



2017 SSC CGL 16 Aug Shift-2

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General Awareness

Instructions

For the following questions answer them individually

Question 1

After which five year plan, 'The Rolling Plan' was implemented?

- A Third Plan
- B Fifth Plan
- C Seventh Plan
- D Ninth Plan

Answer: B

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Question 2

Which tax causes a burden on the poorer section of the society?

- A Direct Tax
- B Indirect Tax
- C Both Direct and Indirect Tax
- D None of these

Answer: B

Question 3

Which article was referred to as the 'the heart and soul' of the constitution by Dr. B. R. Ambedkar?

- A Article 4
- B Article 32
- C Article 28
- D Article 30

Answer: B

Question 4

Which of the following provision needs a special majority in Parliament?

- A Change in Fundamental Rights
- B Creation of New States
- C Abolition of Legislative Councils in State
- D Rules and Procedures in Parliament

Answer: A

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Question 5

Which act ended the "Trade Monopoly" of the East India Company?

- A Regulating Act of 1773
- B Pitt's India Act of 1784
- C The Charter Act of 1833
- D The Charter Act of 1813

Answer: D

Question 6

Match the following	
Battle	Year
1. Battle of Buxar	a.1576
2. Battle of Plassey	b.1764
3. Battle of Haldighati	c.1757

- A 1-c, 2-b, 3-a
- B 1-b, 2-c, 3-a
- C 1-b, 2-a, 3-c
- D 1-c, 2-a, 3-b

Answer: B

Question 7

Which state in India receives rainfall due to western disturbances?

- A Punjab
- B West Bengal
- C Kerala
- D Gujarat

Answer: A

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Question 8

Why does Western Ghats and Eastern Ghats both receive sufficient rainfall but Deccan Plateau receives scanty rainfall?

- A** It is a rain shadow area
- B** It is located parallel to wind direction
- C** It is away from the coast
- D** Rain bearing clouds are absent

Answer: A

Question 9

In which part of the cell does the pyruvic acid is broken down into carbon dioxide, water and energy?

- A** Cytoplasm
- B** Nucleus
- C** Mitochondria
- D** Chloroplast

Answer: C

Question 10

What is plant cell wall mainly composed of?

- A** Lipids
- B** Vitamin
- C** Cellulose
- D** Protein

Answer: C

Explanation:

A plant cell wall mainly composed of cellulose.

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Question 11

What is the SI unit of Power?

- A** Boyle
- B** Watt
- C** Newton
- D** Pascal

Answer: B

Question 12

Which one of the following is not a type of coal?

- A Anthracite
- B Lignite
- C Peat
- D Siderite

Answer: D

Question 13

Which of the following pair is INCORRECT?

- I. Parsec - Distance
- II. Barrel - Liquid
- III. Light year - Time

- A Only III
- B Only I and III
- C Only II
- D All are correct

Answer: A

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Question 14

What is the name of the first Super Computer of the world?

- A CDC 6600
- B USENET
- C COMODOR VIC/20
- D PARAM-10000

Answer: A

Question 15

Fog, clouds, mist are examples of _____.

- A Aerosol
- B Solid sol
- C Foam
- D Gel

Answer: A

Question 16

Which is the chemical formula of quicklime?

- A Ca₂O
- B Ca₂CO₃
- C CaO₂
- D CaO

Answer: D

General Science Notes for SSC CGL

Question 17

Who was the pioneer of Chipko movement of 1973?

- A Sambaji
- B Baba Amte
- C Sunderlal Bahuguna
- D Medha Patkar

Answer: C

Question 18

'Pradhan Mantri Digital Saksharta Abhiyan' is launched to digitally literate 6 crore rural households by ____.

- A March, 2019
- B March, 2020
- C April, 2021
- D March, 2022

Answer: A

Question 19

Edward Jenner discovered vaccine for which of the following disease?

- A Polio
- B Tuberculosis
- C Small Pox
- D Rabies

Answer: C

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Question 20

In 2017 Australian Open, Serena Williams defeated her sister Venus Williams to win the ____ Grand Slam Singles title of her career.

- A 23rd
- B 18th
- C 26th
- D 20th

Answer: A

Question 21

Which Indian state hosted the 3 days long 'International Yoga Fest' held from 8th to 10th March, 2017?

- A Uttar Pradesh
- B Madhya Pradesh
- C Maharashtra
- D Delhi

Answer: D

Question 22

Who was awarded with the Filmfare Lifetime Achievement Award for the year 2017?

- A Yash Chopra
- B Kamini Kaushal
- C Shatrughan Sinha
- D Moushumi Chatterjee

Answer: C

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Question 23

Who is the author of 'The Windfall'?

- A Manmohan Singh
- B Amitav Ghosh
- C Diksha Basu
- D Arundhati Roy

Answer: C

Question 24

Which country will host the 9th BRICS Summit in the year 2017?

- A Brazil
- B Russia
- C India
- D China

Answer: D

Question 25

With which country has India signed an agreement for assistance in green and sustainable construction of infrastructure in the Himalayan Kingdom in December, 2016?

- A Nepal
- B Afghanistan
- C Bhutan
- D Pakistan

Answer: C

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Reasoning

Instructions

For the following questions answer them individually

Question 26

In the following question, select the related word from the given alternatives.

Banana : Fruit : : Ginger : ?

- A Root
- B Fruit
- C Flower
- D Stem

Answer: D

Explanation:

Banana is a fruit, in the same way ginger is a stem.

=> Ans - (D)

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Question 27

In the following question, select the related letters from the given alternatives.

JPSW : LQUX : : MRFT : ?

