RRB NTPC 16 Jan 2021 Shift 1 Solution

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1. If the polynomial 6x 4+ 8x 3+ 17x 2+ 21x + 7 is divided by another polynomial 3x 2+ 4x +1, the remainder comes out to be ax + b, find a and b.
a. a = 3; b = 1
b. a = 1; b = 2
c. a = 1; b =3
d.a = 1; b = 1

Ans. : b
Explanation:
Given:
Polynomial 6x 4 + 8x 3 + 17x 2 + 21x + 7 is divided by another polynomial 3x 2 + 4x +1
Concept used:
In such questions, we fix non-zero value of x and then calculate and compare values of remainder and quotient and solve using options.
Calculation:
Let x = 1,
then dividend 6x 4 + 8x 3 + 17x 2 + 21x + 7 (x = 1) = 6 + 8 + 17 + 21 + 7 = 59
and divisor 3x 2 + 4x +1 (x = 1) = 3 + 4 + 1 = 8
When 6x 4 + 8x 3 + 17x 2 + 21x + 7 is divided by polynomial 3x 2 + 4x +1, that is,
when 59 is divided by 8 then remainder comes out to be 3
∴ ax + b (x = 1) = 3 ⇒ a + b = 3
Only option that satisfies a + b = 3 is option
2) NOTE: if more than one option satisfies then we check the satisfying options with another variable value of x.

2. P, Q and R are on a trip by a car. P drives during the first hour at an average speed of 40 km/h. Q drives during the next 2 hours at an average speed of 50 km/h. R drives for the next 3 hours at an average speed of 60km/h. If they reached their destination after exactly 6 hours, then find their mean speed approximately
a.50.23 km/h
b.61.35 km/h

c.45.25 km/h
d.53.33 km/h

Ans. d
Explanation:
Given:
P drives during the first hour at an average speed of 40 km/h.
Q drives during the next 2 hours at an average speed of 50 km/h.
R drives for the next 3 hours at an average speed of 60km/h.
They reached their destination after exactly 6 hour
Formula used: Speed = distance/time
Calculation: Total distance = Distance that P covered in 1 hr. + Distance that Q covered in 2 hrs. + Distance that R covered in 3 hrs.
= 40 × 1 + 50 × 2 + 60 × 3
= 40 + 100 + 180
= 320 km
Mean speed = Total distance/total time taken
= 320/6
= 53.33 km/h

3. Select the option that is related to the third number in the same way as the first number is related to the second number.
14 : 210 :: 16 : ?
a. 240
b. 256
c. 212
d. 271

Ans. a
Explanation:
'The logic followed here is:
1st number × 15 = 2nd number.
14 : 210 → 14 × 15 = 210;
Similarly, 16 : ? → 16 × 15 = 240.
Hence, 240 is the correct answer.

4.Which two signs (mathematical operators) should be interchanged to make the given equation correct?
56 – 8 + 42 ÷ 6 × 5 = 19
a.– and ×
b. + and –
c. ÷ and –
d. + and ÷

Ans. c
Explanation:
According to BODMAS rule:
Given: 56 – 8 + 42 ÷ 6 × 5 = 19
iii) ÷ and – ⇒ 56 ÷ 8 + 42 – 6 × 5 = 19
⇒ 7 + 42 –6 × 5= 19
⇒ 7 + 42- 30
=49 - 30 = 19
Hence, '÷ and –' is the correct answer.

5. _____ are a kind of waste disposal system of the cell. They help to keep the cell clean by digesting any foreign materials as well as worn-out cell organelles.
a. Mitochondria
b.Plastids
c.Lysosomes
d. Golgi

Ans. c
Explanation:
The correct answer is Lysosomes.
Lysosomes are a kind of waste disposal system of the cell. They help to keep the cell clean by digesting any foreign materials as well as worn-out cell organelles.

6. The states of Maharashtra and Gujarat were created in_____.
a.1962
b.1959
c.1961
d.1960
Ans. d

Explanation:
The correct answer is 1960.
The states of Maharashtra and Gujarat were created in 1960.

7.Consider the given statement and decide which of the given assumptions is/are implicit in the statement.
Many farmers are taking up organic farming.
I.Organic farming is easy to practice.
II.Organic farming is more beneficial to farmers.
a. Either assumption I or II is implicit.
b. Neither assumption I nor II is implicit.
c.Only assumption I is implicit.
d.Only assumption II is implicit.

Ans. d
Explanation:
The statement tells that many farmers are selecting organic farming practices. Thus, it is safe to assume that organic farming must bemore beneficial to the farmers compared to other types of farming since a lot of them are taking it up.So, assumption II is implicit. Because a lot of farmers are taking up organic farming, it can be said that it is beneficial, but thetype of benefit cannot be assumed. Whether or not it is easy; or does organic farming gives high produce or does the crops thus produced fetch higher market price - none of this is suggested or implicit in the statement. So, assumption I is not implicit. Hence the correct answer is option 4 .

8. In 1915, Mahatma Gandhi returned to India permanently from _.
a. Britain
b.South Africa
c. Kenya
d.USA

Ans. : b
Explanation:
The correct answer is South Africa.
In 1915 Gandhiji returned to India at the request of Gopal Krishna Gokhale , conveyed to him by C. F. Andrews.

9. Calculate the compound interest on Rs.15,000 in one year at 4% per annum, if the interest is compounded half yearly.

a. Rs. 5606

b. Rs. 600

c.Rs. 606

d.Rs. 6060

Ans. c

Explanation:

Given:

Principal = Rs. 15,000 , time =1 year, rate% = 4% per annum Interest is compounded half yearly

Concept used:

When interest is compounded half yearly, half yearly rate = rate%/2 and half yearly time = 2 × time

For CI, Amount = Principal(1 + rate/100) time , where CI = Amount - Principal

Calculation:

Now, half yearly rate = rate%/2 = 4/2 = 2%

and half yearly time = 2 × time = 2 × 1 = 2 years

Putting values, we get, Amount

= 15000 × (1 + 2/100) 2

= 15000 × (51/50) 2

= 15000 × 2601/2500

= 6 × 2601

= 15606

∴ CI = Amount - Principal

= Rs. 15606 - Rs. 15000

= Rs. 606

10. Find three numbers such that their ratio is 3 : 4 : 5 and their HCF is 7.

a.24; 32; 40

b. 6; 8; 10

c.21; 28; 35

d.12; 16; 20

Ans. c

Explanation:

Given:
Three numbers are in the ratio is 3 : 4 : 5 and their HCF is 7
Concept used: Number = HCF × other factor
Calculation:
Let three numbers be in 3x, 4x and 5x
Putting values in Number = HCF × other factor, we get, the numbers to be 21x, 28x and 35x and option 3) satisfies it with x = 1.

11. In 1752, which American scientist showed that lightning and the spark from your clothes are essentially the same phenomena?
a.Galileo Galilei
b.Benjamin Franklin
c.Thomas Edison
d.Archimedes

Ans. b
Explanation:
The correct answer is Benjamin Franklin. In 1752, Franklin conducted his famous experiment, the kite experiment. He flew a kite during a thunderstorm just for showing that the lightning was electricity. A metal key is tied to the kite string in this process in order to conduct the electricity.

12.Four number clusters have been given, out of which three are alike in some manner and one is different. Select the number clusters that is differentfrom the rest.
a. 2439
b.2336
c.1236
d.1113

Ans. : b
Explanation:
Let us examine the given options:
1. 2439 → 2439 ÷ 3 = 813
2. 2336 → 2336 ÷ 3 = 777.66
3. 1236 → 1236 ÷ 3 = 412
4. 1113 → 1113 ÷ 3 = 371
Here, all the options are divisible by 3 except 2336.
Therefore, 2336 is different from the rest. Hence, 2336 is the correct answer.

