



2017 SSC CGL 08 Aug Shift-3

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General Awareness

Instructions

For the following questions answer them individually

Question 1

Who takes the decision regarding the savings and loan activities in a Self Help Group (SHG)?

- A Private Bank
- B Reserve Bank of India
- C Members of group
- D Non Government Organizations

Answer: C

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Question 2

Which amongst the following is not in the list of Maharatna?

- A Coal India Limited
- B Steel Authority of India Limited
- C Hindustan Petroleum Corporation Limited
- D Bharat Heavy Electricals Limited

Answer: C

Question 3

In Indian constitution, the method of election of President has been taken from which country?

- A Britain
- B USA
- C Ireland
- D Australia

Answer: C

Question 4

What is the literal meaning of the term "Quo-Warranto"?

- A We command
- B To forbid
- C By what authority (or) warrant
- D None of these

Answer: C

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Question 5

Who was given the title of "The Ambassador of Hindu - Muslim Unity" for being the architect and mastermind of the historic Lucknow Pact?

- A Sir Sayyad Ahmad Khan
- B Fazl-ul-Haq
- C Syed Mohammad Sharfuddin Quadri
- D Muhammad Ali Jinnah

Answer: D

Question 6

What is the name of the court poet of King Harshavardhana?

- A Tulsidas
- B Banabhatta
- C Surdas
- D Raskhan

Answer: B

Question 7

Marble comes under which category of rocks?

- A Sedimentary
- B Igneous
- C Metamorphic
- D None of these

Answer: C

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Question 8

Which of the following is most important for absorption of heat radiated from the Sun as well as from the Earth?

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

Answer: A

Question 9

Which among the following has segmented body?

- A Phylum Mollusca
- B Phylum Arthropoda
- C Phylum Annelida
- D Phylum Coelenterata

Answer: C

Question 10

Synapse gap is present between which of the following?

- A Two neurons
- B Brain and Spinal Cord
- C Two Kidneys
- D None of these

Answer: A

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Question 11

Which organ has finger like outgrowths which are called as Villi (Singular Villus)?

- A Large Intestine
- B Bladder
- C Small Intestine
- D Stomach

Answer: C

Question 12

Which of the following is not a vector quantity?

- A Acceleration
- B Electric current
- C Force
- D Velocity

Answer: B

Question 13

The phenomena of raising the outer edge of the curved roads above the inner edge to provide necessary centripetal force to the vehicles to take a safe turn is called ____.

- A banking of roads
- B cornering of roads
- C elevation of roads
- D tempering of roads

Answer: A

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Question 14

C++ is _____.

- A an operating system
- B a programming language
- C a software
- D None of these

Answer: B

Question 15

What are isobars?

- A Elements with same atomic number but different mass number
- B Elements with different atomic number but same mass number
- C Elements with different atomic number and different mass number
- D Elements with same atomic number and same mass number

Answer: B

Question 16

Which of the following pairs is INCORRECT?

- I. Haematite : Iron
- II. Pitchblende : Copper
- III. Monazite : Thorium

- A Only I
- B Only II
- C Only I and II
- D Only I and III

Answer: B

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Question 17

In which year did Kyoto Protocol came into force?

- A 2004
- B 2005
- C 2006
- D 2007

Answer: B

Question 18

The 7th pay commission has retained the rate of annual increment of ____.

- A 2%
- B 2.57%
- C 3%
- D 3.5%

Answer: C

Question 19

Who discovered malaria causing germs?

- A Christiaan Bernard
- B Charles Louis Alphonse Laveran
- C Dmitry Ivanovsky
- D Martinus William Beijerinck

Answer: B

General Science Notes for SSC CGL

Question 20

Match the following.

F1 Race

- 1. F1 Australian Grand Prix, 2017
- 2. F2 Russian Grand Prix, 2017
- 3. F3 Chinese Grand Prix, 2017

Winner

- a. Sebastian Vettel
- b. Lewis Hamilton
- c. Valteri Bottas

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

Answer: D

Question 21

Which of the following pair is INCORRECT?

- A Amjad Ali Khan - Tabla
- B Ustad Bismillah Khan - Shehnai
- C Hema Malini - Bharatnatyam
- D Shambhu Maharaj - Kathak

Answer: A

Question 22

Who was conferred with the 2016 Nobel Prize for Literature?

- A Bob Dylan
- B Oliver Hart
- C Yoshinori Ohsumi
- D J. Michael Kosterlitz

Answer: A

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Question 23

Who is the author of the book titled 'The Gita for Children'?

- A Puja Changoiwala
- B Ruchira Gupta
- C Priyanka Mookerjee
- D Roopa Pai

Answer: D

Question 24

With which country India celebrated its 25th year of diplomatic ties in 2017?

- A France
- B Russia
- C Israel
- D China

Answer: C

Question 25

Which Asian country has opened 'Duge Bridge' (world's highest road bridge) for use in year 2016?

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

Answer: A

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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.

Vacant : Empty :: Dearth : ?

- A Descend
- B Scarcity
- C Squander
- D Abundant

Answer: B

Explanation:

Vacant and empty are synonyms, similarly synonym of dearth is scarcity.

=> Ans - (B)

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Question 27

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

HMPU : IOSY :: GMRF : ?

- A FKOB
- B HOJJ
- C HPUJ
- D HOJU

Answer: B

Explanation:

Expression : HMPU : IOSY :: GMRF : ?

The pattern followed above is :

H	M	P	U
(+1)	(+2)	(+3)	(+4)
I	O	S	Y

Similarly, for GMRF

G	M	R	F
(+1)	(+2)	(+3)	(+4)
H	O	U	J

=> Ans - (B)

Question 28

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

50 : 65 :: 122 : ?