- A OTVG

- B OGTU
- C OSHU
- D OPQR

Answer: C

Explanation:

Expression = JPSW : LQUX

The pattern followed is :

J	P	S	W
(+2)	(+1)	(+2)	(+1)
L	Q	U	X

Similarly, for MRFT

M	R	F	T
(+2)	(+1)	(+2)	(+1)
O	S	H	U

=> Ans - (C)

Question 28

In the following question, select the related number from the given alternatives.

65 : 82 :: 145 : ?

- A 165
- B 168
- C 169
- D 170

Answer: D

Explanation:

Expression = 65 : 82 :: 145 : ?

The pattern followed is = $(n^2 + 1) : (n + 1)^2 + 1$

Eg = $8^2 + 1 : 9^2 + 1 = 65 : 82$

Similarly, $12^2 + 1 = 145$

and $(12 + 1)^2 + 1 = 169 + 1 = 170$

=> Ans - (D)

Question 29

In the following question, select the odd word from the given alternatives.

- A Trees
- B Leaves
- C Flower
- D Stem

Answer: A

Explanation:

Leaves, flower and stem are part of trees, hence it is the odd one out.

=> Ans - (A)

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Question 30

In the following question, select the odd letters from the given alternatives.

- A CEF
- B LNO
- C RTU
- D GIK

Answer: D

Explanation:

(A) : C (+2 letters) = E (+1 letter) = F

(B) : L (+2 letters) = N (+1 letter) = O

(C) : R (+2 letters) = T (+1 letter) = U

(D) : G (+2 letters) = I (+2 letter) = K

=> Ans - (D)

Question 31

In the following question, select the odd number pair from the given alternatives.

- A 49 - 64
- B 576 - 729
- C 441 - 484
- D 100 - 121

Answer: B

Explanation:

The pattern followed is = $n^2 : (n + 1)^2$

(A) : 49 : 64 = $7^2 : 8^2$

(B) : 576 : 729 = $24^2 : 27^2$

(C) : 441 : 484 = $21^2 : 22^2$

(D) : 100 : 121 = $10^2 : 11^2$

=> Ans - (B)

Question 32

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

1. Waste
2. Wrong
3. Witty
4. Worcester
5. Warlike

- A 51324
- B 13452
- C 51342
- D 15342

Answer: C

Explanation:

As per the dictionary,

= Warlike -> Waste -> Witty -> Worcester -> Wrong

≡ 51342

=> Ans - (C)

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Question 33

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

A, C, F, H, K, ?

- A M
- B N
- C L
- D O

Answer: A

Explanation:

The pattern followed is that 2 letters and 3 letters are alternatively missing from successive terms.

A (+2 letters) = C

C (+3 letters) = F

F (+2 letters) = H

H (+3 letters) = K

K (+2 letters) = **M**

=> Ans - (A)

Question 34

In the following question, select the missing number from the given series.

1, 3, 6, 10, 15, ?

- A 20
- B 21
- C 22
- D 24

Answer: B

Explanation:

Consecutive natural numbers are added.

$$1 + 2 = 3$$

$$3 + 3 = 6$$

$$6 + 4 = 10$$

$$10 + 5 = 15$$

$$15 + 6 = 21$$

=> Ans - (B)

Question 35

In a row of people Manu is 7th from bottom end of row. Shrey is 10 ranks above Manu. If Shrey is 8th from top end, then how many people are there in this row?

A 25

B 26

C 24

D 23

Answer: C

Explanation:

Manu's position from bottom end = 7th

=> Shreya's position from bottom end = $7 + 10 = 17$ th

Also, Shreya's position from top end = 8th

∴ Total number of people = $(17+8) - 1 = 24$

=> Ans - (C)

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Question 36

Seven years ago, the age of Sahil was equal to the present age of Nihal. Sum of Sahil's age 5 year ago and Nihal's age 6 years later is 58 years. If Ruchi is 4 years elder to Sahil, then what will be Ruchi's age (in years) after 10 years?

A 38

B 46

C 42

D 36

Answer: B

Explanation:

Let present ages of Sahil and Nihal be s years and n years respectively.

According to ques, => $s - 7 = n$ -----(i)

Also, $(s - 5) + (n + 6) = 58$

=> $s + n = 58 - 1 = 57$

Substituting value from equation (i), we get :

$$\Rightarrow s + s - 7 = 57$$

$$\Rightarrow 2s = 57 + 7 = 64$$

$$\Rightarrow s = \frac{64}{2} = 32$$

Thus, Ruchi's age = $32 + 4 = 36$ years

\therefore Ruchi's age (in years) after 10 years = $36 + 10 = 46$ years

\Rightarrow Ans - (B)

Question 37

In the following question, from the given alternative words, select the word which cannot be formed using the letters of the given word.

Representation

- A Paint
- B Senator
- C Trees
- D Strict

Answer: D

Explanation:

The word REPRESENTATION does not contain any 'C', and thus the word 'Strict' cannot be formed.

\Rightarrow Ans - (D)

Question 38

In a certain code language, "TROUPE" is written as "GILFKV" and "ERUPTION" is written as "VIFKGRLM". How is "GENIUS" written in that code language?

