



RRB JE 31st May 2019 Shift-3

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RRB JE 31st May 2019 Shift-3

Instructions

For the following questions answer them individually

Question 1

A man sold two cycles at Rs.1125 each. By selling one cycle, he gained 11% and by selling the other cycle, he lost 11%. Find his gain or loss.

- A Gained 1%
- B Neither profit nor loss
- C Loss 2%
- D Loss 1.2%

Answer: D

Explanation:

Cycle 1:

Selling Price (SP) = Rs. 1125

Profit % (p) = 11%

To find Cost Price (CP):

$$\frac{1125 - CP}{CP} \times 100 = 11$$

$$112500 - 100CP = 11CP$$

$$111CP = 112500$$

Therefore, CP = Rs. 1013.51

Cycle 2:

Selling Price (SP) = Rs. 1125

Loss % (l) = 11%

To find Cost Price (CP):

$$\frac{CP - 1125}{CP} \times 100 = 11$$

$$100CP - 112500 = 11CP$$

$$89CP = 112500$$

Therefore, CP = Rs. 1264

Total:

$$SP = 1125 + 1125 = 2250$$

$$CP = 1013.5 + 1264 = 2277.5$$

CP > SP . Therefore, it is loss.

$$\text{Loss \% (l)} = \frac{2277.5 - 2250}{2277} = 1.2 \%$$

Therefore, Option D is correct.

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Question 2

Two boats P and Q run between two cities A and B on a stream with flow of 5 km/h. The cities are 300 km apart and P and Q have still water speeds of 25 km/h and 15 km/h respectively. P and Q start from cities A and B towards B and A respectively at the same time. When and where will they meet for the second time?

- A After 20 hours at 100 km from B
- B After 10 hours at 100 km from B
- C After 12 hours at 100 km from B
- D After 20 hours at 200 km from B

Answer: D

Explanation:

Effective speed of boat P (starting from city A) = $25+5 = 30$ km/hr (downstream)

Effective speed of boat Q (starting from city B) = $15-5 = 10$ km/hr (upstream)

Boat P is faster. i.e. P reaches city B in $\frac{300}{30} = 10$ hrs.

In 10 hrs, Q travels $10 \times 10 = 100$ km (from city B)

After 10hrs, P travels upstream. Effective speed of P = $25 - 5 = 20$ km/hr

Effective speed of Q = 10 km/hr

Let the boats meet after time t and at a distance s from city B

Distance to be travelled by P = s

Distance to be travelled by Q = s - 100

Equating time taken by P and Q,

$$\frac{s}{20} = \frac{s-100}{10}$$

$$2(s - 100) = s$$

$$\text{i.e. } s = 200 \text{ km}$$

$$t = 10 + \frac{200}{20} = 20 \text{ hrs}$$

The boats will meet 2nd time after 20hrs, 200km from city B.

Therefore, Option D is correct.

Question 3

Myosin and actin are-

- A Muscle fat
- B Muscle carbohydrate
- C Muscle protein
- D Muscle enzymes

Answer: C

Question 4

What is the name of a female reproductive cell?

- A Ovary
- B Egg
- C Sperm

D Ovule

Answer: B



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Question 5

Choose the alternative that best replaces the question mark(?) in the given figure.

1	4	?
3	3	4
3	1	2
49	64	169

A 10

B 4

C 7

D 8

Answer: C

Explanation:

a	1	4	?
b	3	3	4
c	3	1	2
d	49	64	169

The pattern is $(a + b + c)^2 = d$

$$(1 + 3 + 3)^2 = 49$$

$$(4 + 3 + 1)^2 = 64$$

$$(a + 4 + 2)^2 = 169$$

$$a + 4 + 2 = 13$$

$$\text{i.e. } a = 13 - 6 = 7$$

Therefore, Option C is correct

Question 6

Goods worth Rs.6500 with a rebate of 5% were purchased. Then sales tax at 4% was included in the bill. What is the amount of the bill?

A Rs.6522

B Rs.6576

C Rs.6422

D Rs.6600

Answer: C

Explanation:

Original Amount = Rs. 6500

$$\text{Rebate} = \frac{5}{100} \times 6500 = \text{Rs. } 325$$

Amount after rebate = 6500 - 325 = Rs. 6175

$$\text{Sales tax} = \frac{4}{100} \times 6175 = \text{Rs. } 247$$

Bill amount = 6175 + 247 = Rs. 6422

Therefore, Option C is correct.

Question 7

A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken for the tank to get filled?

- A 2 hours 20 minutes
- B 4 hours 30 minutes
- C 3 hours 25 minutes
- D 3 hours 45 minutes

Answer: D

Explanation:

Time to fill tank with 1 tap = 6hrs

Therefore, time to fill half tank = $6/2 = 3$ hrs.

4 taps fill remaining half.

Efficiency per tap = $1/6$

Let the time taken for remaining half tank be t.

Efficiency x time = work

$$\left(\frac{1}{6} \times 4\right)t = 0.5$$

$$\text{i.e } t = \frac{3}{4} \text{ hrs} = \frac{3}{4} \times 60 \text{ mins} = 45 \text{ minutes.}$$

Total time = 3hrs + 45 minutes

Therefore, Option D is correct.

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Question 8

If many bulbs are connected in series in a circuit, and if one bulb blows off, what happens to the other bulbs?