- A 157
- B 145
- C 147
- D 155

Answer: B

Explanation:

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

Eg = $7^2 + 1 : 8^2 + 1 = 50 : 65$

Similarly, $11^2 + 1 = 122$

and $12^2 + 1 = 144 + 1 = 145$

=> Ans - (B)

Question 29

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

- A Venus : Planet
- B Moon : Satellite
- C Jupiter : Black Hole
- D Sun : Star

Answer: C

Explanation:

Venus is a planet, Moon is a satellite and sun is a star.

But Jupiter is not black hole, it's also a planet and thus it is the odd one out.

=> Ans - (C)

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Question 30

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

A KQ

B DJ

C SZ

D RX

Answer: C

Explanation:

K (+6 letters) = Q

D (+6 letters) = J

S (+7 letters) = Z

R (+6 letters) = X

=> Ans - (C)

Question 31

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

A 361

B 441

C 784

D 876

Answer: D

Explanation:

$361 = 19^2$

$441 = 21^2$

$784 = 28^2$

Only 876 is a non square number, hence it is the odd one.

=> Ans - (D)

Question 32

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

1. Herbivorous

2. Harmony

3. House

4. Honour

5. Helm

A 12543

B 25143

C 21534

D 12354

Answer: B

Explanation:

As per the dictionary,

= Harmony -> Helm -> Herbivorous -> Honour -> House

≡ 25143

=> Ans - (B)

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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, E, G, ?

A H

B I

C J

D F

Answer: B

Explanation:

There is one missing alphabet in the above series.

A (+2 letters) = C

C (+2 letters) = E

E (+2 letters) = G

G (+2 letters) = I

=> Ans - (B)

Question 34

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

2, 4, 13, 41, 106, ?

A 172

B 191

C 219

D 232

Answer: D

Explanation:

The pattern followed is :

$$2 + (1^3 + 1) = 4$$

$$4 + (2^3 + 1) = 13$$

$$13 + (3^3 + 1) = 41$$

$$41 + (4^3 + 1) = 106$$

$$106 + (5^3 + 1) = 232$$

=> Ans - (D)

Question 35

Hitesh, Sunny, Vicky, Nitin and Bharat are arranged in descending order of the height from the top. Hitesh is at third place. Bharat is between Nitin and Hitesh while Nitin is not at the bottom. Who has the maximum height among them?

- A Hitesh
- B Sunny
- C Vicky
- D Nitin

Answer: D

Explanation:

Let heights of Hitesh, Sunny, Vicky, Nitin and Bharat be represented as H, S, V, N, B respectively.

Hitesh is at third place, \Rightarrow He is the third tallest and, \Rightarrow $_ _ H _ _$

Bharat is between Nitin and Hitesh while Nitin is not at the bottom, $\Rightarrow N B H _ _$

Thus, Nitin is the tallest among them.

\Rightarrow Ans - (D)

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Question 36

If 'A + B' means 'A is father of B', 'A - B' means 'A is mother of B', 'A * B' means 'A is brother of B' and 'A % B' means 'A is sister of B', then how is Q related to S in 'P + Q * R - S'?

- A Husband
- B Uncle
- C Brother
- D Father

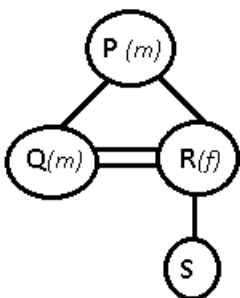
Answer: B

Explanation:

Expression : 'P + Q * R - S'

\Rightarrow P is the father of Q and Q is the brother of R. Also, R is the mother of S.

\Rightarrow P and Q are males and S is female.



Thus, Q is the uncle of S.

\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.

Abandoned

- A Bonded
- B Banded
- C Bland
- D Bane

Answer: C

Explanation:

The word ABANDONED does not contain any 'L', so the word 'Bland' cannot be formed.

=> Ans - (C)

Question 38

In a certain code language, "REMOTE" is written as "KYSPGS" and "BRAND" is written as "IRDTC". How is "MOBILE" written in that code language?

- A FMJCPN
- B KQMEQN
- C DKHANL
- D DMHCNN

Answer: B

Explanation:

"REMOTE" is written as "KYSPGS"

If we reverse the code, then pattern followed will be :

R	E	M	O	T	E
(+1)	(+2)	(+3)	(+4)	(+5)	(+6)
S	G	P	S	Y	K

Code for BRAND when reversed will be CTDR I

B	R	A	N	D
(+1)	(+2)	(+3)	(+4)	(+5)
C	T	D	R	I

Similarly, for MOBILE :

M	O	B	I	L	E
(+1)	(+2)	(+3)	(+4)	(+5)	(+6)
N	Q	E	M	Q	K

Thus, MOBILE : **KQMEQN**

=> Ans - (B)

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Question 39

If "÷" denotes "multiplied by", "+" denotes "subtracted from", "x" denotes "added to" and "-" denotes "divided by", then

$$12 - 6 + 28 \times 3 \div 9 = ?$$

- A -24
- B 1
- C -53
- D 8

Answer: B

Explanation:

Expression : $12 - 6 + 28 \times 3 \div 9 = ?$

$$\equiv 12 \div 6 - 28 + 3 \times 9$$

$$= 2 - 28 + 27 = 1$$

=> Ans - (B)

Question 40

If 19 (36) 13 and 37 (81) 28, then what is the value of 'A' in 43 (A) 38?

- A 49
- B 25
- C 34
- D 64

Answer: B

Explanation:

The pattern is that the number in the middle is obtained by taking square of the difference of the numbers on each sides.

$$\text{Eg : } (19 - 13)^2 = 6^2 = 36$$

$$\text{and } (37 - 28)^2 = 9^2 = 81$$

$$\text{Similarly, } A = (43 - 38)^2 = 5^2 = 25$$

=> Ans - (B)

Question 41

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

3	7
2	4

8	3
1	7

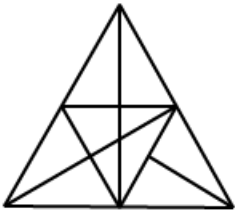
1	6
2	?

