF teams for the successful mission.
- (II) The test was carried out by IAF's Aircraft and System Testing Establishment.

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

Answer: C

Question 14

Sanjeev scored the highest marks in the class. Rahul scored more than Nirbhay but lesser than Sameer. Arpit scored more than Rahul. Who got the 4th Rank out of the five?

- A Sameer
- B Nirbhay
- C Rahul
- D Arpit

Answer: C

Explanation:

Rahul scored more than Nirbhay but lesser than Sameer, => Sameer > Rahul > Nirbhay.

Arpit scored more than Rahul, => Arpit > Rahul.

Also, Sanjeev scored the highest marks in the class.

Combining above statements, we get : **Sanjeev > Arpit, Sameer > Rahul > Nirbhay**

∴ Rahul got the 4th Rank out of the five.

=> Ans - (C)

Question 15

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

- i. Forehead
- ii. Forensic
- iii. Forest
- iv. Foremost

A i, iv, ii, iii

B iii, ii, iv, i

C i, ii, iii, iv

D i, iv, iii, ii

Answer: A

Explanation:

As per the order of dictionary :

= Forehead -> Foremost -> Forensic -> Forest

≡ i, iv, ii, iii

=> Ans - (A)

Question 16

In a certain code language, "SELDOM" is written as "NPEMFT". How is "SACRIFICE" written in that code language?

A FDJGJDSBT

B FDJGJSDBT

C FDJSJGTBD

D FGDJGDSBT

Answer: B

Explanation:

"SELDOM" is written as "NPEMFT"

The pattern followed is that when the word is written in reverse order :

M	O	D	L	E	S
(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
N	P	E	M	F	T

Similarly, reverse of SACRIFICE :

E	C	I	F	I	R	C	A	S
(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
F	D	J	G	J	S	D	B	T

=> Ans - (B)

Question 17

In the following Question, Find the Missing Number

17	24	16
8	?	11
81	100	25

A 1

B 16

C 14

D 20

Answer: C

Explanation:

In each column, the pattern followed is that the sum of the second number and square root of third number is equal to first number.

$$\text{Eg :- } 8 + \sqrt{81} = 8 + 9 = 17$$

$$\text{and } 11 + \sqrt{25} = 11 + 5 = 16$$

$$\text{Similarly, } x + \sqrt{100} = 24$$

$$\Rightarrow x = 24 - 10 = 14$$

=> Ans - (C)

Question 18

If "S" denotes "multiplied by", "V" denotes "subtracted from", "M" denotes "added to" and "L" denotes "divided by", then

$$343 \text{ L } 7 \text{ S } 6 \text{ V } 94 \text{ M } 11 = ?$$

A 189

B 200

C 211

D 305

Answer: C

Explanation:

Expression : $343 \div 7 \times 6 - 94 + 11 = ?$

$$\equiv 343 \div 7 \times 6 - 94 + 11$$

$$= (49 \times 6) - 94 + 11$$

$$= 294 - 94 + 11 = 211$$

=> Ans - (C)

Question 19

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

r_pr_p_q_r_p

A qrppq

B qqrpq

C qrprp

D qrppr

Answer: B

Explanation:

The pattern followed is that in groups of 3, the term 'rqp' is repeated.

= rqp rqp rqp rqp

=> Ans - (B)

Question 20

A man moves 24 metres in south direction and turns 90 degrees anticlockwise and moves another 7 metres and takes a right turn and moves 3 metres and then moves 3 metres in the north direction. Find the distance between his initial and his final position.

A 25 m

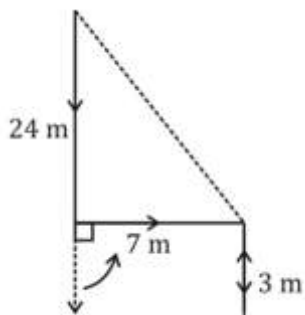
B 30 m

C 27 m

D 35 m

Answer: A

Explanation:



The man moves 24 metres in south direction and turns 90 degrees anticlockwise and moves another 7 metres towards east and takes a right turn and moves 3 metres towards south and then moves 3 metres in the north direction.

Thus, distance between initial and final position = $\sqrt{(24)^2 + (7)^2}$

$$= \sqrt{576 + 49} = \sqrt{625} = 25 \text{ m}$$

=> Ans - (A)

Question 21

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'C' can be represented by 02, 14 etc. and 'G' can be represented by 85, 96 etc. Similarly, you have to identify the set for the word 'MODEST'.

MATRIX 1

	0	1	2	3	4
0	H	E	C	F	F
1	A	T	E	O	C
2	O	A	T	E	F
3	H	O	A	T	E
4	I	I	O	A	T

MATRIX 2:

	5	6	7	8	9
5	K	M	O	R	R
6	P	S	M	O	Q
7	O	P	S	M	O
8	G	D	P	S	M
9	J	G	D	P	S

- A 78, 43, 86, 01, 77, 89
- B 89, 42, 97, 01, 66, 23
- C 56, 31, 76, 23, 66, 23
- D 67, 13, 86, 34, 77, 33

Answer: D

Explanation:

(A) : 78, 43, 86, 01, 77, 89 = MADESM

(B) : 89, 42, 97, 01, 66, 23 = MODESE

(C) : 56, 31, 76, 23, 66, 23 = MOPESE

(D) : 67, 13, 86, 34, 77, 33 = **MODEST**

=> Ans - (D)

Question 22

Nisha's father's brother-in-law is the brother of Neha. How is Nisha related to Neha?