- A TVMRFH
- B TVMRGH
- C VIKRGH
- D TUVHRH

Answer: A

Explanation:

"TROUPE" is written as "GILFKV"

The pattern followed is that every letter is opposite to each other.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
↓	↓	↓	↓
Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A

Similar pattern is observed in ERUPTION : VIFKGRLM

- G -> T
- E -> V
- N -> M
- I -> R
- U -> F
- S -> H

Thus, GENIUS : TVMRFH

=> Ans - (A)

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Question 39

If " α " denotes "subtracted from", " β " denotes "multiplied by", " θ " denotes "added to" and " δ " denotes "divided by", then

$$10 \theta 8 \beta 4 \delta 8 \alpha 9 = ?$$

- A 7
- B 5
- C 9
- D 11

Answer: B

Explanation:

$$\text{Expression : } 10 \theta 8 \beta 4 \delta 8 \alpha 9 = ?$$

$$\equiv 10 + 8 \times 4 \div 8 - 9$$

$$= 10 + 4 - 9 = 5$$

=> Ans - (B)

Question 40

If $9^2 A 4^2 B 3^2 = 56$ and $7^2 A 2^2 B 1^2 = 44$, then

$$11^2 A 5^2 B 7^2 = ?$$

- A 29
- B 32
- C 47
- D 24

Answer: C

Explanation:

The pattern followed is that sum of square of two rightmost numbers is subtracted from square of leftmost number.

$$\text{Eg} = 9^2 - (4^2 + 3^2) = 81 - 16 - 9 = 56$$

$$\text{and } 7^2 - (2^2 + 1^2) = 49 - 4 - 1 = 44$$

$$\text{Similarly, } 11^2 - (5^2 + 7^2) = 121 - 25 - 49 = 47$$

=> Ans - (C)

Question 41

In the following question, select the number which can be placed at the sign of question mark (?) from the given alternatives.

1	7	6	56
1	4	8	45
2	3	6	?

- A 32
- B 35
- C 46
- D 47



Answer: A

Explanation:

Let the numbers in the row in that order be a, b, c, d , then the pattern followed is that : $d = (a + c)(b + 1)$

Eg : $(1 + 6)(1 + 7) = 7 \times 8 = 56$

and $(1 + 8)(1 + 4) = 9 \times 5 = 45$

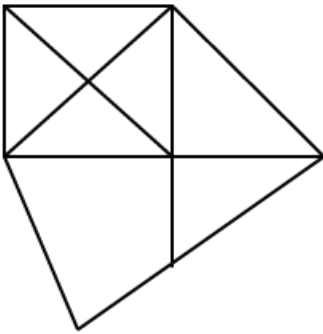
Similarly, $(2 + 6)(1 + 3) = 8 \times 4 = 32$

=> Ans - (A)

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Question 42

How many quadrilaterals are there in the given figure ?



- A 3
- B 4
- C 7
- D 6

Answer: C

Question 43

In each of the following question below are given some statements followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

- I. Some girls are clever.
- II. All clever are hardworking.

Conclusions:

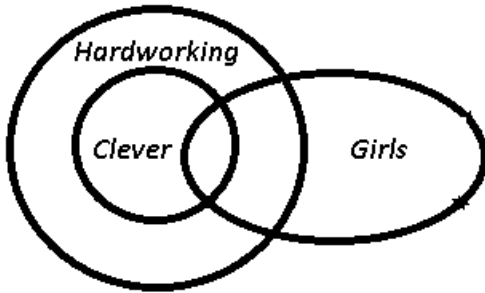
- I. Some girls are not hardworking.
- II. Some girls are hardworking.
- III. Some hardworking are not girls.

- A Only conclusion (I) and (II) follow.
- B Only conclusion (II) follows.
- C Only conclusion (I) and (III) follow.
- D All conclusions follow.

Answer: B

Explanation:

The venn diagram for above statements is :



Conclusions:

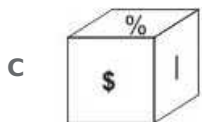
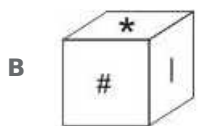
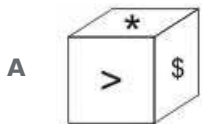
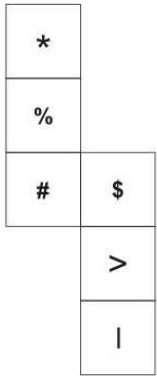
- I. Some girls are not hardworking = false
- II. Some girls are hardworking = true
- III. Some hardworking are not girls = false

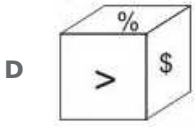
Thus, only conclusion (II) follows.

=> Ans - (B)

Question 44

From the given options which answer figure can be formed by folding the figure given in the question





Answer: A

Explanation:

When we fold the question figure, we get '\$' as the base of the cube and '|' as top, thus they face each other.

Also, '%' will face '>' and '*' will face '#'.
 Thus, (*,#) , (\$,|) and (%,>) cannot be the adjacent sides of the cube as mentioned in the last three options respectively.

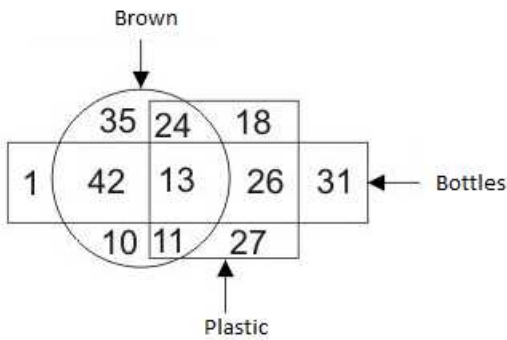
Thus, (*,#) , (\$,|) and (%,>) cannot be the adjacent sides of the cube as mentioned in the last three options respectively.