- A 2
- B 7
- C 14
- D 28

Answer: C

Question 42

How many triangles are there in the given figure ?



A 24

B 30

C 28

D 29

Answer: D

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. All insects are dangerous.
- II. All machines are dangerous.

Conclusions:

- I. All dangerous are insects.
- II. All dangerous are machines.
- III. Some machines are insects.

A Only conclusion (I) follows.

B Only conclusion (II) follows.

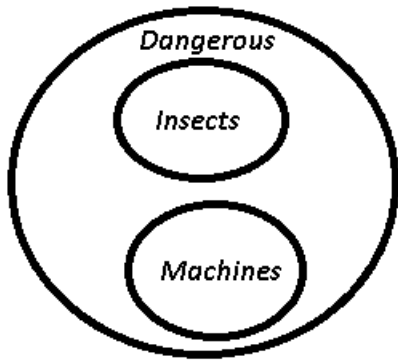
C Only conclusion (III) follows.

D No conclusion follows.

Answer: D

Explanation:

The venn diagram for the statements all insects are dangerous and all machines are dangerous is :



Here, all dangerous are neither insects nor machines, thus the first two conclusions are not true.

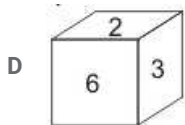
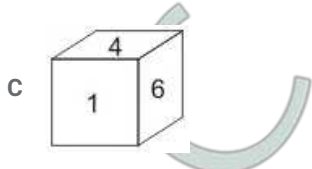
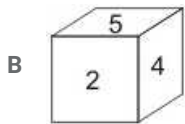
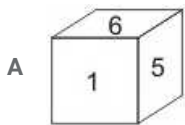
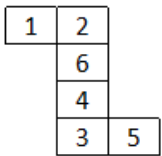
Also, some machines may or may not be insects, so conclusion III does not follow.

Thus, no conclusion follows.

=> Ans - (D)

Question 44

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



Answer: C

Explanation:

By folding the squares, 4 will be the base and 2 will become the top of the cube.

Similarly, 6 will face 3 and 1 will face 5.

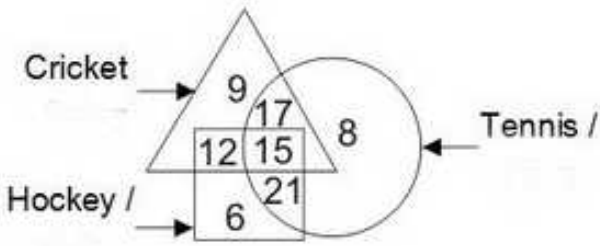
∴ $4 \leftrightarrow 2$, $6 \leftrightarrow 3$ and $1 \leftrightarrow 5$

Thus (1,5), (2,4) and (3,6) cannot be the adjacent sides of the cube.

=> Ans - (C)

Question 45

In the given figure, how many people like cricket and tennis both?



- A 17
- B 32
- C 15
- D 27

Answer: B

Explanation:

People who like cricket = 9, 12, 15, 17

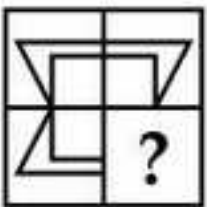
People who like tennis = 8, 15, 17, 21

Now, people who like both (intersection of both) = 15 + 17 = 32

=> Ans - (B)

Question 46

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

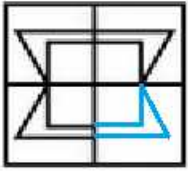


- A
- B
- C
- D

Answer: C

Explanation:

If we complete the above question figure, we will get :

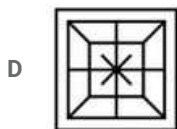
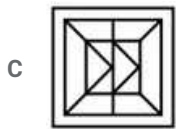
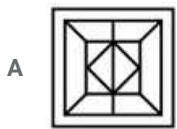


Clearly, the third option matches the above figure in blue.

=> Ans - (C)

Question 47

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



Answer: C

Explanation:

The question figure is embedded in the given figure in horizontal way in the red colour.

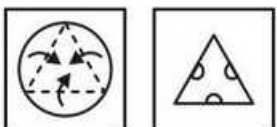


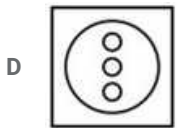
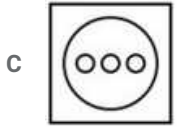
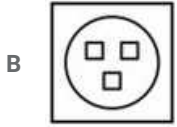
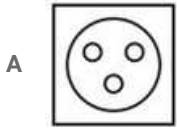
=> Ans - (C)

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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

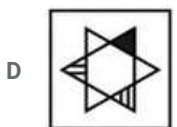
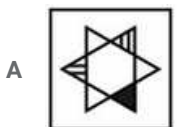
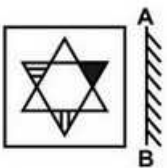
Explanation:

Half circle are made at the edges of the triangle, so when reopened, the complete circles will appear at the three sides, so three complete circles will be appeared in the answer figure resembling the three sides of the triangle.

=> Ans - (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: B

Explanation:

Since, a vertical mirror is placed, thus the top and bottom positions will remain same, while the left and right positions will be swapped.

The black triangle at the top right will appear at top left and thus the first, third and fourth figure will be eliminated.

Thus second is the correct figure.

=> Ans - (B)

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, 'O' can be represented by 30, 23, etc., and 'D' can be represented by 76, 88, etc. Similarly, you have to identify the set for the word "POND".