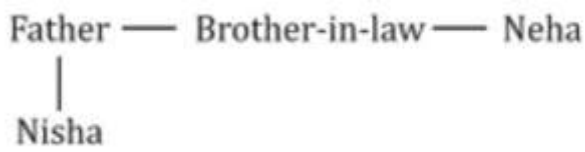
- A Sister
- B Niece
- C Mother
- D Mother in law

Answer: B

Explanation:

Nisha's father's brother-in-law is the brother of Neha.

Relation is :

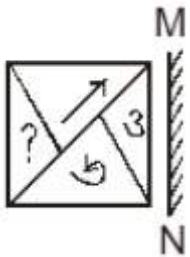


Nisha is Neha's niece.

=> Ans - (B)

Question 23

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



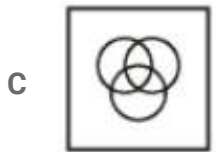
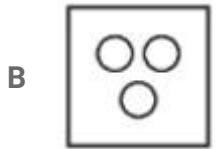
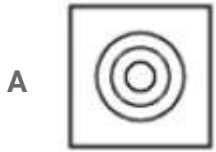


Answer: C

Question 24

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

Mathematics, Arithmetic, Algebra



Answer: D

Explanation:

Arithmetic and Algebra are both branches of mathematics, but are different.

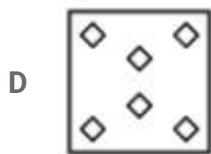
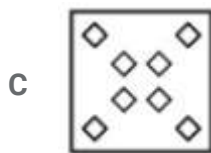
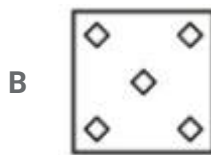
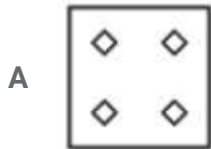
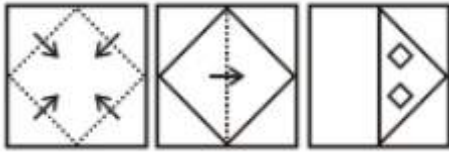
Thus, the venn diagram that best describes above relationship is :



=> Ans - (D)

Question 25

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



Answer: C

General Awareness

Instructions

For the following questions answer them individually

Question 26

If price of an article decreases from Rs 100 to Rs 80, when quantity demanded increases from Q1 units to 4600 units, and if point elasticity of demand is -0.75 find Q1?

A 5000 units

B 4000 units

C 3000 units

D 2000 units

Answer: B

Question 27

The oldest rock-cut architecture is found in _____.

A Rajasthan

B Bihar

C Karnataka

D Mizoram

Answer: B

Question 28

Which drug is used as an Anti-Biotic?

A Metformin

B Ranitidine

C Azithromycin

D Ibuprofen

Answer: C

Question 29

Tamarindus indica is the scientific name of _____.

A Neem

B Pineapple

C Tamarind

D Chiku

Answer: C

Question 30

In eukaryotic cells synthesis of RNA takes place in the _____.

- A mitochondria
- B centrioles
- C ribosomes
- D nucleus

Answer: D

Question 31

The modern periodic table consists of 18 groups and 7 periods. What is the atomic number of the element placed in the 2nd group and the 4th period?

- A 20
- B 22
- C 18
- D 10

Answer: A

Question 32

Which of the following elements has the lowest melting point?

- A Zinc
- B Titanium
- C Sulphur
- D Fluorine

Answer: D

Question 33

In Computers, what does ALU stand for?

- A Advanced Logic Unit
- B Accelerated Logic Unit
- C Arithmetic Logic Unit
- D Asymmetric Logic Unit

Answer: C

Question 34

In which Indian Religion, there are 24 Tirthankaras?

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

Answer: A

Question 35

Inflation exists when

- A there is general increase in the prices over time.
- B there are periodic decreases in the price level.
- C there are continuous increases in the output level over time.
- D there is rise in the purchasing value of money.

Answer: A

Question 36

Which of the following is a greenhouse gas or a gas which can deplete the ozone layer?

- A BBr₃

- B** NH₃
- C** CH₂N₂
- D** CCl₂F₂

Answer: D

Question 37

_____ is caused by parasites of the Plasmodium genus.

- A** Dysentery
- B** Malaria
- C** Chickenpox
- D** Herpes

Answer: B

Question 38

Which of these is not an Indian Food?

- A** Tiramisu
- B** Imarti
- C** Phirni
- D** Payasam

Answer: A

Question 39

Which of these rivers do not flow through Punjab?

