

SSC MTS 20 February 2011 Shift 1

Reasoning

Instructions

In question select the related letter words number from the given alternatives.

Question 1

85:42::139:?

A 68

B 69

C 70

D 67

Answer: B

Explanation:

Pattern followed here is $(n-1)/2$ i.e

$(85-1)/2 = 42$. Similarly,

$(139-1)/2 = 69$.

Hence, option B is the correct answer.

Question 2

AGMS:CIOU::DJPV:?

A BHNY

B STUV

C FLRX

D MNOP

Answer: C

Explanation:

AGMS is related to CIOU

$A + 2 = C$, $G + 2 = I$, $M + 2 = O$, $S + 2 = U$

In the same pattern,

$D + 2 = F$, $J + 2 = L$, $P + 2 = R$, $V + 2 = X$

DJPV is related to FLRX.

Hence, option C is the correct answer.

Question 3

CAT:DDY::BIG:?

A CLL

B CLM

C CML

D CEP

Answer: A

Explanation:

CAT is related to DDY

$$C + 1 = D, A + 3 = D, T + 5 = Y$$

In the same pattern,

$$B + 1 = C, I + 3 = L, G + 5 = L$$

BIG is related to CLL.

Hence, option A is the correct answer.

Instructions

For the following questions answer them individually

Question 4

In the given question, find the odd number from the given alternatives.

A 80-9

B 64-8

C 36-6

D 49-7

Answer: A

Explanation:

64 is the square of 8, 36 is the square of 6, 49 is the square of 7, but 80 is not the square of 9.

Hence, option A is the correct answer.

Question 5

In question find the odd number from the given alternatives.

A 111

B 242

C 551

D 383

Answer: D

Explanation:

Pattern followed here is,

If we multiply 1st and 3rd number we get 2nd number

A) $1 \times 1 = 1$

B) $2 \times 2 = 4$

C) $5 \times 1 = 5$

D) $3 \times 3 = 9$ (but 8 is given in the option)

Hence, option D is the correct answer.

Question 6

In question find the odd number from the given alternatives.
52, 42, 30, 20, 16

- A 16
- B 20
- C 42
- D 52

Answer: B

Explanation:

here from the first digit in the series we add minus 10 "-10" and consecutive even number after 10 i.e -12, -14, -16
hence the only odd number in the series is 20

Question 7

In question find the odd number from the given alternatives.
ASY, BRX, CQW, ___?

- A DVP
- B DPV
- C PDV
- D PQD

Answer: B

Explanation:

There are three patterns in the given question.

- 1) ABCD (n + 1)
- 2) SRQP (n - 1)
- 3) YXWV (n - 1)

Next element in the sequence should be DPV.

Hence, option B is the correct answer.

Question 8

Y, S N, J, G, ___?

- A F
- B E
- C H
- D I

Answer: B

Explanation:

The pattern followed here is,

$$Y - 6 = S$$

$$S - 5 = N$$

$$N - 4 = J$$

$$J - 3 = G$$

$$G - 2 = E$$

Hence, option B is the correct answer.

Question 9

If 'x' means '-', '-' means 'x', '+' means '÷' and '÷' means '+', then $(15 - 10) \div (130 + 10) \times 50 = ?$

A 1800

B 113

C 2000

D 123

Answer: B

Explanation:

If 'x' means '-', '-' means 'x', '+' means '÷' and '÷' means '+', then equation becomes

$$(15 \times 10) + (130 \div 10) - 50$$

$$(150) + (13) - 50$$

$$113$$

Hence, option B is the correct answer.

Question 10

Substitute the correct mathematical symbols in place of * in the following equation $16*4*5*14*6$

A $\div - = +$

B $- \times + =$

C $\div \times = +$

D $\div + = -$

Answer: C

Explanation:

Substituting option C gives correct answer

$$16 \div 4 \times 5 = 14 + 6$$

$$20 = 20$$

Hence, option C is the correct answer.

Question 11

Find out the missing number.

8	9	9
6	7	8
9	11	?
39	52	59

A 10

B 11

C 12

D 13

Answer: D

Explanation:

The pattern followed here is,

$$8 \times 6 - 9 = 39,$$

$$9 \times 7 - 11 = 52,$$

$$9 \times 8 - 13 = 59.$$

Hence, option D is the correct answer.

Question 12

Find out the wrong number from the given series.

5,27,61,122,213,340,509

A 27

B 61

C 122

D 509

Answer: A

Explanation:

The pattern followed here is,

$$2^3 - 3 = 5$$

$$4^3 - 3 = 61$$

$$5^3 - 3 = 122$$

$$6^3 - 3 = 213 \dots\dots$$

$$3^3 = 27 \text{ (but 27 is given in the option)}$$

Hence, option A is the correct answer.

Question 13

If $2 \times 2 = 16$, $2 \times 3 = 36$, $2 \times 4 = 64$, then $2 \times 6 = ?$

A 72

B 80

C 96

D 144

Answer: D

Explanation:

Given, $2 \times 2 = 16$

Here first the two digits are multiplied then the resultant is squared.