Matrix - I

	0	1	2	3	4
0	P	G	H	L	O
1	L	O	P	G	H
2	G	H	L	O	P
3	O	P	G	H	L
4	H	L	O	P	G

Matrix - II

	5	6	7	8	9
5	N	T	D	S	U
6	S	U	N	T	D
7	T	D	S	U	N
8	U	N	T	D	S
9	D	S	U	N	T

A 00, 04, 67, 57

B 23, 12, 86, 69

C 43, 24, 98, 95

D 30, 42, 55, 87

Answer: A

Explanation:

(A) : 00, 04, 67, 57 = **POND**

(B) : 23, 12, 86, 69 = OPND

(C) : 43, 24, 98, 95 = PPND

(D) : 30, 42, 55, 87 = OOND

=> Ans - (A)

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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'.

My elder son deals with (a)/ spare parts and manages (b)/ his bread and butter. (c)/ No Error (d)

A My elder son deals with

B spare parts and manages

C his bread and butter

D No Error

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'.

Sneha was accused for murder of her husband (a)/ but the court found her (b)/ not guilty and acquitted her. (c)/ No Error (d)

- A Sneha was accused for murder of her husband
- B but the court found her
- C not guilty and acquitted her
- D No Error

Answer: A

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.

My sister's marriage passed ____ peacefully.

- A away
- B by
- C off
- D out

Answer: C

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.

There are ____ books on computer science in your school library, so you need to purchase them from the market.

- A a few
- B a little
- C few
- D the few

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.

Atrocity

- A Difficulty
- B Barbarity

- C Shy
- D Gloomy

Answer: B

Question 56

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

Procrastinate

- A Divert
- B Deceive
- C Debase
- D Delay

Answer: D

Question 57

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

Raucous

- A Dulcet
- B Hoarse
- C Jarring
- D Torrent

Answer: A

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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.

Predilection

- A Inclination
- B Enduring
- C Enmity
- D Domicile

Answer: C

Question 59

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

A wild goose chase

- A Fruitful search

- B Timely search
- C Useless search
- D Wrong decision

Answer: C

Question 60

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

A moot point

- A Agreeable
- B Disputed
- C Unclear
- D Unknown

Answer: B

General Science Notes for SSC CGL

Question 61

Improve the bracketed part of the sentence.

The Chairman appointed her (as a secretary) as she is efficient.

- A a secretary
- B as secretary
- C secretary
- D No improvement

Answer: D

Question 62

Improve the bracketed part of the sentence.

I wish I (was) a superman.

- A am
- B have been
- C were
- D No improvement

Answer: C

Question 63

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

One who is honourably discharged from service

- A Belligerent
- B Emeritus
- C Truant
- D Mercenary

Answer: B

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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.

A perception without objective reality

- A Cynicism
- B Hallucination
- C Illusion
- D Optimism

Answer: B

Question 65

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

- A Anxiety
- B Believe
- C Height
- D Peity

Answer: D

Question 66

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

- A Admited
- B Benefited
- C Married
- D Offered

Answer: A

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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- Granted, political defection is increasingly less an act of ideological defiance than one of pure opportunism.
Q- Yet, for all its flaws, the current law recognizes and respects one fundamental principle: The right to dissent.
R- A blanket ban on defection will weaken rather than strengthen democracy, in whose name it is being sought to be imposed.
S- Granted also that it is illogical to allow a third of the party to split but not in a lesser number.

- A RPSQ
B PSRQ
C RSPQ
D PRSQ

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- As difficult as it may be to recognize what it is inside us that is making us respond with negativity, that is the path towards forgiveness.
Q- This will automatically change your relationship with the other person and you will feel much better.
R- We need to recognize our reaction to the other person as a mirror of something in ourselves.
S- Whatever the issues might be, once you have discovered them, you can work on forgiving yourself.

- A SQRP
B SRQP
C RQPS
D RPSQ

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.

After driving Dr. Bose to the hospital he dropped him at his guest house.

- A After being driven to the hospital Dr. Bose was dropped at his guest house.
B After he had driven Dr. Bose to the hospital he had dropped him at his guest house.
C After he was driving Dr. Bose to the hospital he was dropping him at his guest house.
D Dr. Bose was being driven to the hospital first and then he was being dropped at his guest house.

Answer: A

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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.

I said to my friends, "let us go to a picnic for a change".

- A I asked my friends if they would go to a picnic for a change.
- B I asked my friends to go to a picnic for a change.
- C I permitted my friends to go to a picnic for a change.
- D I suggested to my friends that we should go to a picnic for a change.

Answer: D

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.

Literature is a __ (1) __ through which a person conveys his ideas towards or protest __ (2) __ different norms of society. The words that deal with a __ (3) __ issue are of particular importance in literature. They are __ (4) __ with a particular purpose in __ (5) __.

Question 71

(1)

- A base
- B medium
- C source
- D subject

Answer: B

Question 72

(2)

- A against
- B for
- C in
- D off

Answer: A

Question 73

(3)

- A broad
- B insensitive

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- C moral
- D economical

Answer: C

Question 74

(4)

- A brought
- B founded
- C represented
- D written

Answer: D

Question 75

(5)

- A all
- B hand
- C mind
- D total

Answer: C

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Mathematics

Instructions

For the following questions answer them individually

Question 76

Which one is the largest among the fractions $(5/113)$, $(7/120)$, $(13/145)$ and $(17/160)$?

- A $5/113$
- B $7/120$
- C $13/145$
- D $17/160$

Answer: D

Explanation:

Taking approximate values,

$$\Rightarrow \frac{17}{160} \approx \frac{1}{9}$$

$$\frac{13}{145} \approx \frac{1}{11}$$

$$\frac{7}{120} \approx \frac{1}{17}$$

$$\frac{5}{113} \approx \frac{1}{22}$$

Now, clearly $\frac{1}{9} \equiv \frac{17}{160}$ is the largest.