- A A few bulbs burst
- B Some bulbs glow and some do not glow
- C All the other bulbs stop glowing
- D All the other bulbs glow

Answer: C

Question 9

Simplify: $(1 + \tan^2 A)^2 + (1 + \cot^2 A)^2$

- A $(\sin A + \cos A)^2$
- B $\sin A - \cos A$
- C $\sin A \cos A$
- D $2 \sin A \cos A$

Answer: C

Question 10

Excessive amount of nitrogen and phosphorous in lakes is called as-

- A Eutrophic
- B Oligotrophic
- C Endotrophic
- D Mesotrophic

Answer: A

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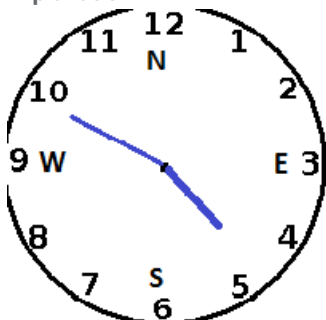
Question 11

Abu's watch is showing time as 4:50, where minute hand points north west. Which side will hour hand point?

- A South east
- B South West
- C East
- D South

Answer: A

Explanation:



From the figure, while the minute hand is pointing north-west, hour hand points south-east.

Question 12

A house worth Rs.150000 is sold by X to Y at 5% profit. If Y sells the house back to X at 2% loss, then in the entire transaction:

- A X loses Rs.1350
- B X gains Rs.4350
- C X gains Rs.3150
- D X loses Rs.4350

Answer: C

Explanation:

X case

$$CP = 150000$$

profit = 5%

$$SP = 150000 \times \frac{105}{100}$$

$$= 157500$$

$$\text{here X gains} = SP - CP = 157500 - 150000 = 7500$$

Y case

$$CP = 157500 \text{ (X's SP = Y's CP)}$$

loss = 2%

$$SP = 157500 \times \frac{98}{100}$$

$$= 154350$$

$$\text{here Y loss} = CP - SP = 157500 - 154350 = 3150$$

$$\text{X gains} = 7500 - 4350 = 3150$$

Question 13

If $a + b + c = 0$ then find value of $\frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca} + \frac{(a+b)^2}{ab}$.

- A $8abc$
- B $2(a + b + c)^2$
- C $a^2 + b^2 + c^2$
- D 3

Answer: D

Explanation:

$$= \left(\frac{a^2+b^2+2ab}{ab} \right) + \left(\frac{b^2+c^2+2bc}{bc} \right) + \left(\frac{c^2+a^2+2ca}{ca} \right) \dots\dots\dots(1)$$

$$= \left(\frac{a^2}{ab} + \frac{b^2}{ab} + \frac{2ab}{ab} \right) + \left(\frac{b^2}{bc} + \frac{c^2}{bc} + \frac{2bc}{bc} \right) + \left(\frac{c^2}{ca} + \frac{a^2}{ca} + \frac{2ca}{ca} \right) \dots\dots\dots(3)$$

$$= \left(\frac{a}{b} + \frac{b}{a} + 2 \right) + \left(\frac{b}{c} + \frac{c}{b} + 2 \right) + \left(\frac{c}{a} + \frac{a}{c} + 2 \right) \dots\dots\dots(2)$$

$$= \left(\frac{b+c}{a} \right) + \left(\frac{c+a}{b} \right) + \left(\frac{a+b}{c} \right) + 2 + 2 + 2$$

using (1), (2) and (3)

$$= \frac{-a}{a} + \frac{-b}{b} + \frac{-c}{c} + 6$$

$$= -1-1-1+6 = 6-3 = 3$$

Question 14

The area of a rectangle is $\frac{9}{20}$ times the area of a square. If the length and breadth of the rectangle are in the ratio 5 : 4, then find the ratio of perimeters of rectangle and square.

- A 27 : 40
- B 25 : 45
- C 25 : 48
- D 27 : 20

Answer: A

Explanation:

$$\text{area of rectangle} = \frac{9}{20} \times \text{area of square}$$

$$\text{ratio of length and breadth} = 5 : 4$$

according to question

$$5x \times 4x = \frac{9}{20} \times a^2$$

$$20x^2 = \frac{9}{20} \times a^2$$

$$\frac{x^2}{a^2} = \frac{9}{400}$$

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

$$\text{length} = 5 \times 3 = 15$$

$$\text{breadth} = 4 \times 3 = 12$$

$$\text{perimeter of rectangle} = 2(l + b) = 2(15 + 12) = 54$$

$$\text{perimeter of square} = 4a = 4 \times 20 = 80$$

$$\text{ratio of perimeters of rectangle and square} = \frac{54}{80} = \frac{27}{40}$$

Question 15

What placed between moving parts of a machine can reduce friction?

- A Resins
- B Air cushion
- C Abrasives
- D Rough material

Answer: B

Question 16

Find the ODD one out from the given options.

- A K
- B N
- C X
- D R

Answer: A

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Question 17

P completes 80% of a certain work in 20 days. Then with the help of Q, he is able to finish it in 3 more days. How many days will Q take to finish the work, if he works alone?

- A 36.5
- B 37.5
- C 35
- D 40

Answer: B

Explanation:

let the total work be 100

$$\text{workdone} = \text{efficiency} \times \text{time}$$

P completes 80% of a certain work in 20 days

$$80\% \text{ of work done} = 100 \times \frac{80}{100} = 80$$

so work done by P = 80

$$\text{efficiency of P} = \frac{80}{20} = 4$$

remaining work = $100 - 80 = 20$

with the help of Q, P finish the remaining works in 3 days

$$20 = (4 + \text{efficiency of Q}) \times 3$$

$$\text{efficiency of Q} = \frac{20}{3} - 4 = \frac{8}{3}$$

time taken by Q to complete the work

$$t = \frac{300}{8} = 37.5$$

Question 18

Complete the series.

A, D, H, M, S, (...)

- A V
- B Z
- C U
- D Y

Answer: B

Question 19

Echocardiograph makes use of-

- A Ultrasound
- B Radiation

- C X-ray
- D Bioelectricity

Answer: A

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Question 20

A boy was asked to write the value of $(2)^5 \times (8)^2$. He wrote it as 2582. Find the difference between the obtained and the actual value.