- A** Sutlej
- B** Ravi
- C** Jhelum
- D** Ganga

Answer: D

Question 40

The Tropic of _____ passes almost halfway through India.

- A** Capricorn
- B** Cancer
- C** Equator
- D** Prime Meridian

Answer: B

Question 41

Which Mughal Emperor fought the battle of Panipat in 1526?

- A** Babur
- B** Humayun
- C** Akbar
- D** Aurangzeb

Answer: A

Question 42

The Peacock Throne was a famous jewelled throne that was the seat of the _____ emperors of India.

- A** Maurya
- B** Gupta
- C** Mughal
- D** Maratha

Answer: C

Question 43

Who invented Aerosol can?

- A Erik Rotheim
- B Erik Mathew
- C Erik Tim
- D Eric Flayer

Answer: A

Question 44

A transformer can do all of the following except

- A step-up a/c voltage
- B step-up a/c current
- C step-up a/c power
- D step-down a/c voltage

Answer: C

Question 45

What is the unit of the physical quantity "Magnetic field strength"?

- A joule per meter
- B newton per meter
- C kelvin per meter
- D ampere per meter

Answer: D

Question 46

Which of these countries is not a permanent member of United Nations Security Council?

- A China
- B India
- C United States

D France

Answer: B

Question 47

Right to education in our country is a _____right.

A Political

B Fundamental

C Social

D Legal

Answer: B

Question 48

Indian Super League is associated with which sport?

A Horse Race

B Football

C Cycling

D Golf

Answer: B

Question 49

Who is the author of "The Hungry Tide"?

A Amitav Ghosh

B Mitali Meelan

C Ravinder Singh

D Sudha Murty

Answer: A

Question 50

For the movie "Taare Zameen Par", Aamir Khan won the Filmfare Award for

- A Best Director
- B Best Debut Director
- C Best Art Direction
- D Best Screenplay

Answer: A

Mathematics

Instructions

For the following questions answer them individually

Question 51

What is the value of $(91 + 92 + 93 + \dots + 140)$?

- A 5775
- B 11550
- C 17325
- D 23100

Answer: A

Explanation:

Expression : $(91 + 92 + 93 + \dots + 140)$

This is an arithmetic progression with first term, $a = 91$, last term, $l = 140$ and common difference, $d = 1$

Let number of terms = n

Last term in an A.P. = $a + (n - 1)d = 140$

$$\Rightarrow 91 + (n - 1)(1) = 140$$

$$\Rightarrow n - 1 = 140 - 91 = 49$$

$$\Rightarrow n = 49 + 1 = 50$$

$$\therefore \text{Sum of A.P.} = \frac{n}{2}(a + l)$$

$$= \frac{50}{2}(91 + 140)$$

$$= 25 \times 231 = 5775$$

=> Ans - (A)

Question 52

The average revenues of 9 consecutive years of a company is Rs 80 lakhs. If the average of first 5 years is Rs 75 lakhs and that of last 5 years is Rs 87 lakhs, find the revenue for the 5th year.

A Rs 90 lakhs

B Rs 92 lakhs

C Rs 88 lakhs

D Rs 86 lakhs

Answer: A

Explanation:

Total revenues of 9 years of the company = $80 \times 9 = \text{Rs. } 720$ lakhs

Total revenue of first 5 years = $75 \times 5 = \text{Rs. } 375$ lakhs

Total revenue of last 5 years = $87 \times 5 = \text{Rs. } 435$ lakhs

\therefore Revenue of 5th year = $(375 + 435) - 720 = 810 - 720$

= Rs. 90 lakhs

=> Ans - (A)

Question 53

If $\operatorname{cosec} -4\pi/3 = x$, then the value of x is

A $\sqrt{2}$

B $2/\sqrt{3}$

C $-\sqrt{2}$

D $-1/\sqrt{3}$

Answer: B

Explanation:

Expression : $\operatorname{cosec} -4\pi/3 = x$

$\therefore \operatorname{cosec}(-x) = -\operatorname{cosec}(x)$

$= -\operatorname{cosec}\left(\frac{4\pi}{3}\right)$

$$\begin{aligned}
 &= -\operatorname{cosec}\left(\pi + \frac{\pi}{3}\right) \\
 &= -\left[-\operatorname{cosec}\left(\frac{\pi}{3}\right)\right] = \operatorname{cosec}\left(\frac{\pi}{3}\right) \\
 &= \frac{2}{\sqrt{3}}
 \end{aligned}$$

=> Ans - (B)

Question 54

In an army selection process, the ratio of selected to unselected was 3:1. If 60 less had applied and 30 less selected, the ratio of selected to unselected would have been 5:1. How many candidates had applied for the process?

A 240

B 480

C 120

D 720

Answer: A

Explanation:

Let $4x$ candidates applied for the process.