=> Ans - (D)

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Question 77

Nirmit can do $\frac{2}{3}$ of a job in 18 days. Kashish is twice as efficient as Nirmit. In how many days Kashish will complete the job?

A $\frac{29}{4}$

B $\frac{27}{2}$

C $\frac{31}{2}$

D $\frac{13}{2}$

Answer: B

Explanation:

Let total work to be done = 54 units

$$\Rightarrow \left(\frac{2}{3}\right)^{rd} \text{ of the work} = \frac{2}{3} \times 54 = 36 \text{ units}$$

According to ques, Nirmit can do 36 units of work in 18 days,

$$\Rightarrow \text{Nirmit's efficiency} = \frac{36}{18} = 2 \text{ units/day}$$

$$\Rightarrow \text{Kashish's efficiency} = 2 \times 2 = 4 \text{ units/day}$$

$$\therefore \text{Time taken by Kashish alone to finish the work} = \frac{54}{4} = \frac{27}{2} \text{ days}$$

=> Ans - (B)

Question 78

40 men took a dip in a pool 30 m long and 25 m broad. If the average water displaced by a man is 5 m³, then what will be the rise (in cm) in level of the pool?

A 25

B 26.67

C 27.33

D 28

Answer: B

Explanation:

Let the rise in the pool = height of the pool = h m

$$\text{Water displaced by 40 men} = 40 \times 5 = 200 \text{ m}^3$$

Thus, volume of pool = Volume of water displaced

$$\Rightarrow 30 \times 25 \times h = 200$$

$$\Rightarrow h = \frac{20}{75} = \frac{4}{15} \text{ m}$$

$$\Rightarrow h = \frac{4}{15} \times 100 \text{ cm}$$

$$\Rightarrow h = 26.67 \text{ cm}$$

=> Ans - (B)

Question 79

An article is listed at Rs 2375. A man purchases it at two successive discounts of 50% and 25% and spends Rs 165 on repairing of article. If he sells the article at a profit of 62.5%, then what is the selling price (in Rs) of the article?

- A 1467.6
- B 1492.6
- C 1715.39
- D 1467.7

Answer: C

Explanation:

List price = Rs. 2375

After first discount of 50%, price = $2375 - \left(\frac{50}{100} \times 2375\right) = Rs. 1187.5$

After second discount of 25%, price = $1187.5 - \left(\frac{25}{100} \times 1187.5\right) = Rs. 890.625$

Amount spent on repairing = Rs. 165

=> Total cost price for the man = $890.625 + 165 = Rs. 1055.625$

Profit % = 62.5%

∴ Selling price = $1055.625 \times \frac{162.5}{100}$

≈ Rs. 1715.39

=> Ans - (C)

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Question 80

The length, breadth and height of a cuboid are in the ratio 19 : 11 : 13. If length is 30 cm more than height, then what is the volume ($incm^3$) of this cuboid?

- A 81510
- B 89665
- C 195300
- D 339625

Answer: D

Explanation:

Let length, breadth and height of the cuboid are $19x, 11x, 13x$ cm respectively.

According to ques, => $19x - 13x = 30$

=> $x = \frac{30}{6} = 5$

∴ Volume of cuboid = lbh

= $(19x)(11x)(13x)$

= $2717 \times (5)^3 = 339625 cm^3$

=> Ans - (D)

Question 81

Average age of a team having 12 players is 23 years. If the age of the coach is also included, then the average age increases by 2 years. What is the age (in years) of the coach?

- A 41
- B 47
- C 49
- D 51

Answer: C

Explanation:

Average age of team of 12 players = 23 years

=> Total age of the team = $12 \times 23 = 276$ years

Let the age of coach = x years

Average age of team including coach = $23 + 2 = 25$ years

$$\Rightarrow \frac{276+x}{13} = 25$$

$$\Rightarrow 276 + x = 25 \times 13 = 325$$

$$\Rightarrow x = 325 - 276 = 49 \text{ years}$$

=> Ans - (C)

Question 82

An item is sold at two successive gains of 30% and 20%. If the final selling price is Rs 31200, then what is the cost price (in Rs)?

- A 15000
- B 20000
- C 22250
- D 24000

Answer: B

Explanation:

Let cost price = Rs. $100x$

After first profit of 30%, price = $100x + \left(\frac{30}{100} \times 100x\right) = \text{Rs. } 130x$

After second profit of 20%, price = $130x + \left(\frac{20}{100} \times 130x\right) = \text{Rs. } 156x$

According to ques,

$$\Rightarrow 156x = 31200$$

$$\Rightarrow x = \frac{31200}{156} = 200$$

∴ Cost price = $100 \times 200 = \text{Rs. } 20,000$

=> Ans - (B)

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Question 83

The number of trees in a town is 17640. If the numbers of trees increases annually at the rate of 5%, then how many trees were there 2 years ago?

- A 14000
- B 15000
- C 16000
- D 19450

Answer: C

Explanation:

Let the number of trees 2 years ago = P

Rate of increase of trees = 5%

$$\Rightarrow \text{Trees after 2 years} = P\left(1 + \frac{R}{100}\right)^T$$

$$\Rightarrow P\left(1 + \frac{5}{100}\right)^2 = 17640$$

$$\Rightarrow P\left(\frac{21}{20}\right)^2 = 17640$$

$$\Rightarrow P = 17640 \times \frac{400}{441}$$

$$\Rightarrow P = 40 \times 400 = 16000$$

\Rightarrow Ans - (C)

Question 84

Aman and Kapil starts from Delhi and Gwalior respectively towards each other at same time. They meet at Mathura and then take 196 minutes and 225 minutes respectively to reach Gwalior and Delhi. If speed of Aman is 30 km/hr, then what is the speed (in km/hr) of Kapil?