- A 189
- B 534
- C 0
- D 37

Answer: B

Explanation:

$$2^5 \times 8^2 = 32 \times 64 = 2048$$

actual value = 2048

obtained value = 2582

$$\text{difference} = 2582 - 2048 = 534$$

Question 21

Complete the series.

684, 114, 57, 9.5, (...)

- A 5.18
- B 4.75
- C 5.82
- D 4.95

Answer: B

Explanation:

684, 114, 57, 9.5, 4.75

$$684 \div 6 = 114$$

$$114 \div 2 = 57$$

$$57 \div 6 = 9.5$$

$$9.5 \div 2 = 4.75$$

Question 22

Which device converts sunlight into electricity?

- A Dry cell
- B Battery

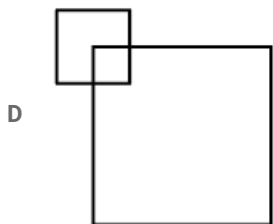
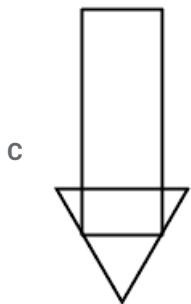
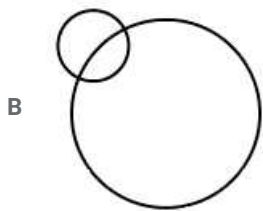
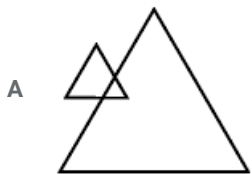
- C Solar cell
- D Chemical cell

Answer: C

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Question 23

Find the ODD one out from the given options.



Answer: C

Question 24

If a and b are coprime, then a^2 and b^2 are-

- A Both even
- B Both odd
- C Coprime
- D Need not be coprime

Answer: C

Explanation:

The square of coprime is also coprime.

$\therefore a^2$ and b^2 are coprime.

Question 25

The electronic configuration of chlorine is-

- A 2, 8, 7
- B 2, 7
- C 2, 7, 8
- D 2, 8, 8, 7

Answer: A

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Question 26

If 'MISTAKE' is coded as 9765412 and 'NAKED' is coded as 84123, how is 'STAIN' coded?

- A 68194
- B 65478
- C 98175
- D 89483

Answer: B

Question 27

Which number will best complete the relationship given below?

3 : 29 :: 6 : ?

- A 247
- B 251
- C 229
- D 218

Answer: D

Explanation:

3 : 29

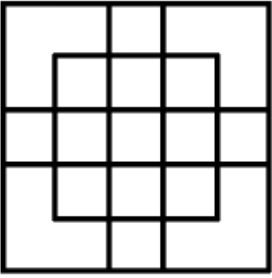
$$3^3 + 2 = 27 + 2 = 29$$

same way 6 : 218

$$6^3 + 2 = 216 + 2 = 218$$

Question 28

How many squares are there in the given figure?



- A 18
- B 25
- C 19
- D 27

Answer: D

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Question 29

Simplify: $\sqrt{(7 + 3\sqrt{5}) \times (7 - 3\sqrt{5})}$

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

Answer: C

Explanation:

using identity $(a + b)(a - b) = a^2 - b^2$

$$\sqrt{7^2 - (3\sqrt{5})^2}$$

$$\sqrt{49 - 45}$$

$$\sqrt{4} = 2$$

Question 30

The little Rangeet river flows by which hill station of India?

- A Nainital
- B Shimla
- C Darjeeling
- D Ranikhet

Answer: C

Question 31

The law of definite proportions was given by-

- A Antoine Lavoisier
- B Joseph L. Proust
- C John Dalton
- D Jöns Jacob Berzelius

Answer: B

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Question 32

Ganesh took a loan of Rs.14000 to be paid after three years with Compound Interest at 10% per annum. How much total amount should he pay at the end of three years?

- A Rs.17940
- B Rs.18497
- C Rs.16200
- D Rs.18634

Answer: D

Explanation:

compound interest, $amount = p(1 + \frac{r}{100})^n$

here p = 14000

n = 3 years

r% = 10 %

$$\begin{aligned} amount &= 14000(1 + \frac{10}{100})^3 \\ &= 14000(\frac{11}{10})^3 \\ &= 18634 \end{aligned}$$

Question 33

Which of the following technology won the Platinum under Emerging Technology category of Digital India Awards 2018?

- A Blockchain Implementation in Land Records, Andhra Pradesh
- B Ajmer Smart City Project
- C Crop Area Estimation and Loss Assessment for the State of Gujarat
- D Rajkot Eyeway Project

Answer: D

Question 34

Find the value of $\frac{\sin 30^\circ 17'}{\cos 59^\circ 43'} - \frac{\operatorname{cosec} 32^\circ}{\sec 58^\circ}$

- A 1
- B 1/2
- C 2
- D 0

Answer: D

Explanation:

$$\frac{\sin 30^\circ 17'}{\cos 59^\circ 43'} - \frac{\operatorname{cosec} 32^\circ}{\sec 58^\circ}$$

$$\frac{\sin 30^\circ 17'}{\cos(90 - 30^\circ 17')} - \frac{\operatorname{cosec} 32^\circ}{\sec(90 - 32^\circ)}$$

$$\frac{\sin 30^\circ 17'}{\sin 30^\circ 17'} - \frac{\operatorname{cosec} 32^\circ}{\operatorname{cosec} 32^\circ} = 1 - 1 = 0$$

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Question 35

Given $2x^2 + 19x + 45 = 0$ and $2y^2 + 11y + 12 = 0$, then which of the following regarding the roots x, y is TRUE?