=> Ans - (A)

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Question 45

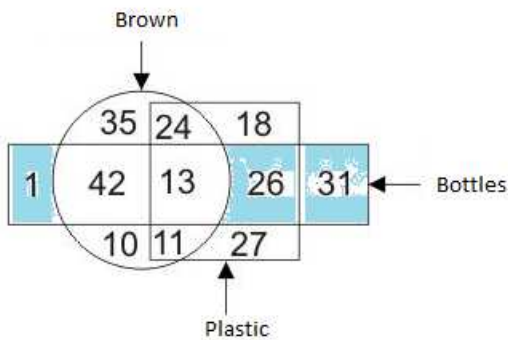
In the given figure , how many bottles are not brown



- A 58
- B 57
- C 32
- D 27

Answer: A

Explanation:

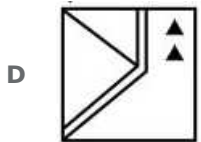
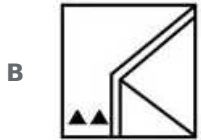


Bottles that are not brown are represented by blue colour = 31 + 26 + 1 = 58

=> Ans - (A)

Question 46

Which answer figure will complete the pattern in the question figure



Answer: A

Explanation:

Top right side of the square is missing, also the two triangles will point upwards and will be placed above the parallel horizontal lines, so the last three options are not possible. Thus, missing figure should be :

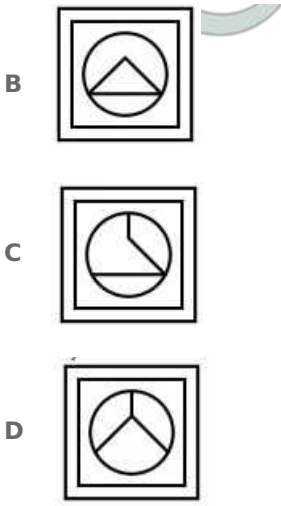


=> Ans - (A)

Question 47

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





Answer: A

Explanation:

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

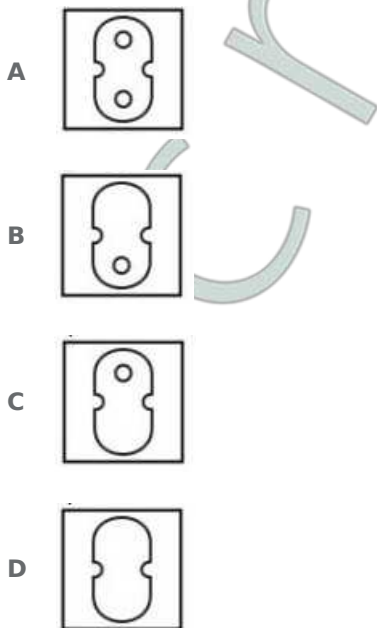


=> Ans - (A)

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Question 48

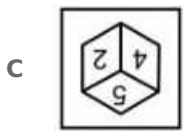
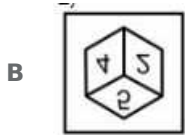
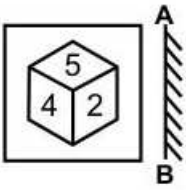
A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.



Answer: A

Question 49

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



Answer: A

Explanation:

A vertical mirror is placed, so the objects on the left will appear at right and vice-versa, hence 4 will appear at the right hand side and 2 on the left, thus last option is eliminated.

Also, the position of the cube will not change, thus the second and third options are also not possible.

=> Ans - (A)

Question 50

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, 'E' can be represented by 21, 44, etc., and 'I' can be represented by 65, 87, etc. Similarly, you have to identify the set for the word "FATE".

Matrix - I

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

Matrix - II

	5	6	7	8	9
5	B	F	K	N	T
6	T	B	F	K	N
7	N	T	B	F	K
8	K	N	T	B	F
9	F	K	N	T	B

- A 56, 00, 87, 11
- B 96, 41, 59, 44
- C 88, 12, 76, 33

D 78, 34, 98, 21

Answer: D

Explanation:

(A) : 56, 00, 87, 11 = FATI

(B) : 96, 41, 59, 44 = KATE

(C) : 88, 12, 76, 33 = BATI

(D) : 78, 34, 98, 21 = **FATE**

=> Ans - (D)

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English

Instructions

For the following questions answer them individually

Question 51

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'.

The CEO only discussed (a:/ the new venture (b:/ with his manager. (c:/ No Error (d:

A 1

B 2

C 3

D 4

Answer: A

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Question 52

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'.

If she was marrying Mr. Gupta (a:/ she would have been (b:/ recognized as Mrs. Gupta. (c:/ No Error (d:

A 1

B 2

C 3

D 4

Answer: B

Question 53

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

Ankita is disgusted ____ the habit of her brother.

- A at
- B on
- C of
- D with

Answer: A

Question 54

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

Due to the security reasons we were ____ from entering into the cockpit of the plane.

- A denied
- B rejected
- C stopped
- D warned

Answer: C

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Question 55

In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Exorbitant

- A Clear
- B Dull
- C High
- D Rare

Answer: C

Question 56

In the following question, out of the four alternatives, select the word similar in meaning to the word given.

Jeopardy

- A Angry
- B Injure

- C Risk
- D Serene

Answer: C

Question 57

In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Churlish

- A Belittle
- B Courteous
- C Fervent
- D Uncouth

Answer: B

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Question 58

In the following question, out of the four alternatives, select the word opposite in meaning to the word given.

Phlegmatic

- A Ardent
- B Indifferent
- C Prohibit
- D Merciless

Answer: A

Question 59

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

Damp squib

- A Complete failure
- B Complete knowledge
- C To motivate
- D To squander money

Answer: A

Question 60

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

Rise like a phoenix

- A Something memorable
- B Time to answer for one's action
- C To become successful again
- D To make people happy

Answer: C

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Question 61

Improve the bracketed part of the sentence.

The mobile phones have made digital cameras a little (superfluous) in today's world.

- A extinct
- B obsolete
- C redundant
- D No improvement

Answer: B

Question 62

Improve the bracketed part of the sentence.

If (you will approach) her sincerely, she will listen to your problem definitely.

- A you approach
- B you are approaching
- C you will be approaching
- D No improvement

Answer: A

Question 63

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

That which is away from centre

- A Eccentric
- B Eclectic
- C Ellipsis

D Equine

Answer: A

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Question 64

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

One who values practicality

A Apotheosis

B Pliable

C Pragmatist

D Realist

Answer: C

Question 65

In the following question, four words are given out of which one word is incorrectly spelt. Select the incorrectly spelt word.