13.3 boys and 5 girls can finish a project in 6 days, while 2 boys and 7 girls can finish it in 8 days. In how many days will 8 girls complete it?

a.33
b.30
c.35
d.36

Ans. a
Explanation:
Given: 3 boys and 5 girls can finish a project in 6 days, while 2 boys and 7 girls can finish it in 8 days.
Concept used: M1 × D1 = M2 × D2
Calculation:
3 boys and 5 girls can finish a project in 6 days, while 2 boys and 7 girls can finish it in 8 days
⇒ (3B + 5G) × 6 = (2B + 7G) × 8
⇒ 18B + 30G = 16B + 56G
⇒ 2 B = 2 6 G
⇒ B/G = 13/1
Now let 8 girls complete the project in D days, then (3B + 5G) × 6 = 8G × D
⇒ (3 × 13 + 5 × 1) × 6 = 8 × 1 × D
⇒ 44 × 6 = 8 × D
⇒ D = 33 days

14.ISRO launched the Chandrayaan-1 spacecraft in_____. It was uniquely equipped to confirm the presence of solid ice on the moon.

a.2007
b. 2008
c. 2009
d. 2006

Ans. b
Explanation:
The correct answer is 2008.
ISRO launched the Chandrayaan-1 spacecraft in 2008.

15.A book has 250 pages. Person A reads 6 pages in an hour. Person B reads 8 pages in an hour. There are two chapters of 72 pages that are difficult for person B to read in the book, so person B takes double the time to read those pages. Who among them will finish the book first and how much sooner than the other?

a. Person A, 1 h 35 min
b. Person B, 1 h 25 min
c.Person B, 1 h 35 min
d.Person A, 1 h 25 min

Ans.b
Explanation:
Given:
A book has 250 pages.
Person A reads 6 pages in an hour.
Person B reads 8 pages in an hour.
There are two chapters of 72 pages that are difficult for person B to read in the book, so person B takes double the time to read those pages.
Calculation:
Time taken by A to finish the book = 250/6 = 41 hrs 40 mins
Time taken by B to finish the book = (250 - 72) pages at 8 pages per hour and 72 pages at 4 pages per hour (∵ double the time ⇒ half the speed)
= 178/8 + 72/4
= 89/4 + 72/4
= 161/4
= 40 hrs 15 mins
∴ Comparing time taken by A and B, we conclude that B finishes the book first and (41 hrs 40 mins - 40 hrs 15 mins) = 1 hr 25 min sooner.

16. Which of the following is NOT a part of a personal computer?

a.USB
b.CPU
c.ROM
d.RAM

Ans. a
Explanation:
The correct answer is USB.

USB(universal serial bus)- is a technology used to connect computers with peripheral devices .

17.To commemorate his victory over Gujarat, Akbar built 'Gate of Magnificence' the highest gateway of India at Fatehpur Sikri. What is another name for this gateway?
a.Kashmiri Gate
b. Buland Darwaza
c.India Gate
d. Gateway of India

Ans. b
Explanation:
The correct answer is Buland Darwaza.
To commemorate his victory over Gujarat, Akbar built 'Gate of Magnificence' the highest gateway of India at Fatehpur Sikri . AKA the Buland Darwaza.

18.UN was founded as a successor to the League of Nations on 24th October_____.
a.1946
b.1945
c.1943
d.1944

Ans. b
Explanation:
The correct answer is 1945.
UN was founded as a successor to the League of Nations on 24th October1945.

19. The total population of a village is 4,000. The number of males and females increases by 10% and 20% respectively and consequently the population of the village becomes 4500. What was the number of males in the village prior to the new members coming in?
a.3000
b.4000
c.2000
d.2500

Ans. a
Explanation:
Given: The total population of a village is 4,000.

The number of males and females increases by 10% and 20% respectively and consequently the population of the village becomes 4500
Concept used:
Weighted Average = (n1A1 + n2A2)/(n1 + n2)
Calculation:
Percentage increase in population = (4500 - 4000)/4000 × 100 = 12.5%
Putting values, we get, 12.5 = (n1 × 10 + n2 × 20)/(n1 + n2)
⇒ 12.5 × n1 + 12.5 × n2 = 10 × n1 + 20 × n2
⇒ 2.5 × n1 = 7.5 × n2
⇒ n1/n2 = 3/1 = male/female and total population of a village is 4,000
∴ Number of males in the village prior to the new members coming in = 3/4 × 4000 = 3000

20. The Japanese leg of the Tokyo 2021 Olympic torch relay have been scheduled to start from n March 2021.
a. Kyoto
b. Fukushima
c. Sapporo
d.Hiroshima

Ans. b
Explanation:
The correct answer is Fukushima.
The Japanese leg began in Fukushima and ended in Tokyo's New National Stadium, the main venue of the 2020 Olympics.

21. _____ is a well known constellation that can be seen in the evening. This constellation is also known as 'the Hunter'.
a. Orion
b.Ursa Major
c.Cassiopeia
d. Draco

Ans. a
Explanation: The correct answer is Orion.
Orion is a well-known constellation that can be seen in the evening.

22. Unnat Bharat Abhiyan is related with:
a.Developing India by identifying and creating 'Smart Cities'
b.Developing rural India with the help of higher education institutions
c. Improving the living conditions by improving cleanliness and public sanitation
d. Making India a super power through investments in science and technology

Ans. b
Explanation:
The correct answer is Developing rural India with the help of higher education institutions
Unnat Bharat Abhiyan is a flagship program of the Ministry of Education. It is aimed at developing rural India with the help of higher education institutions.

23.The Bokaro Steel Plant was set up in India in 1964 with _____ collaboration.
a.British
b.Swiss
c.German
d.Soviet

Ans. d
Explanation:
The correct answer is Soviet.
The Bokaro Steel Plant was set up in India in 1964 withSovietcollaboration.

24. If 5 tanα = 4, then find the value of $\frac{5sin\alpha-3\,cos\alpha}{5\,sin\alpha+2\,cos\alpha}$
a. 1/2
b. 3
c. 1/6
d. 6

Ans. c
Explanation:
Given:
5 tanα = 4
Concept used:
tanθ = P/B, sin θ = P/H and cosθ = B/H H 2 = P 2 + B 2
Calculation: 5 tanα = 4
⇒ tanα = 4/5 = P/B

⇒ H =√[P 2 + B 2] = √[4 2 + 5 2] = √41

Putting values, we get, $\frac{5sin\alpha-3\ cos\alpha}{5\ sin\alpha+2\ cos\alpha}=\frac{5\times4/\sqrt{41}-3\times5/\sqrt{41}}{5\times4/\sqrt{41}-2\times5/\sqrt{41}}$

= (20 - 15)/(20 + 10)

= 5/30

=1/6

25.Select the option that is related to the third term in the same way as the second term is related to the first term.

WAITER : 242923 :: JUMPER : ?

a. 302923

b.312623

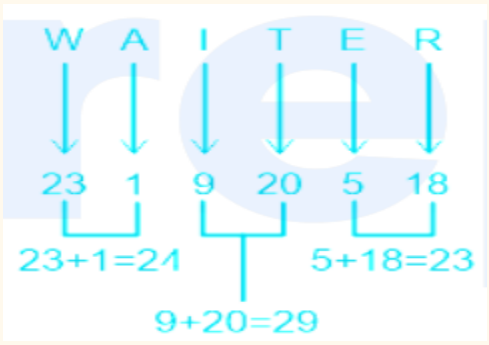
c. 312923

d. 252923

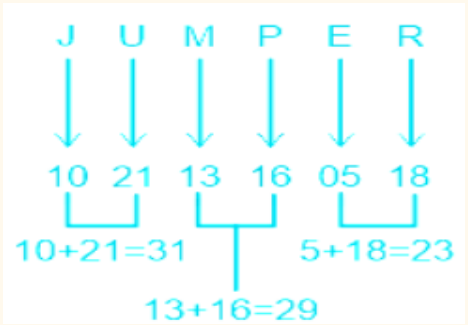
Ans. : c

Explanation:

The logic followed here is:



Similarly, The code for JUMPER will be as follows:



Hence, the code for JUMPER will be '312923'.