- A $x \geq y$
- B $x < y$
- C $x > y$
- D $x \leq y$

Answer: B

Explanation:

$$2x^2 + 19x + 45 = 0$$

$$\Rightarrow 2x^2 + 10x + 9x + 45 = 0$$

$$\Rightarrow 2x(x + 5) + 9(x + 5) = 0$$

$$\Rightarrow (2x + 9)(x + 5) = 0$$

$$\Rightarrow x = -9/2 = -4.5 \text{ or } x = -5$$

$$2y^2 + 11y + 12 = 0$$

$$\Rightarrow 2y^2 + 8y + 3y + 12 = 0$$

$$\Rightarrow 2y(y + 4) + 3(y + 4) = 0$$

$$\Rightarrow (y + 4)(2y + 3) = 0$$

$$\Rightarrow y = -4 \text{ or } y = -3/2 = -1.5$$

Hence, $x < y$.

Question 36

Simplify: $\frac{9(3-5)-5(4) \div 10}{-3(5)-2 \times 4 \div 2}$

- A -16/19
- B 8/19
- C 20/19

D -20/19

Answer: C

Explanation:

$$9(3-5)-5(4)\div 10$$

$$-3(5)-2\times 4\div 2$$

$$9\times -2-20\div 10$$

$$-15-2\times 4\div 2$$

$$\frac{-18-2}{-15-4} = \frac{-20}{-19} = \frac{20}{19}$$

$$\frac{-18-2}{-15-4} = \frac{-20}{-19} = \frac{20}{19}$$

Question 37

Cinnabar is an ore of-

A Silver

B Copper

C Gold

D Mercury

Answer: D

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Question 38

Itanagar is the capital of-

A Arunachal Pradesh

B Manipur

C Haryana

D Assam

Answer: A

Question 39

Which Indian state has the largest number of seats reserved for the Scheduled Tribes in the Lok Sabha?

A Gujarat

B Andhra Pradesh

C Madhya Pradesh

D Rajasthan

Answer: C

Question 40

From which of the following countries has Nepal launched its first satellite NepaliSat-1 into space in April 2019?

A India

B Russia

C China

D USA

Answer: D

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Question 41

Which of the following metallic elements is denser than water?

A Lithium

B Sodium

C Calcium

D Potassium

Answer: C

Question 42

Read the following information carefully and answer the question given below.

Eight Ministers –A, B, C, D, E, F, G and H are sitting around a circular table facing the center but not necessarily in the same order. Each one of them holds a different post—Chief Minister, Home Minister, Prime Minister, Tourism Minister, Transport Minister, Defence Minister, Health Minister and Education Minister.

A sits third to the right of the Education Minister, and only two people sit between the Education Minister and H. The Transport Minister and the Home Minister are immediate neighbours. Neither A nor H is a Transport Minister or a Home Minister. The Transport Minister is not an immediate neighbour of the Education Minister. The Chief Minister sits second to the left of E. E is not an immediate neighbour of H. The Chief Minister is an immediate neighbour of both the Defence Minister and the Health Minister. The Health Minister sits third to the right of B. B is not the Transport Minister. C sits to the immediate right of the Prime Minister. A is not the Prime Minister. F is not an immediate neighbour of A. G is not an immediate neighbour of the Chief Minister.

Who among the following is the Education Minister?

A G

B C

C A

D B

Answer: B

Question 43

Mark the INCORRECT statement(s).

- (i) In a proper fraction, numerator $<$ denominator.
- (ii) Mixed numbers can be written as proper fractions.
- (iii) Improper fractions can be rewritten as mixed numbers.
- (iv) Like fractions have the same numerator.

A Statement (iv) only

B Statement (ii) only

C Statement (iii) only

D Statements (ii) and (iv) only

Answer: D

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Question 44

Where was 21st Central Zone Council meeting held?

A New Delhi

B Dehradun

C Lucknow

D Imphal

Answer: C

Question 45

When did Bhopal gas tragedy take place?

A 1984

B 1983

C 1980

D 1981

Answer: A

Question 46

Who is the founder of the Mughal Empire?

A Ibrahim Lodi

B Babur

C Sher Shah Suri

D Akbar

Answer: B

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Question 47

If 'tir sil fit' stands for 'nice big home'; 'kon hit sil' stands for 'home is good' and 'bdf zkr kon' stands for 'cost is low', which word would represent 'good'?

A hit

B kon

C zkr

D sil

Answer: A

Explanation:

tir sil fit' stands for 'nice big home.....(1)

'kon hit sil' stands for 'home is good'.....(2)

'bdf zkr kon' stands for 'cost is low'.....(3)

from (1) and (2) sil = home

from (2) and (3) kon = is

thus good = hit

Question 48

Which of the following forces acts on an object perpendicular to the surface?

- A Thrust
- B Mechanical force
- C Spring force
- D Magnetic force

Answer: A

Question 49

When prices rise between 20% to 100% per annum or even more, it is termed as-

- A Creeping inflation
- B Hyperinflation
- C Trotting inflation
- D Running inflation

Answer: B

RRB Group-D Previous Papers

Question 50

A substance that donates a pair of electrons to form coordinate covalent bond is called-

- A Bronsted-Lowry acid
- B Lewis-acid
- C Lewis-base
- D Bronsted-Lowry base

Answer: C

Question 51

If A, B are two natural numbers >1 and their H.C.F is 1, then which of these statements is always TRUE?

- A A, B are even consecutive numbers
- B A, B are coprime to each other
- C A, B are both prime numbers
- D Product AB is a prime number

Answer: B

Explanation:

Coprime numbers have '1' highest common factor(H.C.F) so A, B are coprime to each other.

Question 52

Find the missing group of alphabets in the following series.