$2 \times 2 = 4$ and square of 4 is 16

Following the same pattern we get,

$2 \times 3 = 36$ (square of 6)

$2 \times 4 = 64$ (square of 8)

$2 \times 6 = 144$ (square of 12)

Hence, option D is the correct answer.

Question 14

In the following series, the equations are solved on the basis of a certain system. Find out the correct answer for the unsolved equation on that basis.

$$9 \times 8 \times 6 = 896$$

$$7 \times 6 \times 8 = 678$$

$$8 \times 7 \times 5 = ?$$

A 875

B 785

C 578

D 758

Answer: B

Explanation:

2nd digit is placed at the 1st position, 1st digit is placed at the 2nd position while 3rd digit is placed at the last position

Hence for $8 \times 7 \times 5$ answer would be 785

Hence, option B is the correct answer.

Question 15

Four persons M, N, O and P are playing carrom . M is on the right of N and P is on the left of O. Then which of the following are partners?

A P and O

B M and P

C M and N

D N and P

Answer: D

Question 16

If 'EDITION' is written as 'IDETNOI' how is 'MEDICAL' written in that code?

- A DEMILAC
- B LACIMED
- C DIEMCAL
- D CADILEM

Answer: A

Explanation:

First three letters and last three letters are reversed and middle letter remained in its position only.

For MEDICAL,

MED is reversed to DEM, I is kept at the same position, CAL is reversed to LAC

MEDICAL is coded as DEMILAC.

Hence, option A is the correct answer.

Question 17

If the letters in 'PRABA' are coded as 27595 and 'THILAK' are encoded 368451, how can 'BHARATHI' be coded?

- A 96575368
- B 57686535
- C 96855368
- D 37536689

Answer: A

Explanation:

In the given code language,

B - 9, H - 6, A - 5, R - 7, T - 3, I - 8.....

BHARATHI is coded as 96575368

Hence, option A is the correct answer.

Question 18

A father told to his son that, "I was three times of your present age when you born." If the father's present age is 48 years, how old was the boy 4 years ago?

- A 24 years
- B 8 years
- C 12 years
- D 16 years

Answer: B

Explanation:

Father was three times his son's present age when he was born,

$$F - S = 3S$$

$$F = 4S \text{ (or) } 4S = 48 \text{ (or) } S = 12$$

Now, age of son before 4 years = 8 years.

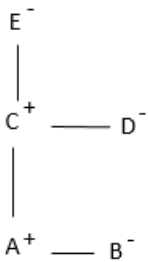
Hence, option B is the correct answer.

Question 19

A and B are brother and sister respectively. C is A's father, D is C's sister and E is D's mother. How is B related to E?

- A Grand-daughter
- B Great-grand-daughter
- C Aunt
- D Daughter

Answer: A

Explanation:

As we can see from the above family tree, B is the grand daughter of E.

Hence, option A is the correct answer.

Question 20

Two statements are given followed by two conclusion I and II. You have to consider the two statements to be true even if they seem to be true even if they seem to be variance from commonly known facts.

You have to decide which of the given conclusion, if any follow from the given statements

Statements:

1. All English movies are violent.
2. Some people like watching English movies.

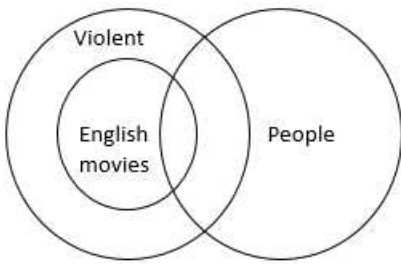
Conclusions:

- I. All people watching English movie like violence.
- II. All people who like violence watch English movies.

- A Only I follows
- B Only II follows
- C Neither I nor II follows
- D Both I and II follow

Answer: A

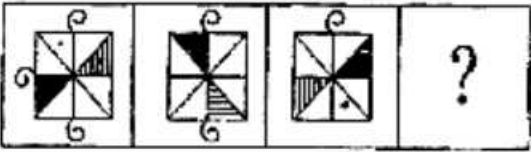
Explanation:



Only conclusion I follows as all people watching english movies like violence is definitely true.

Hence, option A is the correct answer.

Question 21

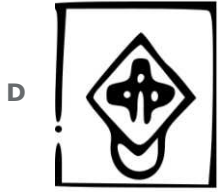


Answer: B

Question 22

Find the odd figure from the given alternatives.



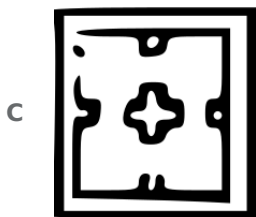
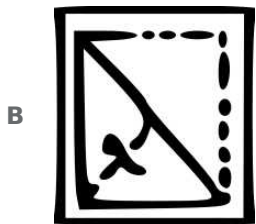
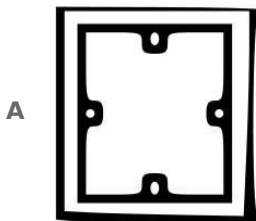
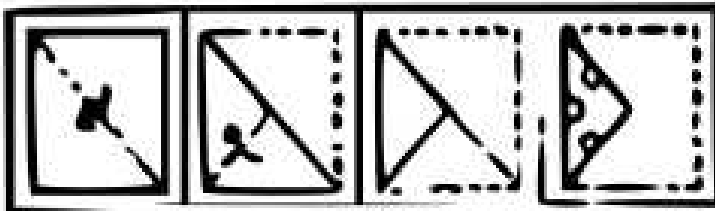


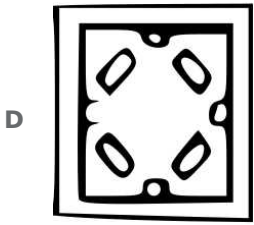
Answer: A

Question 23

A paper is folded and cut as shown in the given question figures. When opened which of the four answer figures will it resemble ?