26.If a man sold 20 books for Rs. 1800, gaining there by the cost price of 5 books, then find the cost price of a book.

a. Rs. 68
b.Rs. 50
c. Rs. 85
d. Rs. 72

Ans. d
Explanation:
Given:
A man sold 20 books for Rs. 1800, gaining there by the cost price of 5 books
Concept used:
Profit = SP - CP
Calculation:
SP of 20 books = Rs.1800
⇒ SP of 1 book = 1800/20 = Rs. 90 ATQ,
Profit on 20 books = CP of 5 books
⇒ SP × 20 books - CP × 20 books = CP × 5 books
⇒ SP × 20 books = CP × 25 books
⇒ CP/SP = 4/5
⇒ CP of 1 book = 4/5 × SP of 1 book
⇒ CP of 1 book = 4/5 × Rs. 90 = Rs. 72

27. Which of the following numbers will completely divide (4^{61} +4^{62} +4^{63} + 4^{64}) ?
a. 3
b. 13
c. 10
d.11

Ans. c
Explanation:
Concept used:
We work on the multiplicity rule of powers of 4 for reduction, that is, 4 (4x + R) = 4 R
Calculation: (4 61 + 4 62 + 4 63 + 4 64) = (4 1 + 4 2 + 4 3 + 4 0)
[Dont take 4 0 as 1, 0 represents the even number in the power, and We know that e ven power of 4 is equal to 6]
= 4 + 16 + 64 + 6
= 90 which is divisible by 10
∴ Option 3) is right.

28.The difference of two numbers is 20% of the larger number. If the smaller number
a.60
b.50
c.45
d. 40

Ans. b
Explanation:
Given:
The difference of two numbers is 20% of the larger number and smaller number is 40
Calculation:
ATQ, Larger number - Smaller number = 20% × Larger number
⇒ Larger number - 40 = 1/5 × Larger number
⇒ (1 - 1/5) × Larger number = 40
⇒ 4/5 × Larger number = 40
⇒ Larger number = 40 × 5/4 = 50

29.At what rate percent per annum will the simple interest in 15 years on asum of money be 3/4
of the sum invested?
a.6%
b. 4%
c. 3%
d.5%

Ans. d
Explanation:
Concept used:
SI = Principal × Rate% × Time × 1/100
Calculation:
For SI to be 3/4 of sum invested, Let sum invested = Principal be 4x then SI = 3x [# choose accordingly as per given fraction]
Putting values, we get, 3x = 4x × Rate% × 15 × 1/100
⇒ Rate% = 100 × 3 × 1/4 × 1/15
⇒ Rate% = 5%

30.Find the mean of the following data:

x :	19	21	23	25	27	29	31
f :	13	15	16	18	16	15	13

a. 28
b. 25
c. 30
d. 20

Ans. b
Explanation:
Concept used:
We know that mean can be calculated as Mean $\overline{x}=\frac{fixi}{fi}$
Calculation:
Putting values, we get, Mean, $\overline{x}=\frac{fixi}{fi}=\frac{(19\times13)+(21\times15)+(23\times16)+(25\times18)+(27\times16)+(29\times15)+(31\times13)}{13+15+16+18+16+15+13}=25$
Mean = 25

31.A number when divided by 280 leaves 73 as the remainder. When the same number is divided by 35, the remainder will be:
a. 7
b. 3
c. 4
d. 2

Ans. b
Explanation:
Given: A number when divided by 280 leaves 73 as the remainder.
Concept used:
Dividend = divisor × quotient + remainder
Calculation:
Given, the number when divided by 280 leaves 73 as the remainder ⇒ The number is of the form 280x + 73
∴ When 280x + 73 is divided by 35, that is (280x + 73)/35, we get remainder = 3

32. Which of the following is an input device?
a.Optical character reader
b. Inkjet printer
c. Headphones

d. Projector

Ans. a
Explanation:
The correct answer isOptical character reader.
Optical character recognition(OCR) is the electronic or mechanical conversion of images of typed, handwritten, or printed text into machine-encoded text, whether from a scanned document, a photo of a document, a scene photo, or from subtitle text superimposed on an image .

33.In which year was Delhi officially announced as the Capital of British India by then Emperor George V?
a.1913
b.1910
c. 1911
d. 1907

Ans. c
Explanation:
The correct answer is 1911.
Delhi was officially announced as the capital of the British Raj by the thenEmperor George V , on December 12, 1911 .

34.The popular sword dance in the Kumaun region of Uttarakhand is called_____.
a.Kathak
b. Lavani
c.Chholiya
d.Ghoomar

Ans. c
Explanation:
The correct answer is Chholiya.
The popular sword dance in the Kumaun region of Uttarakhand is called Chholiya.

35.Find the value of 7 × 0.7 × 0.07 × 0.007 × 70
a. 0.016807
b.0.0016807
c.0.16807

d.1.6807

Ans. c
Explanation:
Calculation: 7 × 0.7 × 0.07 × 0.007 × 70
= 7 × 7/10 × 7/100 × 7/1000 × 70
= 7 × 7 × 7 × 1/100 × 7× 1/1000 × 7
= 16807/10000 = 0.16807

36._____ are known as electronegative elements because they form negatively charged ions by the gain of electrons.
a.Non-metals
b. Mixtures
c. Alloys
d. Compounds

Ans. a
Explanation:
The correct answer is Non-metals.
Non-metalsare known as electronegative elements because they form negatively charged ions by the gain of electrons .

37.Tony purchases two cars A and B at a total cost of Rs. 6,50,000. He sells car A with 20% profit and car B at a loss of 25% and gets the same selling price for both the cars. What are the purchasing prices of car A and car B respectively?
a. Rs. 2,00,000; Rs. 4,50,000
b.Rs. 4,50,000; Rs. 2,00,000
c. Rs. 3,00,000; Rs. 3,50,000
d. Rs. 2,50,000; Rs. 4,00,000

Ans. d
Explanation:
Given:
Tony purchases two cars A and B at a total cost of Rs. 6,50,000.
He sells car A with 20% profit and car B at a loss of 25% and gets the same selling price for both the cars
Concept used:

SP = (100 + profit%)/100 × CP = (100 - loss%)/100 × CP
Calculation:
∴ For Car A, SP 1 : CP 1= (100 + 20) : 100 = 120 : 100 = 6 : 5
and for Car B, SP 2 : CP 2= (100 - 25) : 100 = 75 : 100 = 3 : 4
Now, given SP 1 = SP 2 ∴ On making equal, we get, SP 1 : CP 1 = 6 : 5 and SP 2 : CP 2 = 6 : 8
⇒ CP 1 : CP 2 = 5 : 8 and total cost of car A and car B is Rs. 6,50,000
∴ Cost of car A = 5/13 × Rs. 6,50,000 = Rs. 2,50,000
and Cost of car B = 8 /13 × Rs. 6,50,000 = Rs. 4 ,00,000

38.Calculate the smallest number which should be subtracted from 0.000327 to make it a perfect square.
a.0.04
b.0.03
c. 0.000004
d.0.000003

Ans. d
Explanation:
Concept used:
In such questions, we directly use options to get answers in order to save time
Calculation: As we can see that values in option 1) and option 2) are greater that 0.000327 therefore (0.000327 - these values) will give negative values ∴ option eliminated
Now 0.000327 - 0.000004 = 0.000323 which being an odd number cannot be a square
and 0.000327 - 0.000003 = 0.000324 which is a square of 0.0018
∴ Option 4) is right.