A Pedestrain

B Plaintiff

C Potatoes

D Potassium

Answer: A

Question 66

In the following question, four words are given out of which one word is incorrectly spelt. Select the incorrectly spelt word.

A Fabulous

B Gorgeous

C Heterogeneous

D Inocuous

Answer: D

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Question 67

The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.

- P- A sensitive mind easily absorbs the vibrations emanating from the thought of the people it associates with.
Q- We often say that a person is known by the company he keeps.
R- The violent can be made calm by exuding thought of love and compassion.
S- Visits to holy places are considered good because the good thoughts of the holy people gathered there and the ensuing vibrations definitely affect one in a positive fashion.

- A RQPS
B QRSP
C PQRS
D SRQP

Answer: A

Question 68

The question below consists of a set of labelled sentences. Out of the four options given, select the most logical order of the sentences to form a coherent paragraph.

- P- Epistemological idealists (such as Kant) might insist that the only things which can be directly known for certain are ideas.
Q- The approach to idealism by Western philosophers has been different to that of Eastern thinkers.
R- In much of Western thought (though not in such major Western thinkers as Plato and Hegel) the ideal relates to direct knowledge of subjective mental ideas, or images.
S- It is then usually juxtaposed with realism in which the real is said to have absolute existence prior to and independent of our knowledge.

- A RQPS
B PQSR
C PRQS
D QRSP

Answer: D

Question 69

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

Karnataka grows coffee

- A Coffee is being grown in Karnataka.
B Coffee grown in Karnataka.
C Coffee is grown in Karnataka.
D Let the coffee be grown in Karnataka.

Answer: C

Question 70

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

Gopal's mother reminded him to take his wallet.

- A "Are you going to take your wallet or not?" said Gopal to his mother.
- B "Don't forget to take your wallet" said Gopal's mother.
- C Gopal's mother said, "Remember your wallet, Gopal".
- D "Here is your wallet Gopal" said his mother.

Answer: C

Instructions

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

Organization are institutions in which members compete for status and __(1)__. They __(2)__ for the resources of the organization, for example, __(3)__ to expand their own departments, for __(4)__ advancement and for power to __(5)__ the activities of others.

Question 71

(1)

- A growth
- B money
- C power
- D success

Answer: C

Question 72

(2)

- A compete
- B expand
- C rely
- D run

Answer: A

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Question 73

(3)

- A finance
- B infrastructure

C resources

D source

Answer: A

Question 74

(4)

A career

B financial

C regional

D technological

Answer: A

Question 75

(5)

A affect

B control

C curb

D pursue

Answer: B

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Mathematics

Instructions

For the following questions answer them individually

Question 76

For what value of X, 211X will be a perfect square?

A 4

B 5

C 6

D 9

Answer: C

Explanation:

We know that $(45)^2 = 2025$

So, the next number = $(46)^2 = 2116$

Thus, X is replaced by 6

=> Ans - (C)

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Question 77

2 men or 3 women can complete a job in 96 days. Then 6 men and 7 women will complete the same job in how many days?

- A 18
- B 27
- C 20
- D 24

Answer: A

Explanation:

Let work done by 1 man in 1 day = m and work done by 1 woman in 1 day = w

$$\Rightarrow \text{Work done by 2 men in 1 day} = \frac{1}{96}$$

$$\Rightarrow 2m = \frac{1}{96}$$

$$\Rightarrow m = \frac{1}{192}$$

$$\text{Similarly, work done by 3 women} = 3w = \frac{1}{96}$$

$$\Rightarrow w = \frac{1}{288}$$

Thus, work done by 6 men and 7 women in 1 day = $6m + 7w$

$$= 6\left(\frac{1}{192}\right) + 7\left(\frac{1}{288}\right)$$

$$= \frac{1}{32} + \frac{7}{288} = \frac{9+7}{288}$$

$$= \frac{16}{288} = \frac{1}{18}$$

\therefore Time taken by 6 men and 7 women to complete the work = 18 days

\Rightarrow Ans - (A)

Question 78

If the radius of the cylinder is decreased by 20%, then by how much percent the height must be increased, so that the volume of the cylinder remains same?

- A 20
- B 36.25
- C 56.25
- D 65

Answer: C

Explanation:

Let radius of cylinder = 10 cm and height = 10 cm

$$\Rightarrow \text{Volume} = \pi r^2 h$$

$$= \pi(10)^2 \times 10 = 1000\pi$$

$$\text{If radius is decreased by 20\%, } \Rightarrow \text{new radius} = \frac{80}{100} \times 10 = 8 \text{ cm}$$

$$\Rightarrow \pi r^2 h = 1000\pi$$

$$\Rightarrow (8)^2 h = 1000$$

$$\Rightarrow h = \frac{1000}{64} = \frac{125}{8} = 15.625$$

$$\therefore \text{Increase in height} = \frac{(15.625-10)}{10} \times 100$$

$$= 5.625 \times 10 = 56.25\%$$

\Rightarrow Ans - (C)

Question 79

The marked price of an article is 40% more than its cost price. If 15% discount is given on the marked price, then what will be the profit percentage?

A 25

B 15

C 21

D 19

Answer: D

Explanation:

Let cost price = Rs. $100x$

Markup % = 40%

$$\Rightarrow \text{Marked price} = 100x + \left(\frac{40}{100} \times 100x\right) = \text{Rs. } 140x$$

Discount % = 15%

$$\Rightarrow \text{Selling price} = \frac{85}{100} \times 140x = \text{Rs. } 119x$$

$$\therefore \text{Profit \%} = \frac{(119x-100x)}{100x} \times 100 = 19\%$$

\Rightarrow Ans - (D)

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Question 80

Three partners A, B and C share profit such that three times the share of A is equal to two times the share of B and equal to 12 times the share of C. What is the ratio of the profits of A, B and C respectively

A 3 : 2 : 12

B 12 : 2 : 3

C 4 : 6 : 1

D 1 : 6 : 4

Answer: C

Explanation:

Let shares of A, B and C be a , b and c respectively.