Question figures:

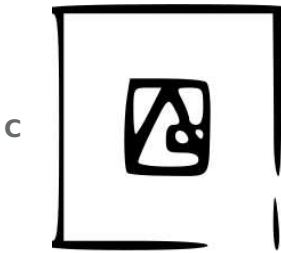
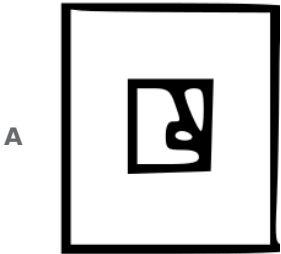




Answer: D

Question 24

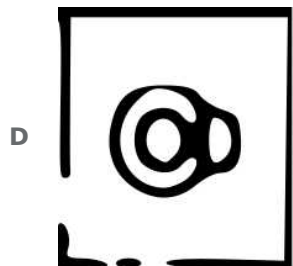
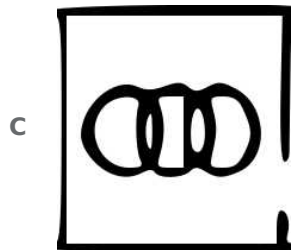
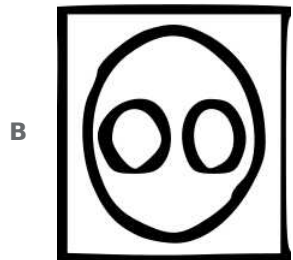
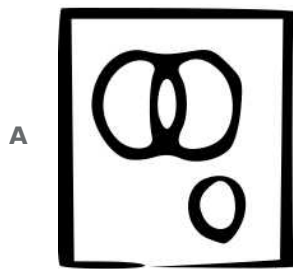
Which answer figure will complete the question figure?



Answer: E

Question 25

Which of the following figures represents the relationship between Building material, Cement and wood ?



Answer: B

Explanation:

Cement and wood are building materials. Cement and wood are completely different.

Hence, option B is the correct answer

English

Instructions

Out of the four alternatives, choose the one on which best expresses the meaning of the given word and mark it in the Answer Sheet.

Question 26

discriminate

A compare

B distinguish

C comprehend

D connect

Answer: B

Question 27

appear

A see

B allow

C seem

D enter

Answer: C

Question 28

cease

A stop

B lapse

C close

D arrest

Answer: E

Question 29

liability

A debt

B debit

C asset

D credit

Answer: E

Question 30

integration

A symmetry

B unity

C coordination

D compromise

Answer: E

Instructions

Choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

Question 31

neat

A sloppy

B fragrant

C spruce

D orderly

Answer: E

Question 32

wicked

A cunning

B good

C tricky

D crooked

Answer: E

Question 33

block

A clean

B ease

C cure

D clear

Answer: E

Question 34

vanity

A honesty

B truthfulness

C modesty

D decency

Answer: E

Question 35

negligent

- A inattentive
- B imprudent
- C insignificant
- D careful

Answer: E

Instructions

Four alternatives are given for the underlined idiom/phrase. Choose the alternative which best expresses the meaning of the given idiom/phrase and blacken the appropriate rectangle the Answer Sheet.

Question 36

Unless you grease his palms he will not do your work.

- A talk to him
- B flatter him
- C beat him
- D bribe him

Answer: E

Question 37

The police closed the book on the murder case.

- A solved the case of
- B stopped working on
- C handed the case over to another agency
- D refused to take up

Answer: E

Question 38

His arguments cut no ice with me.

- A had no influence on me
- B did not hurt me
- C did not benefit me
- D did not make me proud

Answer: E

Question 39

There was a job for me to cut my teeth on.

- A** to gain experience
- B** to try
- C** to sharpen my wits
- D** to earn a decent salary

Answer: E

Question 40

The carrot and stick policy pays dividends in every organisation.

- A** fair and foul
- B** continuous vigilance
- C** democratic
- D** reward and punishment

Answer: E

Instructions

A part of the sentence is underlined. Below are given alternatives to the underlined part at (A), (B) and (C) which may improve the sentence. Choose the correct alternative. In case no improvement is needed your answer is (D).

Question 41

The increasing sale of luxuries in an index of the country's prosperity.

- A** appendix
- B** pointer
- C** mark
- D** No improvement

Answer: D

Question 42

When are you starting to write to your friend?