39.The deputy prime minister of India (from 1977 to 1979) was:
a. Jagjivan Ram
b.JB Kripalani
c.JC Shah
d.Morarji Desai

Ans. a
Explanation: The correct answer is Jagjivan Ram. The deputy prime minister of India (from 1977 to 1979) was Jagjivan Ram. Jagjivan Ram was born in a small village, Chandwa in Shahabad District, now Bhojpur, in Bihar Jagjivan Ram, popularly known as Babuji was a national leader, a freedom

fighter, a crusader of social justice, a champion of depressed classes, an outstanding Parliamentarian, a true democrat, a distinguished Union Minister, an able administrator, and an exceptionally gifted orator.

40.The_____region is responsible for 80% of Germany's total steel production.

a. Munich
b.Stuttgart
c. Hanover
d. Ruhr

Ans. d
Explanation:
The correct answer is Ruhr.
Germany is one of the world's leading manufacturers of steel ,with production concentrated in the Ruhr region; however, since the peak output of the early 1970s, a number of plants have closed

41.Ram has a movie in his pen drive that takes 1.75 GB of space. He wants to share it with his friends. The speed of transferring the file is 2 MB/s. How much time will it take to transfer the file?
(1 GB = 1000 MB)

a.14 min 33 s
b.14 min 35 s
c.14 min 34 s
d.14 min 36 s

Ans. b
Explanation:
Given:
Ram has a movie in his pen drive that takes 1.75 GB of space. (1 GB = 1000 MB) The speed of transferring the file is 2 MB/s.
Calculation:
Time taken to transfer the file = [1.75 GB]/[2 MB/s] = 1.75 × 1000 MB × 1/2MB/s
= 1.75 × 500 seconds
= 1.75 × 500 × 1/60 minutes
= 875/60 minutes
= 14 minutes 35 seconds

42. If a cosθ – b sin θ = c, then find the value of a sin θ + b cos θ .

a. $\sqrt{a^2 + b^2 + c^2}$

b. $\pm\sqrt{a^2 + b^2 - c^2}$

c. $\sqrt{b^2 + c^2 - a^2}$

b. $\pm\sqrt{a^2 + c^2 - b^2}$

Ans. b

Explanation:

Given: a cosθ – b sin θ = c

Concept used: (a + b) 2= a 2+ b 2+ 2ab

sin 2θ + cos 2 θ = 1

Calculation:

a cosθ – b sin θ = c

On squaring both sides, we get, a 2cos 2θ + b 2sin 2 θ - 2ab × sinθ × cosθ = c 2

⇒ a 2 (1 - sin 2 θ) + b 2 (1 - cos 2 θ) - 2ab × sinθ × cosθ = c 2

⇒ a 2 - a 2 sin 2 θ + b 2 - b 2 cos 2 θ - 2ab × sinθ × cosθ = c 2

⇒ a 2 + b 2 - c 2 = a 2 sin 2 θ + b 2 cos 2 θ + 2ab × sinθ × cosθ

⇒ a 2 + b 2 - c 2 = (a sinθ + bcosθ) 2 ⇒ a sinθ + b cosθ =$\pm\sqrt{a^2 + b^2 - c^2}$

43. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different from the rest.

a. 28 : 784

b.19 : 361

c.23 : 539

d.17 : 289

Ans. c

Explanation:

The logic followed here is:

Square of the first number = second number.

i) 28 : 784 ⇒ 28 2 = 784;

ii) 19 : 361 ⇒ 19 2 = 361;

iii) 23 : 539 ⇒ 23 2 = 529 ≠ 539 ;

iv) 17 : 289 ⇒ 17 2 = 289;

Hence, '23 : 539' is different from the rest.

44. The longest running train in the Indian railway network in terms of distance and time is ____.

a. Vivek Express
b. Yoga Express
c. Golden Chariot
d. Samjhauta Express

Ans. a
Explanation: The correct answer is Vivek Express.
The Dibrugarh- Kanyakumari Vivek Express covers the longest train route of 4286km in 82 hrs and 30 mins

45. The Lucknow Pact of 1916 provided a joint political platform for the moderates, radicals of the Indian national Congress and the____.

a.Muslim League
b.British
c.Communist
d.Swaraj Party

Ans. a
Explanation:
The correct answer is Muslim League.
The Lucknow Pact is an agreement between the INC and the All India Muslim League. The Lucknow Pact was an agreement reached between the Indian National Congress and the Muslim League (AIMLM) at a joint session of both the parties held in Lucknow in December 1916. Through the pact, the two parties agreed to allow representation to religious minorities in the provincial legislatures.

46.Which of the following is an example of a spreadsheet?

a. Microsoft Power Point
b.Microsoft Excel
c. Microsoft Outlook
d. Microsoft Word

Ans. b

Explanation: The correct answer is Microsoft Excel. Excel is Microsoft's spreadsheet program that can be used to organize, format, and calculate data.

47._____ was India's first indigenously made film in colour.

a. Raja Harishchandra

b.Chhota Chetan

c. Kisan Kanya

d. Alam Ara

Ans. c

Explanation: The correct answer is Kisan Kanya.

Kisan Kanya was a 1937 Hindi Cinecolor feature film which was directed by Moti Gidwani and produced by Ardeshir Irani of Imperial Pictures.

48. A glass cylinder with diameter 20 cm has water to a height of 9 cm. A metal cube of 8 cm edge is immersed in it completely. Calculate the height (correct to I decimal place) by which the water will rise in the cylinder (by taking π = 3.142).

a.1.4 cm

b. 2 cm

c.1.6 cm

d.2.6 cm

Ans. c

Explanation:

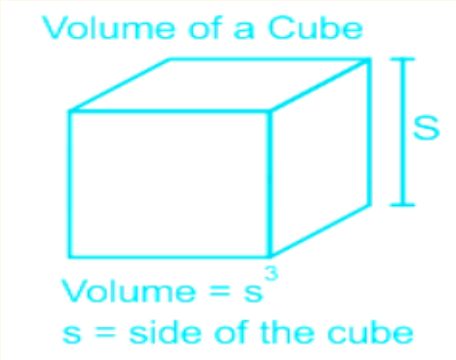
Given:

A glass cylinder with diameter 20 cm has water to a height of 9 cm. A metal cube of 8 cm edge is immersed in it completely.

Formula used:

Volume of cylinder = Πr 2h

Volume of cube = a 3



Calculation:
Diameter of cylinder = 20 cm
⇒ Radius of cylinder = 10 cm
Now, Volume of water displaced (because of which water will rise in cylinder) = Volume of cube
∴ πr 2h = a 3
⇒ 3.142 × 10 × 10 × h = 8 3
⇒ 3142 × 1/10 × h = 512
⇒ h = 5120/3142
⇒ h = 1.62 cm ~ 1.6 cm

49.District XYZ has 50,000 voters; out of them, 20% are urban voters and 80% rural voters. For an election, 25% of the rural voters were shifted to the urban area. Out of the voters in both rural and urban areas, 60% are honest, 70% are hardworking, and 35% are both honest and hardworking.
Two candidates, A and B, contested the election. Candidate B swept the urban vote, while Candidate A found favour with the rural voters. Voters who were both honest and hardworking voted for NOTA. How many votes were polled in favour of candidate A, candidate B and NOTA, respectively?
a. 17875, 14625 and 17500
b.19500, 13000 and 17500
c. 19000, 13500 and 17500
d.17000, 15500 and 17500

Ans. b
Explanation:
Given:
District XYZ has 50,000 voters; out of them, 20% are urban voters and 80% rural voters.
Calculation:
Total votes = 50000
⇒ Urban votes originally = 20/100 × 50000 = 10000 and Rural votes originally = 80/100 × 50000 = 40000
For election, 25% of the rural voters were shifted to the urban area
⇒ 25/100 × 40000 = 10000 rural votes shifted to urban area
⇒ Now, Urban votes = 10000 + 10000 = 20000 and Rural votes = 40000 - 10000 = 30000
Out of the voters in both rural and urban areas, 60% are honest, 70% are hardworking, and 35% are both honest and hardworking.