MB, OE, UJ, (...), EZ

- A SQ
- B PA
- C KS
- D RC

Answer: A

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Question 53

Separating funnel is used to separate a mixture of-

- A Miscible liquids
- B Immiscible liquids
- C Salt and camphor
- D Dye in a black ink

Answer: B

Question 54

If the speed of sound in air is 344 m/s at 22° C, and the minimum time interval between sound and echo is 0.1 s for a distinct echo, what is the distance the sound should travel from source to reflecting surface and then back to ear?

- A 12.8 m
- B 17.2 m
- C 34.4 m
- D 18.6 m

Answer: C

Explanation:

total distance covered by the sound from the point of generation to the reflecting surface and back should be at least $(344m/s) \times$

$0.1s = 34.4$ m. Thus, for hearing distinct echoes, the minimum distance of the obstacle from the source of sound must be half of this distance, that is, 17.2 m.

Question 55

The 14 elements after actinium are called-

- A Actinides
- B s block elements
- C Lanthanides
- D p block elements

Answer: A

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Question 56

If 4 years are subtracted from the age of a person and divided by 5, the result gives his grandson's age. The grandson now has a sister aged 5, six years younger to him. How old is the grandfather?

- A 59
- B 60
- C 57
- D 58

Answer: A

Explanation:

let the age of the person be x

4 years are subtracted from the age of a person and divided by 5, the result gives his grandson's age , y

$$\frac{x-4}{5} = y$$

grandson now has a sister aged 5, six years younger to him

$$\frac{x-4}{5} - 6 = 5$$

solving, $x = 59$

Question 57

A towel, when bleached, was found to have lost 20% of its length and 10% of its breadth. Find the percentage of decrease in its area.

- A 10.08%
- B 20%
- C 28%
- D 10%

Answer: C

Explanation:

initial length = 100

initial breadth = 100

$$\text{area} = 100 \times 100 = 10000$$

$$\text{new length} = 100 \times \frac{80}{100} = 80$$

$$\text{new breadth} = 100 \times \frac{90}{100} = 90$$

$$\text{new area} = 80 \times 90 = 7200$$

$$\text{change in area} = 10000 - 7200 = 2800$$

$$\text{percentage of decrease in its area} = \frac{2800}{10000} \times 100 = 28\%$$

Question 58

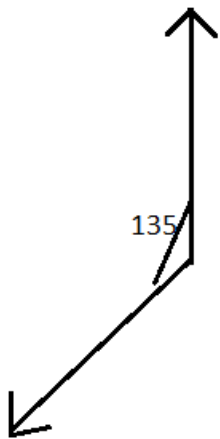
A man facing north turns 135 degrees in the anti-clockwise direction and then 180 degrees in the clockwise direction. Which direction is he facing now?

- A West
- B North east
- C South east
- D North west

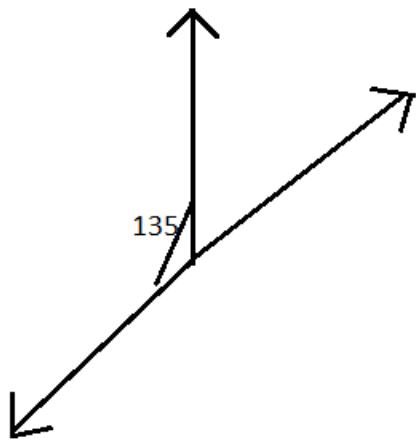
Answer: B

Explanation:

A man facing north turns 135 degrees in the anti-clockwise direction



then turns 180 degrees in the clockwise direction

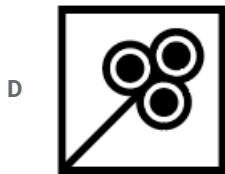
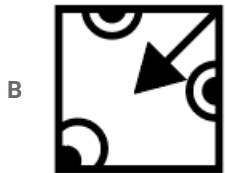
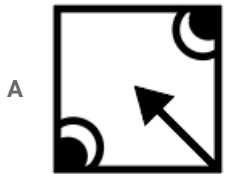


now he is facing in north east direction

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Question 59

Choose from the alternatives the figure that best completes the pattern given below.



Answer: C

Question 60

The Asian Games were held in Delhi for the first time in-

A 1982

B 1951

C 1963

D 1971

Answer: B

Question 61

Two pipes can fill a tank in 30 minutes and 60 minutes respectively. Another pipe at the bottom will empty it in 120 minutes. If all the pipes are open, in what time will the tank get filled?

- A 24 minutes
- B 40 minutes
- C 52 minutes
- D 50 minutes

Answer: A

Explanation:

$$\text{workdone} = \text{efficiency} \times \text{time}$$

$$\text{work done} = \text{LCM}(30, 60, 120) = 120$$

$$\text{efficiency of pipe P1} = \frac{120}{30} = 4$$

$$\text{efficiency of pipe P2} = \frac{120}{60} = 2$$

$$\text{efficiency of pipe P3} = \frac{120}{120} = 1$$

If all the pipes are open, in what time will the tank get filled $\text{time} = \frac{120}{5} = 24 \text{minutes}$

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Question 62

Rs.800 become Rs.956 in 3 years at a certain rate of Simple Interest. What is the rate?

- A 7.5%
- B 6.5%
- C 8.2%
- D 8%

Answer: B

Explanation:

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

$$P = 800$$

$$\text{Amount} = 956$$

$$SI = 956 - 800 = 156$$

$$R = ?$$

substituting

$$156 = \frac{800 \times 3 \times R}{100}$$

$$\text{solving } R = 6.5\%$$

Question 63

Read the following information carefully and answer the question given below.

Seven persons—A, B, C, D, E, F and G are sitting along a circle facing the centre. A is between G and D. C is second to the right of D and is between B and F. B is not the neighbour of E.