- A 28
- B 30
- C 225/7
- D 392/15

Answer: A

Explanation:

Time taken by Aman from Mathura to reach Gwalior = 196 minutes and 225 minutes by Kapil to reach Delhi from Mathura.

$$\Rightarrow \text{Time taken by them to reach Mathura from their respective starting points} = t = \sqrt{196 \times 225}$$

$$\Rightarrow t = 14 \times 15 = 210 \text{ minutes}$$

Now, total time taken by Aman to reach Gwalior from Delhi = $210 + 196 = 406$ minutes

and total time taken by Kapil = $210 + 225 = 435$ minutes

Also, speed of Aman = 30 km/hr

$$\text{Thus, total distance between Delhi and Gwalior} = d = \left(\frac{30 \times 406}{60}\right) \text{ km}$$

$$\therefore \text{Speed of Kapil} = \frac{30 \times 406}{435} \times \frac{60}{60} = 28 \text{ km/hr}$$

\Rightarrow Ans - (A)

Question 85

The simple interest on a sum of money for 10 years is Rs 3130. If the principal becomes 5 times after 5 years, then what will be the total interest (in Rs) obtained after 10 years?

- A 6260
- B 7825
- C 9390
- D 15650

Answer: C

Explanation:

Let the principal = Rs. x

Simple interest after 10 years = Rs. 3130

$$\Rightarrow \text{Interest in 5 years} = \frac{3130}{2} = \text{Rs. } 1565$$

Also, after 5 years the principle becomes five times, \Rightarrow Interest for the remaining 5 years also becomes 5 times

$$= 5 \times 1565 = \text{Rs. } 7825$$

$$\therefore \text{Total interest obtained at the end of 10 years} = 7825 + 1565 = \text{Rs. } 9390$$

\Rightarrow Ans - (C)

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Question 86

If $\frac{11-13x}{x} + \frac{11-13y}{y} + \frac{11-13z}{z} = 5$, then what is value of $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$?

- A 1
- B 13/11
- C 13/5
- D 4

Answer: D

Explanation:

$$\text{Given: } \frac{11-13x}{x} + \frac{11-13y}{y} + \frac{11-13z}{z} = 5$$

$$\text{Let } \frac{11-13x}{x} = \frac{11-13y}{y} = \frac{11-13z}{z} = k$$

$$\Rightarrow k + k + k = 5$$

$$\Rightarrow k = \frac{5}{3}$$

$$\Rightarrow \frac{11-13x}{x} = \frac{5}{3}$$

$$\Rightarrow 33 - 39x = 5x$$

$$\Rightarrow 39x + 5x = 44x = 33$$

$$\Rightarrow x = \frac{33}{44} = \frac{3}{4} \text{ ----(i)}$$

$$\text{Similarly, } y = z = \frac{3}{4} \text{ ----(ii)}$$

To find: $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$

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

$$= \frac{12}{3} = 4$$

=> Ans - (D)

Question 87

If $2x + (9/x) = 9$, then what is the minimum value of $x^2 + (\frac{1}{x^2})$?

A 95/36

B 97/36

C 86/25

D 623/27

Answer: B

Explanation:

$$\Rightarrow 2x + (9/x) = 9$$

$$\Rightarrow 2x^2 - 9x + 9 = 0$$

$$\Rightarrow x = 1.5, 3$$

$$\text{So at } x = 1.5, \text{ value of } x^2 + (\frac{1}{x^2}) = 1.5^2 + \frac{1}{1.5^2} = \frac{97}{36}$$

$$\text{So at } x = 3, \text{ value of } x^2 + (\frac{1}{x^2}) = 3^2 + \frac{1}{3^2} = \frac{82}{9}$$

Clearly, $\frac{97}{36}$ is lesser than $\frac{82}{9}$.

Question 88

If $\frac{(5x-y)}{(5x+y)} = \frac{3}{7}$, then what is the value of $\frac{4x^2+y^2-4xy}{9x^2+16y^2+24xy}$?

A 0

B 3/7

C 18/49

D 1/6

Answer: A

Explanation:

$$\text{Given: } \frac{(5x-y)}{(5x+y)} = \frac{3}{7}$$

$$\Rightarrow 35x - 7y = 15x + 3y$$

$$\Rightarrow 35x - 15x = 7y + 3y$$

$$\Rightarrow 20x = 10y$$

$$\Rightarrow \frac{x}{y} = \frac{10}{20} = \frac{1}{2}$$

Let $x = 1$ and $y = 2$

To find : $\frac{4x^2+y^2-4xy}{9x^2+16y^2+24xy}$

$$= \frac{4(1)^2+(2)^2-4(1)(2)}{9(1)^2+16(2)^2+24(1)(2)}$$

$$= \frac{4+4-8}{9+64+48} = 0$$

=> Ans - (A)

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Question 89

If $(x + y)^2 = xy + 1$ and $x^3 - y^3 = 1$, then what is the value of $x - y$?

A 1

B 0

C -1

D 2

Answer: A

Explanation:

Given : $(x + y)^2 = xy + 1$

$$\Rightarrow x^2 + y^2 + 2xy = xy + 1$$

$$\Rightarrow x^2 + y^2 + xy = 1 \text{ -----(i)}$$

Also, $x^3 - y^3 = 1$

$$= (x - y)(x^2 + y^2 + xy) = 1$$

Substituting value from equation (i), we get :

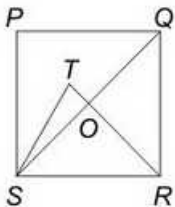
$$\Rightarrow (x - y)(1) = 1$$

$$\Rightarrow x - y = 1$$

=> Ans - (A)

Question 90

In the given figure. PQRS is a square and SRT is an equilateral triangle. What is the value (in degrees) of $\angle SOR$?