Voters who were both honest and hardworking voted for NOTA.
∴ Votes swept by NOTA = 35% of urban + 35% of rural = 35/100 × 20000 + 35/100 × 30000 = 17500
Candidate A found favour with the rural voters, rural voters left = 100% - 35% = 65% of rural voters
∴ Votes swept by A = 65/100 × 30000 = 19500
Candidate B found favour with the urban voters, Urban voters left = 100% - 35% = 65% of urban voters
∴ Votes swept by B = 65/100 × 20000 = 13000
⇒ Votes polled in favor of candidate A, candidate B and NOTA are 19500, 13000 and 17500 respectively

50.Determine the smallest number which when divided by 12,16, 20, 25 and 30 leaves the same remainder 3 in each case.
a.1233
b.1023
c. 1203
d. 1303

Ans. c
Explanation:
Concept used:
When smallest number asked, which when divided by a, b, c leaves the same remainder R in each case, that number is LCM[a, b, c] + R
Calculation:
∴ S mallest number which when divided by 12,16, 20.25 and 30 leaves the same remainder 3 in each case is LCM[12,16, 20.25, 30] + 3
= 1200 + 3
= 1203

51.Who coined the slogan “Jai Jawan Jai Kisan"?
a.JP Narayan
b. Shama Prasad
c. Lal Bahadur Shastri
d.J Daulatram

Ans. : c
Explanation:

The correct answer is Lal Bahadur Shastri.
Shastri Ji gave the famous slogan 'Jai Jawan, Jai Kisan' during the 1965 IndiaPakistan war to boost the morale of soldiers and the farmers in the backdrop of the crucial war and food paucity.

52.The Keoladeo Ghana National Park is situated in_____.
a. Rajasthan
b. Mizoram
c. Bihar
d. Maharashtra

Ans. a
Explanation:
The correct answer is Rajasthan. Keoladeo National Park, located in the State of Rajasthan , is an important wintering ground of Palaearctic migratory waterfowl and is renowned for its large congregation of non-migratory resident breeding birds.

53.There is a 6-storey building with 20 rooms on each floor. Some toxic material is concealed in the building. Three groups of officers start the search operation simultaneously. The first group searches the 1st and 2nd floors. The second group handles the 3rd and 4th floors. The third group takes over the 5th and 6th floors. If it takes 1 minute to reach any nearest floor and 1 minute to search each room, how much time will it take to complete the entire search operation?
a.61 min
b. 40 min
c. 126 min
d. 46 min
Ans. d
Explanation:
Given:
There is a 6-storey building with 20 rooms on each floor. Some toxic material is concealed in the building.
Three groups of officers start the search operation simultaneously.
Concept used:
Time taken to complete the entire search operation is time taken by third group to reach 5th floor from ground floor and search 5th floor + time taken by third group to reach 6th floor from 5th floor and search 6th floor [∵ time taken to search each floor is same but maximum time is taken to reach 5th floor and the 1 more minute to reach 6th floor]

Calculation: Time taken to complete the entire search operation = time taken by third group to reach 5th floor from ground floor and search 5th floor + time taken by third group to reach 6th floor from 5th floor and search 6th floor
= 5 min + 20 min + 1 min + 20 min [∵ it takes 1 minute to reach any nearest floor and 1 minute to search each room and there are 20 rooms on each floor]
= 46 min

54. If x =$\frac{\sqrt{5}+1}{\sqrt{5}-1}$and y =$\frac{\sqrt{5}-1}{\sqrt{5}+1}$, then find the value of x 2+ y 2– 4.

a. 3
b.4
c. 5
d.2

Ans. a
Explanation:
Given:
x = $\frac{\sqrt{5}+1}{\sqrt{5}-1}$and y =$\frac{\sqrt{5}-1}{\sqrt{5}+1}$
Concept used:
(x + y) 2 = x 2 + y 2 + 2xy
⇒ x 2 + y 2= (x + y) 2 - 2xy
Calculation:
xy =$\frac{\sqrt{5}+1}{\sqrt{5}-1}$ × $\frac{\sqrt{5}-1}{\sqrt{5}+1}$=1
x + y =$\frac{\sqrt{5}+1}{\sqrt{5}-1}$ + $\frac{\sqrt{5}-1}{\sqrt{5}+1}$=$\frac{\sqrt{5}+1}{\sqrt{5}-1}$ + $\frac{\sqrt{5}-1}{\sqrt{5}+1}$
= [5 + 1 + 2√5 + 5 + 1 - 2√5]/[5 - 1]
= 12/4
= 3
Putting values in x 2 + y 2 = (x + y) 2 - 2xy, we get x 2 + y 2 = 3 2 - 2 × 1 = 7
∴ x 2 + y 2 – 4 = 7 - 4 = 3

55._____ is India's first female para-athlete to win a medal at the Paralympics. She won Silver at Rio 2016 Paralympic Games in the shot put event.
a.Devi Jhajharia
b.Girisha Rani
c. Dipa Karmakar

d. Deepa Malik

Ans. d
Explanation:
The correct answer is Deepa Malik.
Deepa Malik is an Indian athlete. She is the first Indian woman to win a medal in Paralympic Games and won a Silver medal at the 2016 Summer Paralympics in shot put.

56. An E-Way Bill is related with which of the following?
a. Post-payment of goods and services
b. Supply of goods from one place to another
c. Making toll payments on national highways
d. Pre-payment of goods and services

Ans. a
Explanation:
The correct answer is Post-payment of goods and services.
e-WAY BILL : It is based on the idea " One Nation – One Tax – One Market – One e-Way Bill" E-way bill is related to Post-payment of goods and services.

57. Which British physicist was awarded the Nobel Prize in Physics in 1906 for his work on discovery of electrons ?
a.James Chadwick
b. Ernest Rutherford
c. J J Thomson
d. Niels Bohr

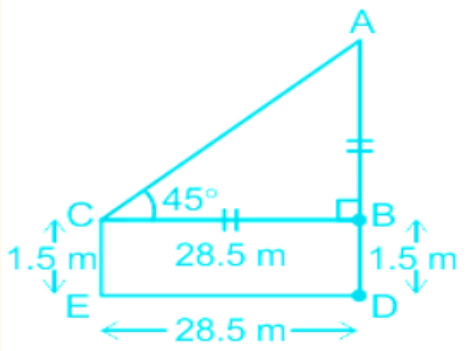
Ans. c
Explanation:
The correct answer is J J Thomson.
J J Thomson, a British physicist was awarded the Nobel Prize in Physics in 1906 for his work on the discovery of electrons.

58.An observer 1.5 m tall is standing 28.5 m away at the same level as the foot of a tower. If angle of elevation of the observer watching the top of the tower is 45 degrees then what is the height of the tower?

a. 20 m
b. 35 m
c. 30 m
d. 25 m

Ans. c
Explanation:
Given:
An observer 1.5 m tall is standing 28.5 m away at the same level as the foot of a tower.
Angle of elevation of the observer watching the top of the tower is 45 degrees
Concept used:
When Angle of elevation is 45° then H : P : B = √2 : 1 : 1

Calculation:



ATQ, CE = 1.5 m
and ED = 28.5 m = CB and in ΔABC, Angle of elevation is 45°⇒ AB = BC
then AD = AB + BD = 28.5 + 1.5 m
⇒ AD = 30 m

59.The persistence of sound in an auditorium is the result of repeated reflections of sound and is called ____.
a. Intensity
b.Vibration
c.Ranging
d.Reverberation

Ans. d
Explanation:

The correct answer is Reverberation.
Reverberation: The persistence of sound in an enclosed or partially enclosed space after the source of sound has stopped; by extension, in some contexts, the sound that so persists.