Who among the following sits fourth to the right of A?

- A E

B F

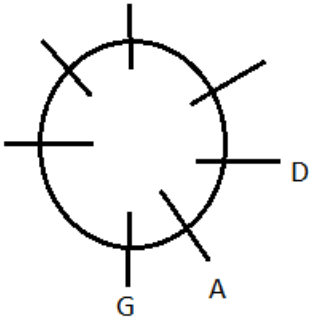
C G

D C

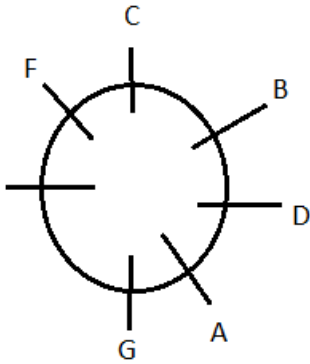
Answer: B

Explanation:

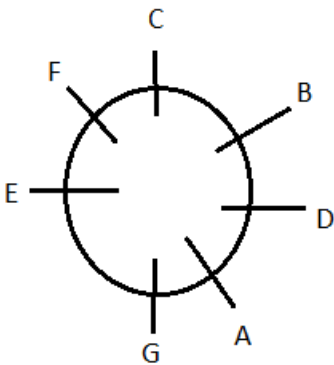
step 1 : A is between G and D.



step 2 : C is second to the right of D and is between B and F. B is not the neighbour of E.



step 3 :



F sits fourth to the right of A

Question 64

Find the H.C.F. of $(a^3 + b^3)$, $(a + b)^2$ and $(a^2 - b^2)$.

A $(a^3 + b^3)(a^2 - b^2)$

B $(a - b)$

C $(a + b)$

D $(a + b)(a - b)$

Answer: C

Explanation:

Factor of $(a^3 + b^3) = (a + b)(a^2 - ab + b^2)$

Factor of $(a + b)^2 = (a + b)(a + b)$

Factor of $(a^2 - b^2) = (a + b)(a - b)$

Common factor = $(a + b)$

H.C.F. of $(a^3 + b^3), (a + b)^2$ and $(a^2 - b^2) = (a + b)$

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Question 65

Which of the following glands controls the rate of energy release inside the body?

- A Parathyroid
- B Thyroid
- C Pineal
- D Pancreas

Answer: D

Question 66

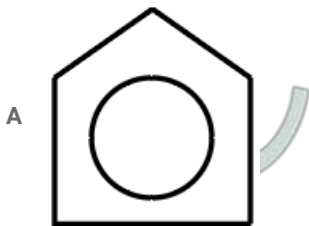
In which dance form do performers wear a cylindrical skirt named 'Potloi'?

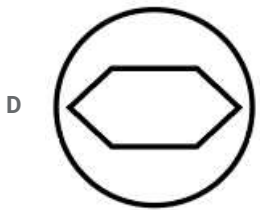
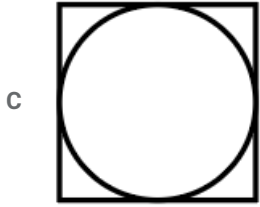
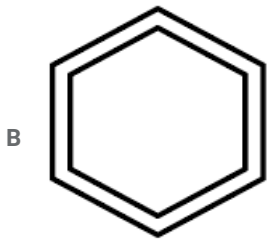
- A Kathak
- B Kuchipudi
- C Manipuri
- D Bharatanatyam

Answer: C

Question 67

Find the ODD one out from the given options.





Answer: B

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Question 68

What is a 'Test tube Baby'?

- A Fertilisation takes place in uterus and embryo develops in uterus
- B Fertilisation of ovum takes place in the test tube, but it develops in uterus
- C Fertilisation of ovum takes place in the test tube and develops in the test tube itself
- D Fertilisation of the ovum takes place in uterus, but develops in the test tube

Answer: B

Question 69

In a certain code, 'MAN' is written as 'SANM', and 'WORD' is written as 'SORDW'. How would 'SALE' be written in that code?

- A SEALS
- B LEASS
- C LESAS
- D SALES

Answer: D

Question 70

What is the pH of concentrated sodium hydroxide solution?

- A 7

B 10

C 4

D 14

Answer: D

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Question 71

Who is considered as the first botanist?

A Plini

B Plato

C Theophrastus

D Archimedes

Answer: C

Question 72

Find the value of $1^2 + 2^2 + 3^2 + \dots + 10^2$

A 285

B 385

C 265

D 305

Answer: B

Explanation:

sum of squares of first n natural numbers = $\frac{n(n+1)(2n+1)}{6}$

here n = 10

$$\frac{10(10+1)(20+1)}{6} = \frac{10 \times 11 \times 21}{6}$$

= 385

Question 73

The atomic radius of potassium is ____ that of sodium.

A Lesser than

B Half

C Equal to

D Greater than

Answer: D

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Question 74

Budget of a state under President's rule is presented to-

- A Lok Sabha
- B President of India
- C Prime Minister of India
- D Rajya Sabha

Answer: A

Question 75

Instead of dividing Rs.117 among P, Q and R in the ratio $1/2 : 1/3 : 1/4$, it was wrongly divided in the ratio $2 : 3 : 4$. Who gains the most in this distribution and how much do he gains?

- A R, Rs.25
- B R, Rs.27
- C P, Rs.28
- D Q, Rs.35

Answer: A

Explanation:

Total amount = Rs.117

Wrong ratio = $2 : 3 : 4$

9 unit = 117

1 unit = 13

Share of P = 2 unit = $2 \times 13 = \text{Rs.}26$

Share of Q = 3 unit = $3 \times 13 = \text{Rs.}39$

Share of R = 4 unit = $4 \times 13 = \text{Rs.}52$

\therefore R gains the most in this distribution.