Candidates selected = $3x$ and candidates not selected = x

If candidates applied = $4x - 60$

Candidates selected = $3x - 30$

=> Candidates not selected = $(4x - 60) - (3x - 30) = x - 30$

According to ques,

$$\Rightarrow \frac{3x-30}{x-30} = \frac{5}{1}$$

$$\Rightarrow 3x - 30 = 5x - 150$$

$$\Rightarrow 2x = 150 - 30 = 120$$

$$\Rightarrow x = \frac{120}{2} = 60$$

∴ Number of candidates who applied for the process = $4 \times 60 = 240$

=> Ans - (A)

Question 55

If $\cot(A/2) = x$, then the value of x is

A $\sqrt{[(1 + \cos A)/(1 - \cos A)]}$

B cosecA - cotA

C $\sqrt{[(1 - \cos A)/2]}$

D $\sqrt{[(1 + \cos A)/2]}$

Answer: A

Explanation:

Using double angle formula, we know that $\cos(2\theta) = \cos^2\theta - \sin^2\theta$

$$\Rightarrow \cos(2\theta) = (1 - \sin^2\theta) - \sin^2\theta$$

$$\Rightarrow \cos(2\theta) = 1 - 2\sin^2\theta$$

Replacing θ by $\frac{A}{2}$, we get :

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

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

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

$$\Rightarrow \sin\left(\frac{A}{2}\right) = \sqrt{\frac{(1 - \cos A)}{2}}$$

$$\text{Similarly, } \Rightarrow \cos\left(\frac{A}{2}\right) = \sqrt{\frac{(1 + \cos A)}{2}}$$

Now, to find : $\cot\left(\frac{A}{2}\right)$

$$= \cos\left(\frac{A}{2}\right) \div \sin\left(\frac{A}{2}\right)$$

$$= \sqrt{\frac{(1 + \cos A)}{2}} \div \sqrt{\frac{(1 - \cos A)}{2}}$$

$$= \sqrt{\frac{(1 + \cos A)}{2}} \times \sqrt{\frac{2}{(1 - \cos A)}}$$

$$= \sqrt{\frac{1 + \cos A}{1 - \cos A}}$$

\Rightarrow Ans - (A)

Question 56

If $(1 - \cos A)/(1 + \cos A) = x$, then the value of x is

A $(\cot A + \operatorname{cosec} A)^2$

B $(\cot A - \operatorname{cosec} A)^2$

C $\cot A - \operatorname{cosec} A$

D $\cot A + \operatorname{cosec} A$

Answer: B

Explanation:

Expression : $\frac{1-\cos A}{1+\cos A}$

Multiplying both numerator and denominator by $(1 - \cos A)$

$$\begin{aligned} &= \frac{1-\cos A}{1-\cos A} \times \frac{(1-\cos A)}{(1-\cos A)} \\ &= \frac{(1-\cos A)^2}{1-\cos^2 A} = \frac{(\cos A-1)^2}{\sin^2 A} \\ &= \left(\frac{\cos A-1}{\sin A}\right)^2 = \left(\frac{\cos A}{\sin A} - \frac{1}{\sin A}\right)^2 \\ &= (\cot A - \operatorname{cosec} A)^2 \end{aligned}$$

=> Ans - (B)

Question 57

Manjeet can do a work in 18 hours. If he is joined by Jaya who is 100% more efficient, in what time will they together finish the work?

- A 6 hours
- B 3 hours
- C 12 hours
- D 24 hours

Answer: A

Explanation:

Let total work to be done = 18 units

Manjeet's efficiency = $\frac{18}{18} = 1$ unit/hr

Jaya is 100% more efficient, => Jaya's efficiency = $1 + \frac{100}{100} \times 1 = 2$ units/hr

(Manjeet + Jaya)'s 1 day's work together = $1 + 2 = 3$ units/hr

∴ Time taken by Manjeet and Jaya together to finish the work = $\frac{18}{3} = 6$ hours

=> Ans - (A)

Question 58

Two cars travel from city A to city B at a speed of 30 and 36 km/hr respectively. If one car takes 3 hours lesser time than the other car for the journey, then the distance between City A and City B is

- A 648 km
- B 810 km.
- C 432 km

D 540 km

Answer: D

Explanation:

Let the distance between City A and City B = d km

Speed of first car = 30 km/hr and speed of second car = 36 km/hr

Let time taken by first car = t hrs and time taken by second car = $(t - 3)$ hrs

Using, speed = distance/time for first car :

$$\Rightarrow \frac{d}{t} = 30$$

$$\Rightarrow d = 30t \text{ -----(i)}$$

$$\text{For second car, } \Rightarrow \frac{d}{t-3} = 36$$

Substituting value of d from equation (i), we get :

$$\Rightarrow 30t = 36t - 108$$

$$\Rightarrow 36t - 30t = 6t = 108$$

$$\Rightarrow t = \frac{108}{6} = 18 \text{ hrs}$$

$$\text{From equation (i), } \Rightarrow d = 30 \times 18 = 540 \text{ km}$$

\Rightarrow Ans - (D)

Question 59

A trader had 12 quintals of wheat. He sold a part of it at 13% profit and the rest at 23% profit, so that he made a total profit of 17 %. How much wheat did he sell at 23% profit?