- A** wanting
- B** going

- C thinking
- D No improvement

Answer: B

Question 43

If I was you I would not sign the document.

- A If have been you
- B If I were you
- C If I have been you
- D No improvement

Answer: B

Question 44

I prefer to ride than to walk.

- A ride to walk
- B riding than walking
- C riding to walking
- D No improvement

Answer: A

Question 45

They were astonished through his failure in the examination.'

- A from
- B at
- C with
- D No improvement

Answer: B

Instructions

Out of the four alternatives choose the one which can be substituted for the given words/sentence.

Question 46

On who intervene between two or more parties to settle differences.

- A Neutral
- B Intermediary
- C Judge

D Connoisseur

Answer: B

Question 47

The absence of law and order.

A Rebellion

B Mutiny

C Revolt

D Anarchy

Answer: D

Question 48

A voice that cannot be heard

A Unheard

B Faint

C Audible

D Inaudible

Answer: D

Question 49

High sea waves caused by under-water earthquake

A Tsunami

B Tornado

C Hurricane

D Cyclone

Answer: A

Question 50

To give one's authority to another

A Assign

B Delegate

C Represent

D Designate

Answer: B

Quant

Instructions

For the following questions answer them individually

Question 51

The units digit of the expression $25^{6251} + 36^{528} + 73^{54}$ is

- A 6
- B 5
- C 4
- D 0

Answer: D

Explanation:

Unit digit of 5 raised to any power = 5

Similarly, unit digit of 6 raised to any power = 6

Expression : $25^{6251} + 36^{528} + 73^{54}$

Now, unit digit of $(3)^{54} = (3)^{4 \times 13 + 2} = (3)^2 = 9$

Thus, sum of unit digits = $5 + 6 + 9 = 20$

Thus, 0 is the unit digit of above expression.

=> Ans - (D)

Question 52

The sum of the square of 3 consecutive positive numbers is 365. The sum of the numbers is

- A 30
- B 33
- C 36
- D 45

Answer: B

Explanation:

Let the 3 consecutive positive numbers = $(x - 1), (x), (x + 1)$

According to ques, => $(x - 1)^2 + (x)^2 + (x + 1)^2 = 365$

=> $(x^2 - 2x + 1) + (x^2) + (x^2 + 2x + 1) = 365$

=> $3x^2 + 2 = 365$

=> $3x^2 = 365 - 2 = 363$

=> $x^2 = \frac{363}{3} = 121$

=> $x = \sqrt{121} = 11$

$$\therefore \text{Sum of numbers} = (x - 1) + (x) + (x + 1) = 3x$$

$$= 3 \times 11 = 33$$

=> Ans - (B)

Question 53

In a division sum, the divisor is 10 times the quotient and 5 times the remainder. If the remainder is 46, then the dividend is

A 4236

B 4306

C 4336

D 5336

Answer: D

Explanation:

Remainder = 46

$$\Rightarrow \text{Divisor} = 5 \times 46 = 230$$

$$\text{and Quotient} = \frac{230}{10} = 23$$

$$\therefore \text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$= 230 \times 23 + 46$$

$$= 5290 + 46 = 5336$$

=> Ans - (D)

Question 54

Akash is thrice as good a workman as Baldev and therefore is able to finish a job in 40 days less than Baldev. Working together, they can do it in

A 14 days

B 13 days

C 20 days

D 15 days

Answer: D

Explanation:

Ratio of times taken by Akash and Baldev = 1 : 3

The time difference is (3 - 1) 2 days while Baldev take 3 days and Akash takes 1 day.

If difference of time is 2 days, Baldev takes 3 days.

$$\text{If difference of time is 40 days, Baldev takes} = \frac{3}{2} \times 40 = 60 \text{ days}$$

So, Akash takes 20 days

$$\text{Akash's 1 day's work} = \frac{1}{20}$$

$$\text{Baldev's 1 day's work} = \frac{1}{60}$$

$$\text{(Akash + Baldev)'s 1 day's work together} = \frac{1}{20} + \frac{1}{60} = \frac{4}{60} = \frac{1}{15}$$

\therefore Akash and Baldev together can do the work in = 15 days

=> Ans - (D)

Question 55

The LCM of two numbers is 4 times their HCF. The sum of LCM and HCF is 125. If one of the numbers is 100, then the other number is

- A 5
- B 25
- C 100
- D 125

Answer: B

Explanation:

Let one of the numbers = x and other number = 100

Let L.C.M = L and H.C.F = H

According to ques, => $L = 4H$ -----(i)

and $L + H = 125$

Substituting value from equation (i), we get : $4H + H = 5H = 125$

$$\Rightarrow H = \frac{125}{5} = 25$$

$$\Rightarrow L = 4 \times 25 = 100$$

Thus, product of numbers = $L \times H$

$$\Rightarrow 100 \times x = 100 \times 25$$

$$\Rightarrow x = 25$$

=> Ans - (B)

Question 56

The difference between a discount of 35% and two successive discounts of 20% on a certain bill was Rs. 22. The amount of the bill was

- A Rs. 200
- B Rs. 2,200
- C Rs. 1,100
- D Rs. 2,220

Answer: B

Explanation:

Let amount of the bill = Rs. $100x$

$$\text{I : Amount after discount of 35\%} = 100x - \left(\frac{35}{100} \times 100x\right)$$

$$= 100x - 35x = 65x$$

$$\text{II : Amount after first discount of 20\%} = 100x - \left(\frac{20}{100} \times 100x\right)$$

$$= 100x - 20x = 80x$$

$$\text{Amount after second discount of 20\%} = 80x - \left(\frac{20}{100} \times 80x\right)$$

$$= 80x - 16x = 64x$$

$$\text{According to ques, } \Rightarrow 65x - 64x = 22$$

$$\Rightarrow x = 22$$

$$\therefore \text{Amount of the bill} = 100 \times 22 = \text{Rs. } 2200$$

\Rightarrow Ans - (B)

Question 57

In measuring the side of a rectangle, there is an excess of 5% on one side and 2% deficit on the other. Then the error percent in the area is

A 3.3

B 3.0

C 2.9

D 2.7

Answer: C

Explanation:

Let the length and breadth of the rectangle be 20 cm and 50 cm respectively.

$$\Rightarrow \text{Area} = A = 20 \times 50 = 1000 \text{ cm}^2$$

$$\text{Length is taken 5\% in excess, } \Rightarrow \text{New length} = 20 + \left(\frac{5}{100} \times 20\right) = 21 \text{ cm}$$

$$\text{Similarly, new breadth} = 50 - \left(\frac{2}{100} \times 50\right) = 49 \text{ cm}$$

$$\Rightarrow \text{New area} = A' = 21 \times 49 = 1029 \text{ cm}^2$$

$$\therefore \text{Error percent in the area} = \frac{(1029-1000)}{1000} \times 100 = 2.9\%$$

\Rightarrow Ans - (C)

Question 58

An equilateral triangle and regular hexagon have the same perimeter. The ratio of the area of the triangle to that of the hexagon is

A 3: 2

B 2: 3

C 1: 2

D 1: 4

Answer: B

Explanation:

Let side of equilateral triangle = a and side of regular hexagon = s

$$\text{According to ques, } \Rightarrow 3a = 6s$$

$$\Rightarrow a = 2s$$

Now, ratio of the area of the triangle to that of the hexagon :

- -

$$= \left(\sqrt[3]{\frac{a^2}{4}}\right) : \left(\sqrt[3]{\frac{s^2}{2}}\right)$$

$$\Rightarrow \frac{1}{2}(2s)^2 = 3s^2$$

$$\Rightarrow 2 : 3$$

\Rightarrow Ans - (B)

Question 59

The average of three numbers is 135. The largest number is 195 and the difference between the other two is 20. The smallest number is

A 65

B 95

C 105

D 115

Answer: B

Explanation:

Let the three numbers be x, y and 195

Average of three numbers = 135

$$\Rightarrow \text{Sum of three numbers} = 135 \times 3 = 405$$

$$\text{Sum of other two numbers} = x + y = 405 - 195 = 210 \text{ -----(i)}$$

$$\text{And difference of other two numbers} = x - y = 20 \text{ -----(ii)}$$

Adding equations (i) and (ii), we get

$$\Rightarrow 2x = 210 + 20 = 230$$

$$\Rightarrow x = \frac{230}{2} = 115$$

$$\Rightarrow y = 115 - 20 = 95$$

\therefore Smallest number = 95

\Rightarrow Ans - (B)

Question 60

If I purchased 11 books for Rs. 100 and sold 10 books for Rs. 110, the percentage of profit per book sold is

A 10

B 11.5

C 17.3

D 21

Answer: D

Explanation:

Cost price of 1 book = Rs. $\frac{100}{11}$

Selling price of 1 book = Rs. $\frac{110}{10} = 11$

$$\Rightarrow \text{Profit \%} = \frac{11 - \frac{100}{11}}{\frac{100}{11}} \times 100$$

$$= \frac{\frac{11}{100}}{11} \times 100$$

$$= \frac{21}{100} \times 100 = 21\%$$

=> Ans - (D)

Question 61

Ratio between the monthly income of A and B is 9 : 8 and the ratio between their expenditures is 8 : 7. If they save Rs. 500 each, find A's monthly income.

- A** Rs.3,500
- B** Rs.4,000
- C** Rs.4,500
- D** Rs.5,000

Answer: C

Explanation:

Let monthly income of A = Rs. $9x$ and B = Rs. $8x$

Similarly, expenditure of A = Rs. $8y$ and expenditure of B = Rs. $7y$

=> Savings = $9x - 8y = 500$ -----(i)

and $8x - 7y = 500$ -----(ii)

Solving above equations, we get : $x = 500$

∴ A's monthly income = $9 \times 500 = Rs. 4,500$

=> Ans - (C)

Question 62

If $x : y = 3 : 4$, then the value of $\frac{5x-2y}{7x+2y} =$

- A** $\frac{7}{25}$
- B** $\frac{7}{23}$
- C** $\frac{7}{29}$
- D** $\frac{7}{17}$

Answer: C

Explanation:

Given : $x : y = 3 : 4$

Let $x = 3$ and $y = 4$

To find : $\frac{5x-2y}{7x+2y}$

$$= \frac{5(3)-2(4)}{7(3)+2(4)}$$

$$= \frac{15-8}{21+8} = \frac{7}{29}$$

=> Ans - (C)

Question 63

In a certain time, the ratio of a certain Principal and the simple interest obtained from it are in the ratio 10:3 at 10% interest per annum. The number of years the money was invested is

- A 1
- B 3
- C 5
- D 7

Answer: B

Explanation:

Let the principal sum = Rs. 10 and interest at 10% = Rs. 3

Let time period = t years

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

$$\Rightarrow \frac{10 \times 10 \times t}{100} = 3$$

$$\Rightarrow t = 3 \text{ years}$$

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

Question 64

A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and rest was sold at the cost price. In the total transaction his gain or loss will be

- A 20% gain
- B 25% loss
- C 10% gain
- D 15% loss

Answer: C

Explanation:

Let the cost price of the cloth = Rs. 100/100 m

$$\text{Selling price of 50 m cloth} = 50 + \left(\frac{40}{100} \times 50\right)$$

$$= 50 + 20 = \text{Rs. } 70$$

$$\text{Selling price of 25 m cloth} = 25 - \left(\frac{40}{100} \times 25\right)$$

$$= 25 - 10 = \text{Rs. } 15$$

Selling price of 25 m cloth = Rs. 25

$$\Rightarrow \text{Total selling price of 100 m cloth} = 70 + 15 + 25 = \text{Rs. } 110$$

$$\therefore \text{Profit \%} = \frac{(110-100)}{100} \times 100 = 10\%$$

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

Question 65

In an examination 1100 boys and 900 girls Appeared. 50% of the boys and 40% of the girls passed the Examination. The percentage of candidates who failed is

- A 45
- B 45.5
- C 50
- D 54.5

Answer: D

Explanation:

Total boys = 1100 and girls = 900

$$\text{Boys who passed} = \frac{50}{100} \times 1100 = 550$$

$$\Rightarrow \text{Boys who failed} = 1100 - 550 = 550$$

$$\text{Girls who passed} = \frac{40}{100} \times 900 = 360$$

$$\Rightarrow \text{Girls who failed} = 900 - 360 = 540$$

$$\text{Thus, percentage of candidates who failed} = \frac{(550+540)}{(1100+900)} \times 100$$

$$= \frac{1090}{20} = 54.5\%$$

\Rightarrow Ans - (D)

Question 66

When the price of cloth was reduce by 25%, the quantity of cloth sold increased by 20%. What was the effect on gross receipt of the shop?

- A 5% increase
- B 5% decrease
- C 10% increase
- D 10% decrease

Answer: D

Explanation:

Let initial Volume sold = x units

Original Selling Price = Rs. y

$$\Rightarrow \text{Total Revenue} = \text{Volume} \times \text{Selling Price} = xy$$

$$\text{New Volume Sold} = \frac{120}{100} \times x = 1.2x \text{ units}$$

$$\text{New Selling Price} = \frac{75}{100} \times y = \text{Rs. } 0.75y$$

$$\Rightarrow \text{Total Revenue} = 1.20x \times 0.75y = 0.9xy$$

$$\therefore \% \text{ decrease in revenue} = \frac{(xy-0.9xy)}{xy} \times 100$$

$$= 0.1 \times 100 = 10\%$$

\Rightarrow Ans - (D)

Question 67

Walking at the rate of 4 km per hour, a man covers a certain distance in 3 hours 45 minutes. If he covers the same distance on cycle, cycling at the rate of 16.5 km/hours, the time taken by him is

- A 55.45 minutes
- B 54.55 minutes
- C 55.44 minutes
- D 45.554 minutes

Answer: B

Explanation:

Speed of man = 4 km/hr and time taken = 3 hrs and 45 minutes = $3\frac{3}{4} = \frac{15}{4}$ hours

=> Distance = speed \times time

$$= 4 \times \frac{15}{4} = 15 \text{ km}$$

Speed of cycling = 16.5 km/hr

=> Time taken while cycling = $\frac{15}{16.5} = \frac{10}{11}$ hours

$$= \frac{10}{11} \times 60 \approx 54.55 \text{ minutes}$$

=> Ans - (B)

Question 68

What was the percentage increase in production Of salt if in 2008 it produced 150 tonnes compared to that of 2001 where the production was of 100 tonnes?

- A 55.5
- B 100
- C 50
- D 220

Answer: C

Question 69

In how many of the given years was the Production of salt more than the average production Of the given years?

- A 1
- B 2
- C 3
- D 4

Answer: E

Question 70

What was the percentage decline in the Production of salt from 2003 to 2004?