Correct ratio of P, Q and R = $1/2 : 1/3 : 1/4 = 6 : 4 : 3$

13 unit = 117

1 unit = 9

Share of R = 3 unit = $3 \times 9 = \text{Rs.}27$

Difference of gain = $52 - 27 = \text{Rs.}25$

Question 76

Which of the following can be measured with the help of SONAR?

- A Sound created by animals in forest
- B Distance, direction and speed of under water objects.
- C Sound pitch of aircrafts

D Distance of aircrafts

Answer: B

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Question 77

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

1) 'P' is the brother of 'Q'.

2) 'R' is the brother of 'P'.

Conclusions:

I. 'Q' is a girl.

II. 'Q' is a boy.

A Both conclusions I and II follow

B Only conclusion I follows

C Either conclusion I or II follows

D Only conclusion II follows

Answer: C

Explanation:

(+) (+) (+/-)
R ——— P ——— Q

P and R are the brothers of Q (mentioned in the question)

but we don't know the gender of Q

therefore Q can be either girl or boy

Question 78

Which of the following is NOT a part of the digestive system?

A Mouth

B Liver

C Stomach

D Heart

Answer: D

Question 79

The reaction in which two compound exchange their ions to form two new compounds is called-

A Combination reaction

B Double displacement reaction

C Displacement reaction

D Redox reaction

Answer: B

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Question 80

Which of the following countries will host the Rugby World Cup 2019?

- A Canada
- B Indonesia
- C China
- D Japan

Answer: D

Question 81

Who won the first Twenty20 Cricket World Cup?

- A England
- B West Indies
- C India
- D Pakistan

Answer: C

Question 82

Which is the most famous constellation, which appears in the early summer nights, which has a bear shape?

- A Orion
- B Ursa Major
- C Leo
- D Scorpio

Answer: B

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Question 83

Two girls travel in opposite directions, the former from 'A' at a speed of 25 km/h and takes 20 hours to reach her destination 'B'. The latter from 'B' takes 25 hours to reach her destination 'A' meeting the former on her way. What is the latter's speed?

- A 20 km/h
- B 25 km/h
- C 15 km/h

D 18 km/h

Answer: A

Explanation:

Speed of former = 25 km/hr

Time = 20 hours

Distance A to B = speed \times time = $25 \times 20 = 500$ km

Time taken by latter = 25 hours

Speed = distance/time = $500/25 = 20$ km/hr

Question 84

In this question, two statements are given followed by two conclusions. Choose the conclusion(s) which best fit(s) logically.

Statements:

1) Some cups are books.

2) Some books are shirts.

Conclusions:

I. Some cups are shirts.

II. All shirts are books.

A Only conclusion I follows

B Only conclusion II follows

C Neither conclusion I nor II follows

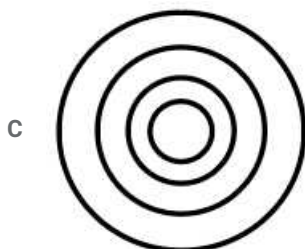
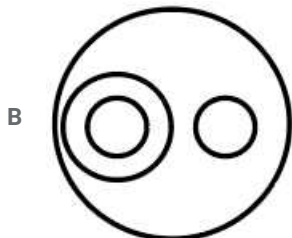
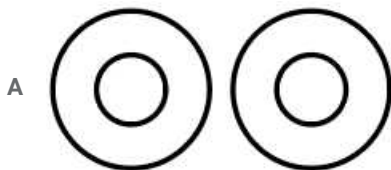
D Both conclusions I and II follow

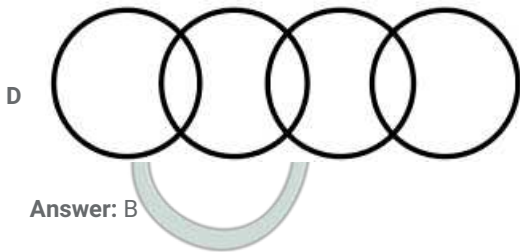
Answer: C

Question 85

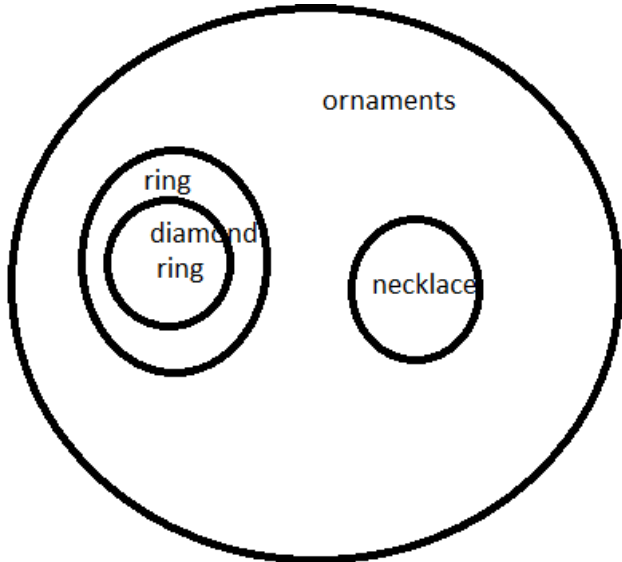
Choose the figure that best represents the relationship among the classes given below.

Ring, Ornaments, Necklace, Diamondring





Explanation:



diamond ring belongs to the class rings
necklace and ring are different ornaments
but all these belongs to the same class 'ornaments'
hence option B represents the correct relation ship

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Question 86

An electric heater is rated at 2 kW. Electrical energy costs Rs.4 per kWh. What is the cost of using the heater for 3 hours?