A 720 kg

B 240 kg

C 480 kg

D 960 kg

Answer: C

Explanation:

1 quintal = 100 kg \Rightarrow 12 quintals = 1200 kg

Let the part he sold at 23% profit = x kg

\Rightarrow Part he sold at 13% profit = $(1200 - x)$ kg

Total profit made by the trader = 17%

$$\Rightarrow 23x + 13(1200 - x) = 17 \times 1200$$

$$\Rightarrow 23x + (13 \times 1200) - 13x = 17 \times 1200$$

$$\Rightarrow 10x = 1200 \times (17 - 13)$$

$$\Rightarrow x = 120 \times 4 = 480 \text{ kg}$$

\Rightarrow Ans - (C)

Question 60

A student multiplied a number by $\frac{6}{13}$ instead of $\frac{13}{6}$. What is the percentage error in the calculation?

A 369.44 percent

B 39.35 percent

C 184.72 percent

D 78.7 percent

Answer: D

Explanation:

Let the number be 78

When the student multiplied it by $\frac{6}{13}$, \Rightarrow original result = $\frac{6}{13} \times 78 = 36$

When the student multiply it by $\frac{13}{6}$, \Rightarrow New result = $\frac{13}{6} \times 78 = 169$

\Rightarrow Percentage error in calculation = $\frac{(169-36)}{169} \times 100$

$$= \frac{13300}{169} = 78.69 \approx 78.7\%$$

\Rightarrow Ans - (D)

Question 61

Simple interest on a certain sum of money for 3 years at 14% per annum is half the compound interest on Rs. 10000 for 2 years at 10% per annum. The sum placed on simple interest is

A Rs 5000

B Rs 1250

C Rs 2000

D Rs 2500

Answer: D

Explanation:

Sum for compound interest = Rs. 10000

Rate of interest = 10% and time period = 2 years

$$\begin{aligned} \text{Compound interest} &= P\left[\left(1 + \frac{R}{100}\right)^T - 1\right] \\ &= 10000\left[\left(1 + \frac{10}{100}\right)^2 - 1\right] \\ &= 10000\left[\left(\frac{11}{10}\right)^2 - 1\right] = 10000\left(\frac{121-100}{100}\right) \\ &= 100 \times 21 = \text{Rs. } 2100 \end{aligned}$$

$$\Rightarrow \text{Simple interest} = \frac{2100}{2} = \text{Rs. } 1050$$

Let sum under simple interest = $\text{Rs. } x$

Rate of interest = 14% and time period = 3 years

$$\text{Simple interest} = \frac{P \times R \times T}{100}$$

$$= \frac{x \times 14 \times 3}{100} = 1050$$

$$\Rightarrow x = \frac{1050 \times 100}{42} = 100 \times 25 = \text{Rs. } 2500$$

\Rightarrow Ans - (D)

Question 62

If the shopkeeper sells an item at Rs 1000 which is marked as Rs 1250, then what is the discount he is offering?

A 25 percent

B 33.3 percent

C 250 percent

D 20 percent

Answer: D

Explanation:

Marked price of item = Rs. 1250

Selling price = Rs. 1000

$$\Rightarrow \text{Discount \%} = \frac{1250-1000}{1250} \times 100$$

$$\Rightarrow \frac{1}{5} \times 100 = 20\%$$

\Rightarrow Ans - (D)

Question 63

If a cylinder of radius 7 cm and height 9 cm is melted and constructed into a cone of the same radius, what will be the height of this cone?

A 54 cm

B 9 cm

C 27 cm

D 13.5 cm

Answer: C

Explanation:

Radius of cylinder, $R = 7$ cm and height of cylinder, $H = 9$ cm

Let height of cone = h cm and radius of cone, $r = 7$ cm

According to ques, volume of cone = volume of cylinder

$$\Rightarrow \frac{1}{3}\pi r^2 h = \pi R^2 H$$

$$\Rightarrow \frac{1}{3} \times (7)^2 \times h = (7)^2 \times 9$$

$$\Rightarrow h = 9 \times 3 = 27 \text{ cm}$$

\Rightarrow Ans - (C)

Question 64

Points P and Q lie on side AB and AC of triangle ABC respectively such that segment PQ is parallel to side BC. If the ratio of AP:PB is 2:5, and area of Δ APQ is 4 sq cm, what is the area of trapezium PQCB?

A 49 sq cm

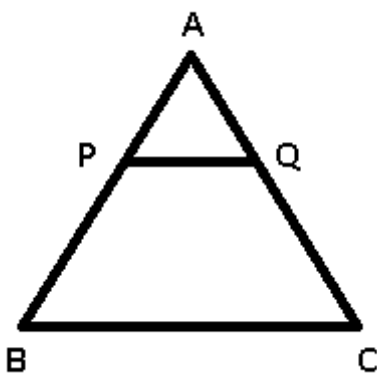
B 45 sq cm

C 25 sq cm

D 21 sq cm

Answer: B

Explanation:



It is given that AP : PB = 2 : 5

Let AP = 2 cm and PB = 5 cm

Let area of trapezium PQCB = x sq cm

In $\triangle APQ$ and $\triangle ABC$

$\angle PAQ = \angle BAC$ (common)