According to ques, $\Rightarrow 3a = 2b = 12c = k$

$$\Rightarrow a = \frac{k}{3}, b = \frac{k}{2}, c = \frac{k}{12}$$

$$\Rightarrow a : b : c = \frac{k}{3} : \frac{k}{2} : \frac{k}{12}$$

$$= \frac{1}{3} : \frac{1}{2} : \frac{1}{12}$$

Multiplying by L.C.M.(2,3,12)=12

$$= \frac{12}{3} : \frac{12}{2} : \frac{12}{12}$$

$$= 4 : 6 : 1$$

=> Ans - (C)

Question 81

The average of 8 consecutive natural numbers is 38.5. What is the largest of these 8 numbers?

A 41

B 39

C 42

D 45

Answer: C

Explanation:

Let the 8 consecutive natural numbers be $(x + 1), (x + 2), (x + 3), \dots, (x + 8)$

Average of these numbers = 38.5

$$\Rightarrow \frac{(x+1)+(x+2)+(x+3)+\dots+(x+8)}{8} = 38.5$$

$$\Rightarrow 8x + 36 = 38.5 \times 8 = 308$$

$$\Rightarrow 8x = 308 - 36 = 272$$

$$\Rightarrow x = \frac{272}{8} = 34$$

$$\therefore \text{Largest number} = 34 + 8 = 42$$

=> Ans - (C)

Question 82

If the cost price of 48 articles is equal to the selling price of 32 articles, then what is the profit percentage?

A 20

B 25

C 50

D 75

Answer: C

Explanation:

Let cost price of 1 article = Rs. x and selling price = Rs. y

According to ques, Cost price of 48 articles = Selling price of 32 articles

$$\Rightarrow 48x = 32y$$

$$\Rightarrow y = \frac{32}{48}x = \frac{2}{3}x$$

Let $x = 2$ and $y = 3$

$$\therefore \text{Profit \%} = \frac{(y-x)}{x} \times 100$$

$$= \frac{3-2}{2} \times 100 = 50\%$$

=> Ans - (C)

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Question 83

After deducting 12% from a certain sum and then deducting 25% from the remainder, 2508 is left, then what is the initial sum?

A 3500

B 3450

C 3970

D 3800

Answer: D

Explanation:

Let initial sum = $100x$

After deducting 12%, sum left = $\frac{(100-12)}{100} \times 100x = 88x$

Similarly, after deducting 25%, sum left = $\frac{75}{100} \times 88x = 66x$

According to ques,

$$\Rightarrow 66x = 2508$$

$$\Rightarrow x = \frac{2508}{66} = 38$$

$$\therefore \text{Initial sum} = 100 \times 38 = 3800$$

=> Ans - (D)

Question 84

Two trains are moving in the opposite direction at speed of 30 km/hr and 45 km/hr respectively, whose lengths are 450 m and 550 m respectively. What is the time taken (in seconds) by slower train to cross the faster train?

A 48

B 54

C 62

D 72

Answer: A

Explanation:

Since, the trains are moving in opposite directions, relative speed of train = $30 + 45 = 75$ km/hr

$$= (75 \times \frac{5}{18}) \text{ m/s} = \frac{125}{6} \text{ m/s}$$

Sum of lengths of trains = $450 + 550 = 1000$ m

Time taken = length/speed

$$= \frac{1000}{\frac{125}{6}}$$

$$= 1000 \times \frac{6}{125} = 48 \text{ sec}$$

=> Ans - (A)

Question 85

A person lent certain sum of money at 10% per annum simple interest. In 20 years the interest amounted to Rs 500 more than the sum lent. What was the sum lent (in Rs)?

- A 200
- B 500
- C 1000
- D 250

Answer: B

Explanation:

Let sum lent = Rs. $100x$

Rate of interest = 10% and time period = 20 years

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

$$\Rightarrow \frac{100x \times 10 \times 20}{100} = 500 + 100x$$

$$\Rightarrow 200x = 500 + 100x$$

$$\Rightarrow 200x - 100x = 500$$

$$\Rightarrow 100x = 500$$

=> Ans - (B)

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Question 86

If $a = 73$, $b = 74$ and $c = 75$, then what is the value of $a^3 + b^3 + c^3 - 3abc$?

- A 365
- B 444
- C 666
- D 999

Answer: C

Explanation:

Given : $a = 73$, $b = 74$ and $c = 75$

We know that, $x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$

Multiplying both sides by 2, we get :

$$\Rightarrow 2(a^3 + b^3 + c^3 - 3abc) = (a + b + c)(2a^2 + 2b^2 + 2c^2 - 2ab - 2bc - 2ca)$$

$$\Rightarrow 2(a^3 + b^3 + c^3 - 3abc) = (a + b + c)[(a - b)^2 + (b - c)^2 + (c - a)^2]$$

Substituting values of a, b and c

$$\Rightarrow a^3 + b^3 + c^3 - 3abc = \frac{1}{2}(73 + 74 + 75)[(73 - 74)^2 + (74 - 75)^2 + (75 - 73)^2]$$

$$= \frac{1}{2}(222)(1 + 1 + 4)$$

$$= 222 \times 3 = 666$$

=> Ans - (C)

Question 87

If $x^2 + (1/x^2) = 31/9$ and $x > 0$, then what is the value of $x^3 + (1/x^3)$?