- A 64.2
- B 180
- C 62.4
- D 107

Answer: E

Question 71

Simplify: $1\frac{1}{3} + 4\frac{1}{3}$ of $5\frac{2}{3} - 2\frac{1}{3}$ of $4\frac{4}{5}$

- A $\frac{37}{38}$
- B $\frac{37}{13}$
- C $-\frac{4}{78}$
- D $-\frac{4}{39}$

Answer: D

Explanation:

Expression : $1\frac{1}{3} + 4\frac{1}{3}$ of $5\frac{2}{3} - 2\frac{1}{3}$ of $4\frac{4}{5}$

$$\begin{aligned}
 &= \left(3 + 10 - 2\right) \div \left(3 \times 4 - \frac{3}{5}\right) \\
 &= \left(\frac{10+3-15}{30}\right) \div \left(\frac{5}{4} - \frac{3}{5}\right) \\
 &= \left(\frac{-2}{30}\right) \div \left(\frac{13}{20}\right) \\
 &= \frac{-1}{15} \times \frac{20}{13} \\
 &= \frac{-4}{39}
 \end{aligned}$$

=> Ans - (D)

Question 72

$\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-\sqrt{4}}$ is equal to

- A 5
- B 3
- C 1
- D 0

Answer: A

Explanation:

Expression : $3\frac{1}{\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-\sqrt{4}}$

Rationalizing the denominator, we get :

$$= \left(3\frac{1}{\sqrt{8}} \times \frac{3+\sqrt{8}}{3+\sqrt{8}}\right) - \left(\frac{1}{\sqrt{8}-\sqrt{7}} \times \frac{\sqrt{8}+\sqrt{7}}{\sqrt{8}+\sqrt{7}}\right) + \left(\frac{1}{\sqrt{7}-\sqrt{6}} \times \frac{\sqrt{7}+\sqrt{6}}{\sqrt{7}+\sqrt{6}}\right) - \left(\frac{1}{\sqrt{6}-\sqrt{5}} \times \frac{\sqrt{6}+\sqrt{5}}{\sqrt{6}+\sqrt{5}}\right) + \left(\frac{1}{\sqrt{5}-\sqrt{4}} \times \frac{\sqrt{5}+\sqrt{4}}{\sqrt{5}+\sqrt{4}}\right)$$

Using, $(a - b)(a + b) = a^2 - b^2$

$$= \frac{3+\sqrt{8}}{9-8} - \frac{\sqrt{8}+\sqrt{7}}{8-7} + \frac{\sqrt{7}+\sqrt{6}}{7-6} - \frac{\sqrt{6}+\sqrt{5}}{6-5} + \frac{\sqrt{5}+\sqrt{4}}{5-4}$$

$$= (3 + \sqrt{8}) + (-\sqrt{8} - \sqrt{7}) + (\sqrt{7} + \sqrt{6}) + (-\sqrt{6} - \sqrt{5}) + (\sqrt{5} + \sqrt{4})$$

$$= 3 + \sqrt{4} = 3 + 2 = 5$$

=> Ans - (A)

Question 73

A and B can do a piece of work in 8 days, B and C can do it in 24 days, while C and A can do it in $8\frac{4}{7}$ days. In how many days can C do it alone?

- A** 60
- B** 40
- C** 30
- D** 10

Answer: A

Explanation:

Let total work = L.C.M. $(8,24, \frac{60}{7}) = 120$ units

Let efficiencies of A, B and C are a, b and c respectively.

A and B can do the piece of work in 8 days = $a + b = \frac{120}{8} = 15$ units/day -----(i)

Similarly, $b + c = \frac{120}{24} = 5$ units/day -----(ii)

And $c + a = \frac{120}{\frac{60}{7}} = 14$ units/day -----(iii)

Adding the three equations, we get :

$$\Rightarrow 2(a + b + c) = 15 + 5 + 14$$

$$\Rightarrow (a + b + c) = \frac{34}{2} = 17$$

Substituting value of $a + b$ from equation (i) in above equation, $\Rightarrow 15 + c = 17$

$$\Rightarrow c = 17 - 15 = 2 \text{ units/day}$$

\therefore Time taken by C alone to finish the work = $\frac{120}{2} = 60$ days

=> Ans - (A)

Question 74

A sphere and cube have equal surface areas. The ratio of the volume of the sphere to that of the cube is

- A** $\sqrt{\pi} : \sqrt{6}$
- B** $\sqrt{6} : \sqrt{\pi}$

C $\sqrt{2} : \sqrt{\pi}$

D $\sqrt{\pi} : 3$

Answer: B

Explanation:

Let radius of sphere = r and side of cube = a units

According to ques, Surface area of sphere = Surface area of cube

$$\Rightarrow 4\pi r^2 = 6a^2$$

$$\Rightarrow \frac{r^2}{a^2} = \frac{3}{2\pi}$$

$$\Rightarrow \left(\frac{r}{a}\right)^3 = \left(\frac{3}{2\pi}\right)^{\frac{3}{2}}$$

\therefore Volume of sphere : Volume of cube

$$= \frac{\frac{4}{3}\pi r^3}{a^3} = \left(\frac{4\pi}{3}\right)\left(\frac{r}{a}\right)^3$$

$$= \frac{2^2\pi}{3} \left(\frac{3}{2\pi}\right)^{\frac{3}{2}}$$

$$= \frac{(2)^{2-\frac{3}{2}}(3)^{\frac{3}{2}-1}}{(\pi)^{\frac{3}{2}-1}}$$

$$= \frac{(2)^{\frac{1}{2}}(3)^{\frac{1}{2}}}{(\pi)^{\frac{1}{2}}}$$

$$= \sqrt{6} : \sqrt{\pi}$$

\Rightarrow Ans - (B)

Question 75

The average production of 2004 And 2005 was exactly equal to the average production Of which of the following

A 2006, 2007

B 2005, 2006

C 2002, 2006

D 2001, 2005

Answer: E

General Awareness

Instructions

For the following questions answer them individually

Question 76

Which of the following countries are connected by the Palk Strait?