$\angle APQ = \angle ABC$ (Alternate interior angles)

$\angle AQP = \angle ACB$ (Alternate interior angles)

$\Rightarrow \triangle APQ \sim \triangle ABC$

\Rightarrow Ratio of Area of $\triangle APQ$: Area of $\triangle ABC$ = Ratio of square of corresponding sides = $(AP)^2 : (AB)^2$

$$= \frac{(2)^2}{(2+5)^2} = \frac{4}{(4+x)^2}$$

$$\Rightarrow \frac{4}{4+x} = \frac{4}{49}$$

$$\Rightarrow 4 + x = 49$$

$$\Rightarrow x = 49 - 4 = 45 \text{ cm}^2$$

\Rightarrow Ans - (B)

Question 65

Find equation of the perpendicular bisector of segment joining the points (2,-6) and (4,0)?

A $x + 3y = 6$

B $x + 3y = -6$

C $x - 3y = -6$

D $x - 3y = 6$

Answer: B

Explanation:

Let line l perpendicularly bisects line joining A(2,-6) and B(4,0) at C, thus C is the mid point of AB.

$$\Rightarrow \text{Coordinates of C} = \left(\frac{2+4}{2}, \frac{-6+0}{2} \right)$$

$$= \left(\frac{6}{2}, \frac{-6}{2} \right) = (3, -3)$$

$$\text{Now, slope of AB} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(0+6)}{(4-2)}$$

$$= \frac{6}{2} = 3$$

Let slope of line $l = m$

Product of slopes of two perpendicular lines = -1

$$\Rightarrow m \times 3 = -1$$

$$\Rightarrow m = \frac{-1}{3}$$

Equation of a line passing through point (x_1, y_1) and having slope m is $(y - y_1) = m(x - x_1)$

\therefore Equation of line l

$$\Rightarrow (y + 3) = \frac{-1}{3}(x - 3)$$

$$\Rightarrow 3y + 9 = -x + 3$$

$$\Rightarrow x + 3y = 3 - 9 = -6$$

\Rightarrow Ans - (B)

Question 66

What is the measure of an interior angle of a regular dodecagon?

A 120°

B 140°

C 150°

D 144°

Answer: C

Explanation:

Sum of all interior angles of a polygon having n sides = $(n - 2) \times 180^\circ$

Number of sides of dodecagon, $n = 12$

\Rightarrow Sum of interior angles = $(12 - 2) \times 180^\circ$

= $10 \times 180 = 1800^\circ$

In a regular dodecagon, all sides are equal and thus all angles are equal.

\therefore Measure of each angle = $\frac{1800}{12} = 150^\circ$

\Rightarrow Ans - (C)

Question 67

The diameter of a circle is 28 cm find its area?

A 616 sq cm

B 308 sq cm

C 154 sq cm

D 77 sq cm

Answer: A

Explanation:

Diameter of circle = 28 cm

\Rightarrow Radius = $r = \frac{28}{2} = 14$ cm

$$\begin{aligned} \therefore \text{Area of circle} &= \pi r^2 \\ &= \frac{22}{7} \times (14)^2 \\ &= 22 \times 2 \times 14 = 616 \text{ cm}^2 \\ \Rightarrow \text{Ans - (A)} \end{aligned}$$

Question 68

Coefficient of x in $(x + 8)(6 - 3x)$ is

- A 18
- B 30
- C -18
- D -30

Answer: C

Explanation:

A coefficient is a numerical or constant quantity placed before and multiplying the variable in an algebraic expression. Eg : In ax^2 , coefficient is a

$$\begin{aligned} \text{Expression : } &(x + 8)(6 - 3x) \\ &= 6x - 3x^2 + 48 - 24x \\ &= -3x^2 - 18x + 48 \end{aligned}$$

\therefore Coefficient of $x = -18$

\Rightarrow Ans - (C)

Question 69

If $x + y = 10$ and $x^2 + y^2 = 68$, then find xy

- A 21
- B 24
- C 25
- D 16

Answer: D

Explanation:

Given : $(x + y) = 10$ and $x^2 + y^2 = 68$

Using $(x + y)^2 = x^2 + y^2 + 2xy$

$$\Rightarrow (10)^2 = 68 + (2 \times xy)$$

$$\Rightarrow 2xy = 100 - 68 = 32$$

$$\Rightarrow xy = \frac{32}{2} = 16$$

\Rightarrow Ans - (D)

Question 70

The sum of the digits of a 2-digit number is 17. If we add 9 to the number, the new number obtained is a number formed by interchange of the digits. Find the number.

A 89

B 98

C 78

D 87

Answer: A

Explanation:

Let the unit's digit of the number be y and ten's digit be x

$$\Rightarrow \text{Number} = 10x + y$$

$$\text{Sum of digits} = x + y = 17 \text{ -----(i)}$$

$$\text{According to question, } \Rightarrow 10x + y + 9 = 10y + x$$

$$\Rightarrow 9y - 9x = 9$$

$$\Rightarrow y - x = \frac{9}{9} = 1 \text{ -----(ii)}$$

$$\text{Adding equations (i) and (ii), we get : } 2y = 17 + 1 = 18$$

$$\Rightarrow y = \frac{18}{2} = 9$$

$$\text{Substituting it in equation (i), } \Rightarrow x = 17 - 9 = 8$$

\therefore Number = 89

\Rightarrow Ans - (A)

Question 71

If $5x + 4(1 - x) > 3x - 4 > 5x/3 - x/3$; then x can take which of the following values?