60.Four abbreviations have been given, out of which three are alike in some manner and one is different. Select the odd one.
a.CRPF
b. NTPC
c. SAIL
d. BHEL

Ans. a
Explanation:
The logic followed here is:
NTPC, SAIL and BHEL are Maharatna PSUs of Government of India whereas CRPF is not a Maharatna PSU.
1. CRPF : Central Reserve Police Force
2. NTPC: National Thermal Power Corporation
3. SAIL : Steel Authority of India Limited.
4. BHEL : Bharat Heavy Electricals Limited. Hence, CRPF is the odd one.

61. Find the greatest ratio in the following.
a.15 : 28
b. 5 : 18
c.13 : 21
d. 19 : 27

Ans. : d
Explanation:
Concept used:
To compare ratio, we make denominator same by making each denominator equal to LCM of denominators and then compare value of numerators to get desired results
Calculation:
Now, LCM [28, 18, 21, 27] = 7 × 2 × 2 × 3 × 3 × 3 = 756
On making denominators same , we get, [15 × 27]/[28 × 27], [5 × 42]/[18 × 42], [13 × 36]/[21 × 36], [19 × 28]/[27 × 28]

Now all denominators are same ∴ we compare value of numerators (405, 210, 468, 532) to get greatest ratio and greatest numerator is 19 × 28 = 532
∴ greatest ratio = 19 : 27

62. If a man travels from A to B at a speed of 50 km/h and returns by increasing his speed by 40%, then find his average speed (to 2 decimal places) for both the trips.
a.62.35 km/h
b.55.34 km/h
c.47.28 km/h
d.58.33 km/h

Ans. d
Explanation:
Given:
A man travels from A to B at a speed of 50 km/h and returns by increasing his speed by 40%
Concept used:
When distance travelled is same, Average speed = 2S 1S 2 /[S 1 + S 2]
Calculation:
S 1 = 50 km/h and S 2 = 140/100 × 50 = 70 km/h
∴ Average speed = 2 × 50 × 70 /[50 + 70]
= 7000/120
= 58.33 km/h

63.The acronym SONAR stands for:
a. Sound Navigation and Ranging
b. Sound Notification and Ranging
c. Sound Navigation and Rating
d. Sound Observation Navigation and Ranging

Ans. a
Explanation:
The correct answer is Sound Navigation and Ranging.

64.If three-fourth of a number is 50 more than its one-third, then find the number.
a. 140
b. 100

c. 120
d. 130

Ans. c
Explanation:
Given:
Three-fourth of a number is 50 more than its one-third
Calculation:
Let the number be 'x'
ATQ, 3/4 × x = 50 + 1/3 × x
⇒ [3/4 - 1/3] × x = 50
⇒ 5/12 × x = 50
⇒ x = 50 × 12/5
⇒ x = 120

65. If a positive number when decreased by 3, is equal to 28 times the reciprocal of the number, then find the number.
a. 5
b. 8
c. 7
d. 6

Ans.: c
Explanation:
Given:
A positive number when decreased by 3, is equal to 28 times the reciprocal of the number
Calculation:
Let the number be 'x'.
ATQ,
x - 3 = 28 × 1/x
⇒ x 2 - 3x - 28 = 0
⇒ x 2 - 7x + 4x - 28 = 0
⇒ x(x - 7) + 4(x - 7) = 0
⇒ (x + 4)(x - 7) = 0
⇒ x = -4, 7 Hence, option 3) is right.

66. "The United Nations was not created to take mankind to heaven, but to save humanity from hell." Who said this?

a. Dag Hammarskjold

b. U Thant

c. Kurt Waldheim

d. Kofi A Annan

Ans. a

Explanation:

The correct answer is Dag Hammarskjold.

Dag Hammarskjold said, "The United Nations was not created to take mankind to heaven, but to save humanity from hell."

67. Read the given statement and courses of action carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given courses of action logically follow(s) from the statement.

Road accidents are going to increase day by day.

I.Government should start awareness programmes that promote following traffic rules strictly.

II.Government should put a limit on registration of new vehicles.

a. Only II follows

b. Only I follows

c. Neither I nor II follows

d. Either I or II follows

Ans. b

Explanation:

The statement highlights a problem that road accidents are increasing.

Course of action I suggests that government should take steps to promote discipline and follow traffic rules through awareness programmes. This can reduce accidents since more people will be aware and will follow the rules. Thus, action I logically follows the statement.

Restricting registration of new vehicles may reduce the number of vehicles on road but the problem is a road accident, which is not addressed by this action. Even one vehicle can cause multiple accidents when people or the driver are not following the traffic rules. Thus, action II does not logically follow the statement.

Hence the correct answer is option 2

68. _____ is the largest earthen dam in India and second largest in Asia. The dam is named after the son of Mahabali, who was the king of Kerala.

a. Banasura Sagar Dam

b. Krishna Raja Sagar Dam

c. Mettur Dam

d. Nagarjuna Sagar Dam

Ans. a

Explanation:

The correct answer is Banasura Sagar Dam.

Banasura Sagar Dam - located in Wayanad District of Kerala in the Western Ghats . It is the largest earthen dam in India and the second largest in Asia and a starting point for hikes into the surrounding mountains

69. If x is the closest approximation to the product 0.3333 × 0.25 × 0.499 × 0.125× 24, then find the value of x.

a.3/8

b.2/5

c.1/8

d.3/4

Ans. : c

Explanation:

Calculation:

x = 0.3333 × 0.25 × 0.499 × 0.125 × 24

= 3333 × 1/10000 × 25 × 1/100 × 499 × 1/1000 × 125 × 1/1000 × 24

= 3333 × 1/10000 × 1/4 × 499 × 1/1000 × 1/8 × 24

= 3333 × 1/10000 × 1/4 × 499 × 1/1000 × 3

= 9999 × 1/10000 × 1/4 × 499 × 1/1000

~ 10000 × 1/10000 × 1/4 × 500 × 1/1000

~ 1 × 1/4 × ½

= 1/8

70.Goods that are brought not for meeting the immediate need of the consumer but for producing other goods are called _.

a. Consumer Goods

b. Capital Goods
c. Consumption Goods
d. Final Goods

Ans. b
Explanation:
The correct answer is Capital Goods.
Capital goods:- Goods that are bought not for meeting the immediate need of the consumer but for producing other goods

71.Find the missing frequency(p) for the following distribution whose mean is 8 :

x :	**3**	**5**	**7**	**9**	**11**	**13**
f :	**6**	**8**	**15**	**p**	**8**	**4**

a.18
b. 25
c. 12
d. 10

Ans. b
Explanation:
Concept used:
Mean = $\sum x_i f_i / \sum f_i$
Calculation:

x_i	f_i	$f_i x_i$
3	6	18
5	8	40
7	15	105
9	p	9p
11	8	88
13	4	52

$\sum x_i f_i = 303 + 9P$
$\sum f_i = 41 + p$

Mean = ∑x i f i / ∑f i
Putting values, we get
⇒ 8 = [303 + 9p]/(41 + p)
⇒ 328 + 8p = [303 + 9p]
⇒ 328 - 303 = 9p - 8p
⇒ p = 25
⇒ p = 25

72. According to the 2011 Census of India, which state has lowest population density?
a. Sikkim
b.Tripura
c. Arunachal Pradesh
d. Mizoram

Ans. c
Explanation:
The correct answer is Arunachal Pradesh.
The minimum population density works out in Arunachal Pradesh for both the 2001 and 2011 Census.