- A 70/9
- B 154/27
- C 349/27
- D 349/7

Answer: B

Explanation:

Given : $x^2 + \frac{1}{x^2} = \frac{31}{9}$

Adding 2 on both sides,

$$\Rightarrow x^2 + \frac{1}{x^2} + 2(x)\left(\frac{1}{x}\right) = \frac{31}{9} + 2$$

$$\Rightarrow \left(x + \frac{1}{x}\right)^2 = \frac{49}{9}$$

$$\Rightarrow \left(x + \frac{1}{x}\right) = \sqrt{\frac{49}{9}} = \frac{7}{3} \text{ -----(i)}$$

Cubing both sides, we get :

$$\Rightarrow \left(x + \frac{1}{x}\right)^3 = \left(\frac{7}{3}\right)^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3\left(x\right)\left(\frac{1}{x}\right)\left(x + \frac{1}{x}\right) = \frac{343}{27}$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3\left(\frac{7}{3}\right) = \frac{343}{27}$$

$$\Rightarrow x^3 + \frac{1}{x^3} = \frac{343}{27} - 7$$

$$\Rightarrow x^3 + \frac{1}{x^3} = \frac{343-189}{27} = \frac{154}{27}$$

=> Ans - (B)

Question 88

$$\frac{(x^2-5x+6)}{(x^2-3x+2)} \div \frac{(x^2-7x+12)}{(x^2-5x+4)} ?$$

- A 1
- B 2
- C $(x - 2)/(x - 1)$
- D $(x + 3)/(x + 1)$

Answer: A

Explanation:

Expression : $\frac{(x^2-5x+6)}{(x^2-3x+2)} \div \frac{(x^2-7x+12)}{(x^2-5x+4)}$

$$\begin{aligned} \text{Here, } x^2 - 5x + 6 &= x^2 - 3x - 2x + 6 \\ &= x(x - 3) - 2(x - 3) = (x - 2)(x - 3) \end{aligned}$$

Similarly for other terms, we get :

$$= \frac{(x-2)(x-3)}{(x-1)(x-2)} \div \frac{(x-3)(x-4)}{(x-1)(x-4)}$$

$$= \frac{x-3}{x-1} \times \frac{x-1}{x-3}$$

$$= 1$$

=> Ans - (A)

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Question 89

If $x - (1/x) = 3$, then what is the value of $(2x^4 + 3x^3 + 13x^2 - 3x + 2)/(3x^4 + 3)$?

A $1/3$

B $2/3$

C $4/3$

D $5/3$

Answer: C

Explanation:

Given : $x - \frac{1}{x} = 3$ -----(i)

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

$$\Rightarrow x^2 - 1 = 3x$$
 -----(ii)

Squaring equation (i), we get :

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

$$\Rightarrow x^2 + \frac{1}{x^2} - 2\left(x\right)\left(\frac{1}{x}\right) = 9$$

$$\Rightarrow x^2 + \frac{1}{x^2} = 11$$

$$\Rightarrow \frac{x^4+1}{x^2} = 11$$

$$\Rightarrow x^4 + 1 = 11x^2$$
 -----(iii)

To find : $\frac{2x^4+3x^3+13x^2-3x+2}{(3x^4+3)}$

$$= \frac{2(x^4+1)+3x(x^2-1)+(13x^2)}{3(x^4+1)}$$

Using equations (ii) and (iii),

$$= \frac{2(11x^2)+3x(3x)+13x^2}{3(11x^2)}$$

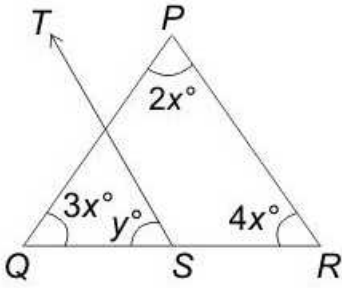
$$= \frac{22x^2+9x^2+13x^2}{33x^2}$$

$$= \frac{44x^2}{33x^2} = \frac{4}{3}$$

=> Ans - (C)

Question 90

In the given figure $ST \parallel RP$, then what is the value (in degrees) of supplementary angle of Y ?

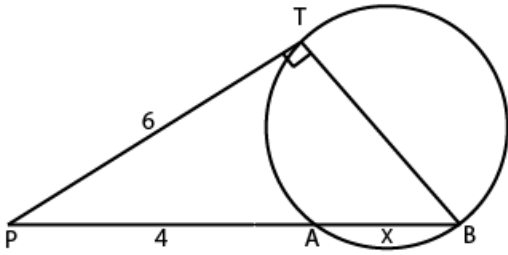


- A 10
- B 60
- C 100
- D 170

Answer: C

Question 91

In the given figure, TB passes through center O. What is the radius of the circle ?



- A $(2\sqrt{5})/3$
- B $(3\sqrt{2}/5)$
- C $(3\sqrt{5})/2$
- D $(2\sqrt{3}/5)$

Answer: C

General Science Notes for SSC CGL

Question 92

ΔPQR has sides PQ and PR measuring 983 and 893 units respectively. How many such triangles are possible with all integral sides?

- A 1876
- B 90
- C 1785
- D 1786

Answer: C

Explanation:

Let us assume that the length of the third side is x units.

Case 1: When the side PQ is the largest among three sides.

$$893 + x > 983$$

$$x > 90$$

Case 2: When the side QR is the largest among the three sides.

$$893 + 983 > x$$

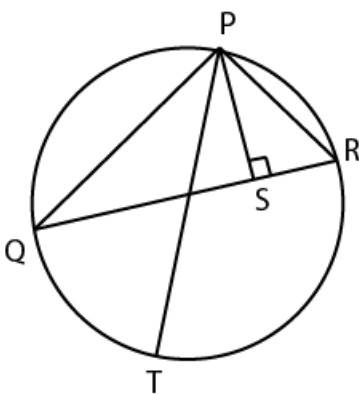
$$x < 1876$$

Hence we can say that $x \in (90, 1876)$

Hence, the number of with integral value = $1875 - 91 + 1 = 1785$.