A 2

B 1

C 3

D -2

Answer: C

Explanation:

$$\text{Expression 1 : } 3x - 4 > \frac{5x}{3} - \frac{x}{3}$$

$$\Rightarrow 9x - 12 > 4x$$

$$\Rightarrow 9x - 4x > 12$$

$$\Rightarrow x > \frac{12}{5} \text{ -----(i)}$$

$$\text{Expression 2 : } 5x + 4(1 - x) > 3x - 4$$

$$\Rightarrow x + 4 > 3x - 4$$

$$\Rightarrow 3x - x < 4 + 4$$

$$\Rightarrow x < 4 \text{ -----(ii)}$$

Combining inequalities (i) and (ii), we get : $\frac{12}{5} < x < 4$

Thus, only value that x can take among the options = 3

\Rightarrow Ans - (C)

Question 72

Read the following Table and answer the Question:

What is the Average bonus in rupees (the annual salary is given in lakh rupees) ?

	No of Emoloyees	Annual salary	Bonus Percent of Salary
Manager	3	36	50
Executive	4	12	30
Trainee	3	4	10

A 6960000

B 173333

C 220000

D 696000

Answer: D

Explanation:

$$\text{Total bonus of managers (in lakh)} = 3 \times 36 \times \frac{50}{100} = 54 \text{ lakhs}$$

$$\text{Total bonus of executive (in lakh)} = 4 \times 12 \times \frac{30}{100} = 14.4 \text{ lakhs}$$

$$\text{Total bonus of trainee (in lakh)} = 3 \times 4 \times \frac{10}{100} = 1.2 \text{ lakhs}$$

$$\Rightarrow \text{Average bonus in rupees} = \frac{(54+14.4+1.2)}{(3+4+3)}$$

$$= \frac{69.6}{10} = 6.96 \text{ lakhs} = 6,96,000$$

=> Ans - (D)

Question 73

Refer the following Table data and answer the given Questions

For which of the following pairs of years the total exports from the three Companies together are equal?

	2011	2012	2013	2014	2015
Company A	2000	2000	5000	2000	1000
Company B	2000	3000	1000	5000	2000
Company C	3000	2000	5000	3000	3000

A 2011 & 2013

B 2013 & 2015

C 2011 & 2012

D 2014 & 2015

Answer: C

Explanation:

Total exports from the three companies together in :

$$2011 = 2000 + 2000 + 3000 = 7000$$

$$2012 = 2000 + 3000 + 2000 = 7000$$

$$2013 = 5000 + 1000 + 5000 = 11000$$

$$2014 = 2000 + 5000 + 3000 = 10000$$

$$2015 = 1000 + 2000 + 3000 = 6000$$

Clearly, total exports in 2011 and 2012 are equal to 7000

=> Ans - (C)

Question 74

Read the Table Date given below and Answer the given question

What was the Total Loss or Profit given in all the years

Year	Profit/(-Loss) in Crores
2011	10
2012	10
2013	25
2014	15
2015	5

- A Loss of Rs 65 crores
- B Profit of Rs 75 crores
- C Profit of Rs 65 crores
- D Loss of Rs 75 crores

Answer: C

Explanation:

Total profit or loss in Rs. crore in last 5 years

$$= 10 + 10 + 25 + 15 + 5$$

$$= \text{Rs. } 65 \text{ crore}$$

Since, it is positive, thus profit of Rs. 65 crore

=> Ans - (C)

Question 75

Refer the Given data and answer the Question below

Jewelry Was what percent of the Total exports ?

India's Exports in 2015	Value in Million US \$
Jewellery	825
Softyware	750
Cotton	875
Steel	875
Electronics	975

- A 21.69 percent
- B 19.19 percent
- C 24.19 percent

D 16.69 percent

Answer: B

Explanation:

Value in millions of Jewelry = 825

Total exports = 825 + 750 + 875 + 875 + 975 = 4300

=> % of Jewelry in total exports = $\frac{825}{4300} \times 100$

= $\frac{825}{43} = 19.186 \approx 19.19\%$

=> Ans - (B)

English

Instructions

For the following questions answer them individually

Question 76

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

Courteousness and refinement of manner.

A plaudit

B adulation

C urbanity

D profanity

Answer: C

Question 77

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

to have an axe to grind

A sharpening your skills in anticipation of future challenges

B to have a private reason for doing something

- C preparing for a fight
- D getting ready for work or a new project

Answer: B

Question 78

Select the synonym of precedent

- A contingent
- B criterion
- C arbitrary
- D fortuitous

Answer: B

Question 79

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

Jayesh has sent the email.