73.In which year was the first radio programme broadcast in India?
a.1936
b. 1930
c.1957
D.1923

Ans. d
Explanation:
The correct answer is 1923.
In June 1923 the Radio Club of Bombay made the first-ever broadcast in the country.

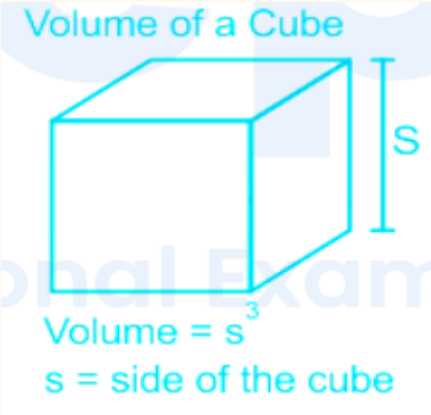
74. The International Court of Justice is located in__.
a.The Hague
b. Austria
c. Washington
d. New York

Ans. a
Explanation:
The correct answer is The Hague.
The International Court of Justice, which has its seat in The Hague, Netherlands is the principal judicial organ of the United Nations.

75. If three cubes whose edges measure 3 cm, 4 cm and 5 cm respectively, are melted to form a single cube, then find the edge of the new cube.

a. 6 cm
b.5 cm
c.4 cm
d.7 cm

Ans. a
Explanation:
Given:
Three cubes whose edges measure 3 cm, 4 cm and 5 cm respectively, are melted to form a single cube
Formula used:
Volume of cube = a 3



Calculation:
Sum of volume of three cubes whose edges measure 3 cm, 4 cm and 5 cm = Volume of new cube
⇒ 3 3 + 4 3 + 5 3 = a 3
⇒ 27 + 64 + 125 = a 3
⇒ a 3= 216
⇒ a = 6 cm

76.If the sum of the squares of the zeros of quadratic polynomial f(x) = x 2– 8x+ k is 40, then find the value of k.

a.10

b. 12

c. 11

d. 14

Ans. b

Explanation:

Given:

Sum of the squares of zeros of quadratic polynomial f(x) = x 2 – 8x + k is 40

Concept used:

Sum of the zeros of quadratic polynomial f(x) = p 2 + qx + r is -q/p

Product of the zeros of quadratic polynomial f(x) = p 2 + qx + r is r/p

(a + b) 2= a 2+ b 2+ 2ab

Calculation:

Let a and b be two zeroes of f(x) then,

Sum of the zeros of quadratic polynomial f(x) = a + b = - (-8)/1 = 8 and,

Product of the zeros of quadratic polynomial f(x) = ab = k/1 = k given,

Sum of the squares of zeros of quadratic polynomial f(x) = 40

⇒ a 2+ b 2 = 40

Now, (a + b) 2 - 2ab = a 2 + b 2

⇒ 8 2 - 2 × k = 40

⇒ 64 - 2 × k = 40

⇒ k = [64 - 40]/2

⇒ k = 12

77. In India, the credit of successfully executing the Green Revolution goes to_____.

a. M S Swaminathan

b.Subrahmanyan Chandrasekhar

c.Satyendra Nath Bose

d.Harishchandra

Ans. a

Explanation:

The correct answer is M S Swaminathan.

In India, the credit for successfully executing the Green Revolution goes to M S Swaminathan

78.If BALL is coded as OBEY COMA LORD GULF, then what code can be considered for KITE?

a. SKILL ROBIN TELL GOAT
b.SKIN ORBIT TOTAL ENTER
c.SKY BRAIN TABLE GOES
d.SKIP OPTIC TOOL GET

Ans.c

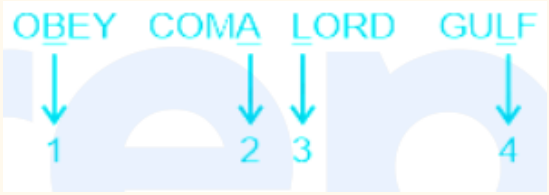
Explanation:

The logic followed here is:

Let us analyze the position of letters of BALL in the given codes.

B A L L

1 2 3 4

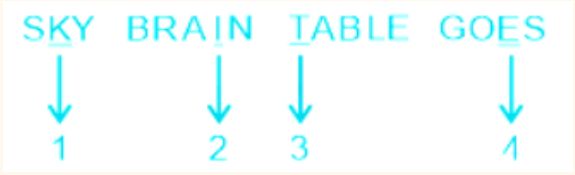


Let us examine the options for the code of KITE:

Now check option (3)

K I T E

1 2 3 4



Hence, the code for KITE in the given code language will be 'SKY BRAIN TABLE GOES'.

79.In the year the Suez Canal was opened and this furtherstrengthened Bombay's link with the world economy.

a.1888
b. 1886
c.1869
d.1896

Ans.c

Explanation:
The correct answer is 1869.
In the year1869, the Suez Canal was opened and this further strengthened Bombay's link with the world economy.

80.In a code language, TYPEWRITTERS is written as PETYRWTEITSR. How will BRAINSTORMER be written in that language?

a. AIBRSNRMTORE
b. AIBRRMNSTORE
c. AIBRNSTOERRM
d. AIBRSNOTERRM

Ans. a
Explanation:
The logic followed here is:

Similarly,

Hence, the code for ' BRAINSTORMER' will be AIBRSNRMTORE'.

81. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
A.All mobiles are watches.
B.Some watches are not books.
1.Some mobiles are watches.

2.All mobiles are books.

a. Either conclusion 1 or 2 follows.

b. Both the conclusions follow.

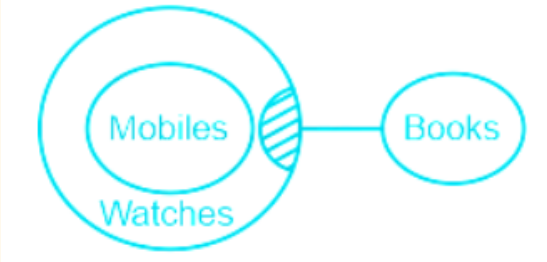
c. Only conclusion 1 follows.

d. Only conclusion 2 follows.

Ans. c

Explanation:

The least possible Venn Diagram is as follows:



Conclusions: 1. Some mobiles are watches. → True (as all mobiles are watches)

2. All mobiles are books. → False (as it is possible but not definite)

Hence, only conclusion I follows.

82. Mahatma Gandhi's first major public appearance in India after returning from South Africa was at the opening of the_____in February 1916.

a. University of Madras

b. University of Calcutta

c. Banaras Hindu University

d. University of Bombay

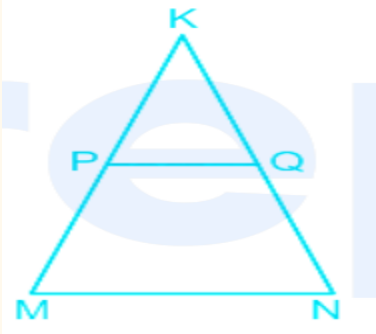
Ans.c

Explanation:

The correct answer is Banaras Hindu University.

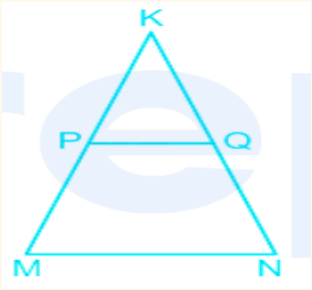
Mahatma Gandhi's first major public appearance in India after returning from South Africa was at the opening of the BHU(Banaras Hindu University) in February 1916.