A 45

B 55

C 60

D 75

Answer: D

Question 91

ABCD is a parallelogram in which AB = 7 cm, BC = 9 cm and AC = 8 cm. What is the length (in cm) of other diagonal?

- A 14
- B $14\sqrt{2}$
- C 7
- D $7\sqrt{2}$

Answer: A

Explanation:

In a parallelogram, $2(AB^2 + BC^2) = AC^2 + BD^2$

Hence, $BD^2 = 2(7^2 + 9^2) - 8^2 = 196$ or $BD = 14$

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Question 92

How many diagonals are there in octagon?

- A 12
- B 14
- C 20
- D 24

Answer: C

Explanation:

Number of diagonals in a polygon with n sides = $\frac{n(n-3)}{2}$

An octagon has 8 sides

=> Number of diagonals = $\frac{8(8-3)}{2}$

= $4 \times 5 = 20$

=> Ans - (C)

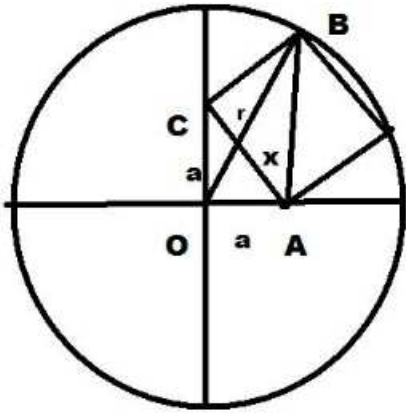
Question 93

A square is inscribed in a quarter circle in such a way that two of its adjacent vertices on the radius are equidistant from the centre and other two vertices lie on the circumference. If the side of square is $\sqrt{5/2}$ cm, then what is the radius (in cm) of the circle?

- A 2
- B 2.5
- C 5
- D 10

Answer: B

Explanation:



OB is the radius of circle = r cm

Side of square = $x = \sqrt{\frac{5}{2}}$ cm, \Rightarrow Diagonal AB = $\sqrt{2}x$ cm

$$\Rightarrow AB = \sqrt{2} \times \sqrt{\frac{5}{2}} = \sqrt{5} \text{ cm} \text{ -----(i)}$$

Also, OC = OA = a

In $\triangle OAC$,

$$\Rightarrow a^2 + a^2 = x^2$$

$$\Rightarrow 2a^2 = \left(\sqrt{\frac{5}{2}}\right)^2$$

$$\Rightarrow a^2 = \frac{5}{4} \text{ -----(ii)}$$

In $\triangle OAB$,

$$\Rightarrow (OB)^2 = (OA)^2 + (AB)^2$$

$$\Rightarrow r^2 = a^2 + (\sqrt{5})^2$$

$$\Rightarrow r^2 = \frac{5}{4} + 5$$

$$\Rightarrow r^2 = \frac{5+20}{4} = \frac{25}{4}$$

$$\Rightarrow r = \sqrt{\frac{25}{4}} = \frac{5}{2}$$

$$\Rightarrow r = 2.5 \text{ cm}$$

\Rightarrow Ans - (B)

Question 94

If $\sec^2\theta + \tan^2\theta = \frac{5}{3}$, then what is the value of $\tan 2\theta$?

A $2\sqrt{3}$

B $\sqrt{3}$

C $\frac{1}{\sqrt{3}}$

D Cannot be determined

Answer: B

Explanation:

Given : $\sec^2\theta + \tan^2\theta = \frac{5}{3}$ -----(i)

Also, $\sec^2\theta - \tan^2\theta = 1$ -----(ii)

Subtracting equation (ii) from (i), we get :

$$\Rightarrow 2\tan^2\theta = \frac{5}{3} - 1 = \frac{2}{3}$$

$$\Rightarrow \tan^2\theta = \frac{2}{3} \times \frac{1}{2} = \frac{1}{3}$$

$$\Rightarrow \tan\theta = \sqrt{\frac{1}{3}}$$

$$\Rightarrow \theta = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$$

$$\Rightarrow \theta = 30^\circ$$

$$\therefore \tan 2\theta = \tan(60^\circ) = \sqrt{3}$$

$$\Rightarrow \text{Ans - (B)}$$

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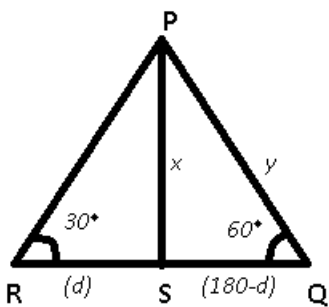
Question 95

A tower is broken at a point P above the ground. The top of the tower makes an angle 60° with the ground at Q. From another point R on the opposite side of Q angle of elevation of point P is 30° . If QR = 180 m, then what is the total height (in metres) of the tower?