- A Rs.24
- B Rs.48
- C Rs.36
- D Rs.12

Answer: A

Explanation:

$$\text{power} = \frac{\text{work}}{\text{time}}$$

given power = 2 kW

time = 3 hours

substituting

$$2kW = \frac{\text{work}}{3}$$

solving work = 6

Electrical energy costs Rs.4 per kWh

cost of using the heater for 3 hours = $6 \times 4 = Rs24$

Question 87

Simplify: $[2 \times (3/2) - 3 \times (2/3)] \times [2/5 \text{ of } 3/5 \text{ of } 100]$

- A 25
- B 24
- C 0
- D 12

Answer: B

Explanation:

$$[2 \times \frac{3}{2} - 3 \times \frac{2}{3}] \times [\frac{2}{5} \times \frac{3}{5} \times 100]$$

$$[3 - 2] \times [2 \times 3 \times 4] = 24$$

Question 88

Which of the following substances has infinitely high resistance?

- A Resistors
- B Conductors
- C Super conductors
- D Insulators

Answer: D

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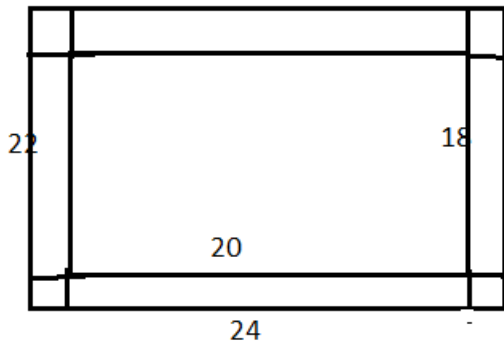
Question 89

What is the area of the jogging track which is 2 m wide that runs along the area of a rectangle 20 m \times 18 m inside it?

- A 140 m^2
- B 136 m^2
- C 200 m^2
- D 168 m^2

Answer: D

Explanation:



area of outer rectangle = $24 \times 22 = 528$

area of inner rectangle = $20 \times 18 = 360$

area of the jogging track which is 2 m wide = $528 - 360 = 168m^2$

Question 90

Ages of A and B differ by 6 and are in the ratio 3 : 5. What is the sum of their ages?

- A 24
- B 40
- C 16
- D 32

Answer: A

Explanation:

ratio of age of A and B = 3 : 5

difference of age = 5 - 3 = 2

given ages of A and B differ by 6

$$2 = 6$$

$$1 = \frac{6}{2} = 3$$

ages of A and B = 9 and 15

sum of their ages = 9 + 15 = 24

Question 91

Find the ODD one out from the given options.

- A 441
- B 1331
- C 729
- D 2197

Answer: A

Explanation:

all except first one are perfect cubes of numbers

$$11^3 = 1331$$

$$9^3 = 729$$

$$13^3 = 2197$$

but first one is $21^2 = 441$

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Question 92

Which creature usually makes a web to trap its victims ?

- A Cockroach
- B Spider
- C Silkworm
- D Caterpillar

Answer: B

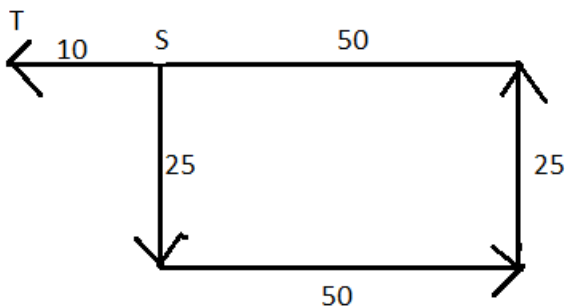
Question 93

Starting from a point S, Mahesh walked 25 m towards south. He turned to his left and walked 50 m. He again turned to his left and walked 25 m. He again turned to his left and walked 60 m and reached a point T. How far and in which direction is Mahesh from Point S?

- A 10 m, east
- B 10 m, West
- C 25 m, west
- D 25 m, north

Answer: B

Explanation:



from point S Mahesh is 10m west direction

Question 94

If 'A' means '+', 'B' means '-', 'C' means '×' and 'D' means '÷', then find the value of (1 D 1 C 1) A (2 C 2 D 2) A (3 D 3 C 3) B (4 C 4 D 4).

- A 10
- B 3
- C 2
- D 6

Answer: C

Explanation:
according to question

$$(1 \div 1 \times 1) + (2 \times 2 \div 2) + (3 \div 3 \times 3) - (4 \times 4 \div 4)$$

$$1 + 2 + 3 - 4 = 2$$

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Question 95

Which of the following will best complete the relationship given below?

RAT : SDY :: BAD : ?

- A BFL
- B CDI
- C LFB
- D DCI

Answer: B

Question 96

If the object is placed between infinity and optical centre O of the concave lens, how will the image be formed after refraction?

- A Real and inverted
- B Real and same size
- C Virtual and erect
- D Real and enlarged

Answer: C

Question 97

If '+' and '×' are interchanged and also the numbers 5 and 9 change places, which of the following options is correct?

- A $3 + 9 \times 3 + 5 = 32$
- B $2 \times 9 + 3 \times 5 = 21$
- C $9 \times 5 + 2 \times 2 = 25$
- D $5 \times 9 + 3 \times 3 = 0$

Answer: C

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Question 98

The sum of the absolute values of deviations is least when taken from the _____.

- A Geometric mean
- B Median

C Arithmetic mean

D Mode

Answer: B

Question 99

The electronic configuration of sodium is-

A 2, 8, 1

B 2, 8

C 2, 8, 7

D 2, 7, 8

Answer: A

Question 100

The process of marking genes in a DNA sequence is called-

A Gene expression

B Annotation

C Proteomics

D Sequence assembly

Answer: B

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