A Indian and Sri Lanka

B North Korea and South Korea

C Pakistan and China

D Britain and France

Answer: A

Question 77

Match the following:

- 1. Hazaribagh a. Coal**
- 2. Neyveli b. Iron**
- 3. Jharia c. Lignite**
- 4. Rourkela d. Mica**

A 1c, 2d, 3a, 4b

B 1d, 2c, 3a, 4b

C 1a, 2b, 3c, 4d

D 1d, 2c, 3b, 4a

Answer: B

Question 78

What is the minimum percentage of votes a political party must get to acquire the status of a registered party?

A 1%

B 2%

C 3%

D 4%

Answer: B

Question 79

The highest waterfall of India is

A Shimsha falls

B Hogenakkal falls

C Courtallam falls

D Jog falls

Answer: D

Question 80

Which state is rich in jute?

- A West Bengal
- B Tamil Nadu
- C Kerala
- D Orissa

Answer: A

Question 81

Which institute governs the Money supply in India?

- A Planning Commission
- B Finance Commission
- C Reserve Bank of India
- D Commercial Banks

Answer: C

Question 82

The headquarters of WTO is at

- A New York
- B Uruguay
- C Doha
- D Geneva

Answer: D

Explanation:

headquarters of world trade organisation is Geneva, switzerland

Question 83

Which state is called the 'Rice Bowl' of India?

- A Andhra Pradesh
- B Tamil Nadu
- C Kerala
- D Karnataka

Answer: A

Question 84

Who estimated the National Income for the first time in India?

- A Mahalonobis
- B Dababhai Naroji
- C V.K.R.V. Rao
- D Sardar Patel

Answer: B

Question 85

Economic development depends on

- A National resources
- B Capital formation
- C Size of the market
- D All of the above

Answer: D

Question 86

National Income is generated from

- A any money-making activity
- B any laborious activity
- C any profit-making activity
- D any productive activity

Answer: A

Question 87

Name the 'Political Guru' of Mahatma Gandhi.

- A Gopala krishna Gokhale
- B Bal Gangadhar Tilak
- C Aurobindo Ghosh
- D Lala lajpat Rai

Answer: A

Question 88

Arrange the following Magadhan dynasties in chronological order:

- I. Nandas II. Sisunagas
- III. Mauryas IV. Haryankas

- A IV, II, III and I

- B** II, I, IV and III
- C** IV, II, I and III
- D** III, I, IV and II

Answer: C

Question 89

The term of office of the Comptroller and Auditor General of India is

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

Answer: D

Question 90

Who was the first Chief Election Commissioner of India?

- A** G.V. Mavlankar
- B** T. Swaminathan
- C** K.V.K. Sundaram
- D** Sukumar Sen

Answer: D

Question 91

What is the retirement age for a Supreme Court Judge?

- A** 62 years
- B** 68 years
- C** 65 years
- D** 70 years

Answer: C

Question 92

Who propounded the Panchsheel Principles?

- A** Mahatma Gandhi
- B** Lord Buddha

- C Pandit Jawahar Lal Nehru
- D Swami Dayanand Saraswati

Answer: C

Question 93

On April 12, 1944 Subhash Chandra Bose hoisted the INA Flag in a town. In which State/Union Territory is that town now?

- A Andaman and Nicobar Islands
- B Tripura
- C Manipur
- D Mizoram

Answer: C

Question 94

Which one of the following is known as the 'immovable property' in the cell?

- A Carbohydrate
- B Fat
- C Protein
- D Nucleic acid

Answer: D

Question 95

Water from soil enters into the root hairs owing to

- A Atmospheric pressure
- B Capillary pressure
- C Root pressure
- D Osmotic pressure

Answer: B

Question 96

What is meant by a 'pir' in the sufi tradition?

- A The supreme God
- B The Guru of the sufis
- C The greatest of all Sufi saints
- D The orthodox teacher who contests the Sufi beliefs

Answer: B

Question 97

Khalsa Panth was created by Guru Gobind Singh in which year?

- A** 1599
- B** 1707
- C** 1699
- D** 1657

Answer: C

Question 98

The best conductor of electricity among the following is

- A** copper
- B** iron
- C** aluminum
- D** silver

Answer: D

Question 99

Breeding and management of bees is known as

- A** sericulture
- B** silviculture
- C** pisciculture
- D** Apiculture

Answer: D

Question 100

The vitamin necessary for coagulation of blood is

- A** vitamin B
- B** vitamin C
- C** vitamin K
- D** vitamin E

Answer: C