- A 90
- B $45\sqrt{3}$
- C $45(\sqrt{3} + 1)$
- D $45(\sqrt{3} + 2)$

Answer: D

Explanation:



In $\triangle PRS$,

$$\Rightarrow \tan(30^\circ) = \frac{PS}{RS}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{x}{d}$$

$$\Rightarrow d = \sqrt{3}x \text{ -----(i)}$$

Similarly, in $\triangle PQS$,

$$\Rightarrow \tan(60^\circ) = \frac{PS}{SQ}$$

$$\Rightarrow \sqrt{3} = \frac{x}{180-d}$$

$$\Rightarrow 180\sqrt{3} - 3x = x \text{ [Using equation (i)]}$$

$$\Rightarrow x + 3x = 4x = 180\sqrt{3}$$

$$\Rightarrow x = \frac{180\sqrt{3}}{4} = 45\sqrt{3} \text{ -----(ii)}$$

Again, in $\triangle PQS$,

$$\Rightarrow \sin(60^\circ) = \frac{PS}{PQ}$$

$$\Rightarrow \frac{\sqrt{3}}{2} = \frac{x}{y}$$

$$\Rightarrow \sqrt{3}y = 2(45\sqrt{3}) \quad [\text{Using equation (ii)}]$$

$$\Rightarrow y = \frac{90\sqrt{3}}{\sqrt{3}} = 90 \text{ -----(iii)}$$

Adding equations (ii) and (iii), we get :

$$\Rightarrow x + y = 45\sqrt{3} + 90$$

$$\Rightarrow \text{Height of tower} = 45(\sqrt{3} + 2) \text{ m}$$

\Rightarrow Ans - (D)

Question 96

If $\sin 5\theta + \sin \theta = \sin 3\theta$ and $0 < \theta < (\pi/2)$, then what is the value of θ (in degrees)?

A 30

B 45

C 60

D 75

Answer: A

Explanation:

$$\text{Expression : } \sin 5\theta + \sin \theta = \sin 3\theta$$

$$\text{Using, } \sin C + \sin D = 2\sin\left(\frac{C+D}{2}\right)\cos\left(\frac{C-D}{2}\right)$$

$$\Rightarrow 2\sin\left(\frac{5\theta+\theta}{2}\right)\cos\left(\frac{5\theta-\theta}{2}\right) = \sin 3\theta$$

$$\Rightarrow 2\sin 3\theta \cos 2\theta = \sin 3\theta$$

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

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

$$\Rightarrow 2\theta = 60^\circ$$

$$\Rightarrow \theta = \frac{60}{2} = 30^\circ$$

\Rightarrow Ans - (A)

Instructions

The table given below represents the cost, revenue and tax rate for XYZ Limited for a period of 8 years. Cost and revenue are given in Rs '000 crores.

Year	Revenue	Cost	Tax rate
Y1	800	600	20%
Y2	1100	850	22%
Y3	1200	900	22%
Y4	1200	950	25%
Y5	1350	1050	30%
Y6	1500	1200	30%
Y7	1600	1240	33%
Y8	1850	1400	15%

Profit for any year = revenue – cost

Profit after tax for any year = profit of that year - tax of that year

tax on any year = tax rate of that year x profit of that year

Question 97

How much tax (in Rs '000 crores) was paid by XYZ limited in Y7?

- A 90
- B 99
- C 118.8
- D 126

Answer: C

Explanation:

Tax rate in year 7 = 33%

Profit in year 7 (in Rs '000 crores) = 1600 - 1240 = 360

=> Tax (in Rs '000 crores) paid by XYZ limited in Y7 = $\frac{33}{100} \times 360$

= 118.8

=> Ans - (C)

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Question 98

Which of the following is correct about profit after tax for year Y2, Y6 and Y8?

- A $Y8 > Y6 = Y2$
- B $Y6 > Y2 > Y8$
- C $Y8 > Y6 > Y2$
- D $Y6 = Y8 > Y2$

Answer: C

Explanation:

Tax for year 2 (in Rs '000 crores) = $\frac{22}{100} (1100 - 850) = 22 \times 2.5 = 55$

=> Profit after tax for year 2 (in Rs '000 crores) = 250 - 55 = 195

Similarly, profit after tax (in Rs '000 crores) for year :

Year 6 : $\frac{(100-30)}{100} (300) = 210$

Year 8 : $\frac{(100-15)}{100} (450) = 382.5$

=> $Y8 > Y6 > Y2$

=> Ans - (C)

Question 99

How many distinct values of yearly profit are there?

- A 3

B 4

C 5

D 6

Answer: C

Explanation:

Profit of company (in Rs '000 crores) in year :

$$\text{Year 1} = 800 - 600 = 200$$

$$\text{Year 2} = 1100 - 850 = 250$$

$$\text{Year 3} = 1200 - 900 = 300$$

$$\text{Year 4} = 1200 - 950 = 250$$

$$\text{Year 5} = 1350 - 1050 = 300$$

$$\text{Year 6} = 1500 - 1200 = 300$$

$$\text{Year 7} = 1600 - 1240 = 360$$

$$\text{Year 8} = 1850 - 1400 = 450$$

There are 5 distinct values = 200, 250, 300, 360, 450

=> Ans - (C)

Question 100

What is the total sum (in '000 crores) of profit after tax for Y1 to Y8?

A 1763.6

B 1803.2

C 1820.2

D 1872.4

Answer: C

Explanation:

$$\text{Tax for year 1 (in Rs '000 crores)} = \frac{20}{100} (800 - 600) = \frac{1}{5} \times 200 = 40$$

$$\Rightarrow \text{Profit after tax for year 1 (in Rs '000 crores)} = 200 - 40 = 160$$

Similarly, profit after tax (in Rs '000 crores) for year :

$$\text{Year 2: } \frac{(100-22)}{100} (250) = 195$$

$$\text{Year 3: } \frac{(100-22)}{100} (300) = 234$$

$$\text{Year 4: } \frac{(100-25)}{100} (250) = 187.5$$

$$\text{Year 5: } \frac{(100-30)}{100} (300) = 210$$

$$\text{Year 6: } \frac{(100-30)}{100} (300) = 210$$

$$\text{Year 7: } \frac{(100-33)}{100} (360) = 241.2$$

$$\text{Year 8: } \frac{(100-15)}{100} (450) = 382.5$$

$$\Rightarrow \text{Total sum} = 160 + 195 + 234 + 187.5 + 210 + 210 + 241.2 + 382.5 = 1820.2$$

=> Ans - (C)

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