- A The email has had been sent by Jayesh.
- B The email has been sent by Jayesh.
- C The email was sent by Jayesh.
- D The email was send by Jayesh.

Answer: B

Explanation:

When we change from active to passive voice, there should be no change in the tense of the sentence. The given sentence is in present perfect tense. Hence, on changing, it should continue to be in present perfect tense. Thus, "has been sent" is the correct form of the verb. Therefore option B is correct.

Question 80

In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best express the same sentence in Indirect/Direct speech.

Anil says, "I am glad to be here this morning"

- A Anil says he is glad to be there that morning.
- B Anil says that he is glad to be there that morning.
- C Anil was saying that he was glad to be there this morning.
- D Anil says that he was glad to be here this morning.

Answer: B

Question 81

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

Either you're a mind reader or it's a _____ that you called me just as I was keying your phone number.

- A coincidence
- B correlation
- C union
- D happening

Answer: A

Question 82

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

great minds think alike

- A it is said when two people have the same opinion
- B it is said when clever people think rationally
- C since there is only one truth , the great philosophers have reached on similar conclusions
- D scientists and philosophers easily become friends

Answer: A

Question 83

**Select the antonym of
to rake**

- A to harrow
- B to scatter
- C to scour
- D to enfilade

Answer: B

Question 84

Improve the bracketed part of the sentence.

When I(go)to Paris, I shall visit the Eiffel Tower.

- A shall go
- B will be going
- C have to go
- D no improvement

Answer: D

Question 85

**Select the synonym of
digression**

- A meandering
- B candid
- C categorical
- D unequivocal

Answer: A

Question 86

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

Excusing yourself before standing to leave is part of proper table _____.

- A usage
- B etiquette
- C dignity
- D habit

Answer: B

Question 87

Select the word with the correct spelling.

- A deriesion
- B apalled
- C civilian
- D sacluded

Answer: C

Question 88

Improve the bracketed part of the sentence.

Please pass me that (scissors).

- A scissor
- B pair of scissor
- C pair of scissors
- D no improvement

Answer: C

Question 89

Rearrange the parts of the sentence in correct order.

Do people take

P-rejection of every candidate?

Q-the trouble to go and

R-vote only to register their

A RQP

B RPQ

C PRQ

D QRP

Answer: D

Question 90

Select the word with the correct spelling.

A alackrity

B refileing

C bufoons

D condense

Answer: D

Question 91

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

Involving immoral or dishonourable actions and motives

A redoubt

B scrupulous

C immaculate

D sordid

Answer: D

Question 92

Rearrange the parts of the sentence in correct order.

The reference

P-is simultaneously a matter

Q-to the size of a vulnerable community

R-of legal as well as political and ethical perspective

A RPQ

B QRP

C QPR

D PRQ

Answer: C

Question 93

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

To the whale, its(A)/tail is the sole(B)/mean of propulsion.(C)/No error(D)

A A

B B

C C

D D

Answer: C

Question 94

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

There was a fine line(A)/between being frugal(B)/and being a miser.(C)/No error(D)

A A

B B

C C

D D

Answer: D

Question 95

Select the antonym of
to contend

A to comply

B to oppugn

C to grapple

D to vie

Answer: A

Question 96

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

Fraternity, then, was meant to complement civil rights, _____ to destroy them. The _____ framers did not use this symbolic term for a court to come along 66 years _____, and _____ it for the purposes of subordinating individual rights to some mythic notion of community harmony, entirely submerging the individual _____ the society. _____ to destroy them.

A neither

B nor

C no

D not

Answer: D

Question 97

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

Fraternity, then, was meant to complement civil rights, _____ to destroy them. The _____ framers did not use this symbolic term for a court to come along 66 years _____, and _____ it for the purposes of subordinating individual rights to some mythic notion of community harmony, entirely submerging the individual _____ the society.

The _____ framers did not use this symbolic term

- A Constitutions'
- B Constitution's
- C Constitutions
- D Constitution

Answer: B

Question 98

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

Fraternity, then, was meant to complement civil rights, _____ to destroy them. The _____ framers did not use this symbolic term for a court to come along 66 years _____, and _____ it for the purposes of subordinating individual rights to some mythic notion of community harmony, entirely submerging the individual _____ the society.

a court to come along 66 years _____,

- A late
- B lately
- C later
- D latest

Answer: C

Question 99

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

Fraternity, then, was meant to complement civil rights, _____ to destroy them. The _____ framers did not use this symbolic term for a court to come along 66 years _____, and _____ it for the purposes of subordinating individual rights to some mythic notion of community harmony, entirely submerging the individual _____ the society. and _____ it for the purposes of subordinating individual rights

- A appropriate
- B appropriately
- C appropriating
- D appropriated

Answer: A

Question 100

In the following passage, some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.

Fraternity, then, was meant to complement civil rights, _____ to destroy them. The _____ framers did not use this symbolic term for a court to come along 66 years _____, and _____ it for the purposes of subordinating individual rights to some mythic notion of community harmony, entirely submerging the individual _____ the society. entirely submerging the individual _____ the society.

- A on
- B onto
- C upon
- D within

Answer: D