Question 93

In the given figure, PQR is a triangle in which, $PQ = 24$ cm, $PR = 12$ cm and altitude $PS = 8$ cm. If PT is the diameter of the circum-circle, then what is the length (in cm) of circum-radius ?



A 15

B 18

C 20

D 21

Answer: B

Question 94

What is the simplified value of $\sec^6 A - \tan^6 A - 3\sec^2 A \tan^2 A$?

A -1

B 0

C 1

D $\sec A \tan A$

Answer: C

Explanation:

Expression : $\sec^6 A - \tan^6 A - 3\sec^2 A \tan^2 A$

$$= [(\sec^2 A)^3 - (\tan^2 A)^3] - 3\sec^2 A \tan^2 A$$

Using, $x^3 - y^3 = (x - y)(x^2 + y^2 + xy)$

$$= [(sec^2 A - tan^2 A)(sec^4 A + tan^4 A + sec^2 A tan^2 A)] - 3sec^2 A tan^2 A$$

Also, $(sec^2 A - tan^2 A = 1)$

$$= sec^4 A + tan^4 A - 2sec^2 A tan^2 A$$

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

$$= (sec^2 A - tan^2 A)^2$$

$$= (1)^2 = 1$$

=> Ans - (C)

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Question 95

What is the simplified value of $(\operatorname{cosec} A - \sin A)(\sec A - \cos A)(\tan A + \cot A)$?

A -1

B 0

C 1

D 2

Answer: C

Explanation:

Expression : $(\operatorname{cosec} A - \sin A)(\sec A - \cos A)(\tan A + \cot A)$

$$= \left(\frac{1}{\sin A} - \sin A\right)\left(\frac{1}{\cos A} - \cos A\right)\left(\frac{\sin A}{\cos A} + \frac{\cos A}{\sin A}\right)$$

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

$$\because (\sin^2 A + \cos^2 A = 1)$$

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

$$= \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A} = 1$$

=> Ans - (C)

Question 96

What is the simplified value of $(\cos^4 A - \sin^4 A)$?

A 0

B $2 \cos 2A$

C $\cos 2A$

D 1

Answer: C

Explanation:

Expression : $(\cos^4 A - \sin^4 A)$

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

$$\because (\cos^2 A + \sin^2 A = 1)$$

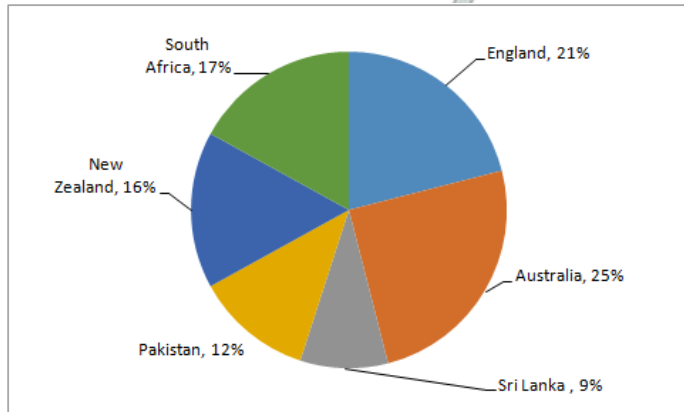
$$= (\cos^2 A - \sin^2 A)(1) = \cos^2 A - \sin^2 A$$

$$= \cos 2A$$

=> Ans - (C)

Instructions

The pie chart given below shows the runs scored by a player against 6 different countries. The total runs scored by the player against these countries are 1600



Question 97

How many runs has the player scored against Pakistan?

- A 272
- B 192
- C 256
- D 144

Answer: B

Explanation:

% runs scored against Pakistan = 12%

Total runs scored = 1600

$$\Rightarrow \text{Runs scored against Pakistan} = \frac{12}{100} \times 1600 = 192$$

=> Ans - (B)

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Question 98

The difference between the runs scored against England and Pakistan is same as the difference between which of the following two countries?

- A South Africa and Sri Lanka
- B South Africa and New Zealand
- C Australia and Sri Lanka
- D Australia and New Zealand

Answer: D

Explanation:

Difference between the runs scored against England and Pakistan (in %) = $21 - 12 = 9\%$

Now, difference between the runs scored against :

(A) : South Africa and Sri Lanka = $17 - 9 = 8\%$

(B) : South Africa and New Zealand = $17 - 16 = 1\%$

(C) : Australia and Sri Lanka = $25 - 9 = 16\%$

(D) : Australia and New Zealand = $25 - 16 = 9\%$

=> Ans - (D)

Question 99

What is the difference in runs scored by the player against Australia and Sri Lanka?

A 256

B 128

C 114

D 80

Answer: A

Explanation:

Difference in runs scored by the player against Australia and Sri Lanka (in %) = $25 - 9 = 16\%$

Total runs scored = 1600

=> Required runs = $\frac{16}{100} \times 1600 = 256$

=> Ans - (A)

Question 100

Difference between the total runs scored against Australia and New Zealand and the total runs scored against Sri Lanka and Pakistan make what sectorial angle (in degrees) in the pie chart?

A 90

B 144

C 36

D 72

Answer: D

Explanation:

Runs scored against Australia and New Zealand (in %) = $25 + 16 = 41\%$

Runs scored against Sri Lanka and Pakistan (in %) = $9 + 12 = 21\%$

=> Required difference = $41 - 21 = 20\%$

∴ Central angle = $\frac{20}{100} \times 360^\circ$

= $\frac{360}{5} = 72^\circ$

=> Ans - (D)

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