83. In the given △ KMN, PQ is parallel to MN. If KP/PM = 4/13 and KN = 20.4 cm, find KQ



a.5.1cm
b.8.2 cm
c.4.8 cm
d.3.6 cm

Ans. c
Explanation:
Given:
KP/PM = 4/13 and KN = 20.4 cm



In a triangle ΔKMN, when PQ is parallel to MN then $\frac{KP}{PM}=\frac{KQ}{QN}$

Calculation:
Now, $\frac{KP}{PM}=\frac{4}{13}$ and $\frac{KP}{PM}=\frac{KQ}{QN}$
$\Rightarrow\frac{KQ}{QN}=\frac{4}{13}$
Let KQ = 4x and QN = 13x
Given KN = 20.4 cm and KN = KQ + QN
⇒ KQ + QN = 4x + 13x = 20.4 cm
⇒ 17x = 20.4
⇒ x = 1.2
∴ KQ = 4x = 4 × 1.2 = 4.8 cm

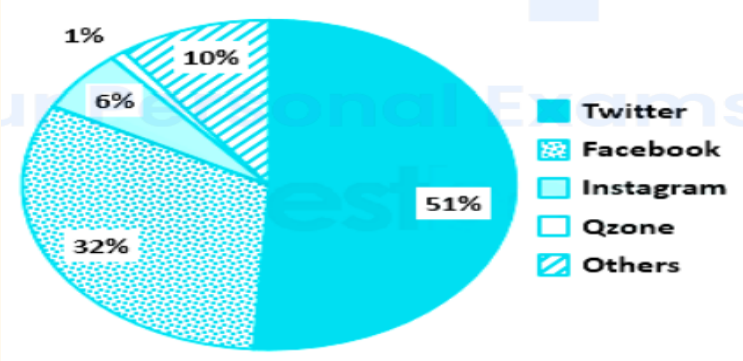
84.Which of the following countries doesn't share land boundaries with India?
a.Sri Lanka
b.Nepal
c.Pakistan
d.Bhutan

Ans. a
Explanation:
The correct answer is Sri Lanka.
India shares borders with 7 sovereign countrie s India shares land borders with China, Bhutan, Nepal, Pakistan, Bangladesh, Afghanistan, and Myanmar.

85.Astrophysicist____, who first theorized the existence of the solar wind in 1958, became the first living individual after which NASA named a Spacecraft.
a. Eugene Parker
b. Elon Musk
c. Carl Sagan
d. Johannes Kepler

Ans. a
Explanation:
The correct answer isEugene Parker.
AstrophysicistEugene Parker first theorized the existence of solar wind in 1958.

86. Study the given pie chart carefully and answer the question.

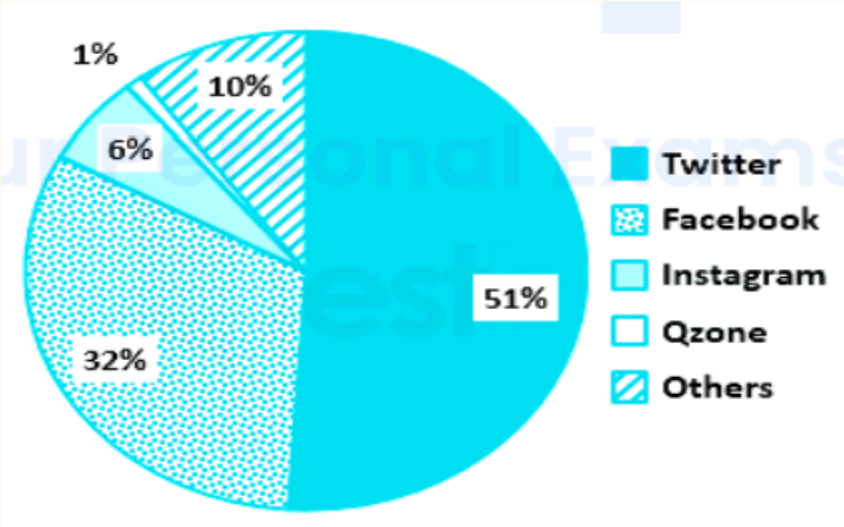


The given pie chart represents the data of Amit's followers on various social networking sites.If Amit has 40 crore followers in all the networking sites combined, then the number of his followers on Facebook will be:
a.12.08 crores

b.1.28 crores
c.128 crores
d.12.8 crores

Ans. d
Explanation:
Given:
Amit has 40 crore followers in all the networking sites combined
Calculation:
Number of Amit's followers on Facebook = 32/100 × 40 crores
= 32/5 × 2 crores
= 64/5 crores
= 12.8 crores

87.Study the given pie chart carefully and answer the question.



The given pie chart represents the data of Amit's followers on various social networking sites.
If 10% of Amit's Twitter followers unfollow him, then what will be the difference between the number of his Twitter followers and the number of his followers on other networking sites?
a.1.24 crores
b.1.25 crores
c.1.26 crores
d.1.23 crores
Ans. a
Explanation:

Given:
Amit has 40 crore followers in all the networking sites combined
Calculation:
Number of Amit's followers on Twitter if 10% of twitter followers unfollow him = 90 /100 × 51/100 × 40 crores = 18.36 crores
Difference between the number of his Twitter followers and the number of his followers on other networking sites = 49/100 × 40 crores - 18.36 crores
= 19.6 crores - 18.36 crores
= 1.24 crores

88.Study the data given in the following table and answer the following question.

Political Parties	**Number of Votes**
Party D	**54**
Party F	**39**
Party B	**37**
Party C	**29**
Others	**21**
NOTA	**17**
Total Votes	**197**

Which of the following 2 groups would NOT have been able to defeat the winning party?
a. Party C and Others
b. Party F and Party B
c. Party B and Others
d. Party F and Others
Ans. a
Explanation:
Calculation:
Clearly, winning party is Party D with 54 votes
Now to find groups that would NOT have been able to defeat the winning party, we check the sum of votes for party groups given in options.
Sum of votes for Party C and Others = 29 + 17 = 46 < 54
Sum of votes for Party F and Party B = 39 + 37 = 76 > 54
Sum of votes for Party B and Others = 37 + 17 = 54 = 54
Sum of votes for Party F and Others = 39 + 17 = 66 > 54

Clearly, the group that would NOT have been able to defeat the winning party is Party C and Others.

89.Study the data given in the following table and answer the following question.

Political Parties	Number of Votes
Party D	54
Party F	39
Party B	37
Party C	29
Others	21
NOTA	17
Total Votes	197

Which party would have won if 'NOTA' and Others' votes were divided equally between party B and C? Also, what would be the winning margin?

a. Winning party: Party F; Winning margin: 4 votes
b. Winning party: Party D; Winning margin: 2 votes
c. Winning party: Party B; Winning margin: 2 votes
d. Winning party: Party C; Winning margin: 7 votes

Ans. c
Explanation:
Given:
'NOTA' and Others' votes were divided equally between party B and C
Calculation:
Sum of votes of 'NOTA' and Others' = 17 + 21 = 38 , these 38 votes were divided equally between party B and C
∴ Current number of votes for B = 37 + 38/2 =37 + 19 = 56
and Current n umber of votes for C = 29 + 38/2 =29 + 19 = 48
Since, now party B has maximum number of votes = 56
⇒ Party B wins and with a margin of 56 - 54 = 2 votes [∵ second highest party is Party D with 54 votes]

90. If JRDRCEBD is coded as 14 16 20 06, then what will be the code for OZCTECHD?

a.19 18 09 04
b.19 25 29 11
c.19 25 08 10

d.19 18 06 04

Ans. a

Explanation:

The logic followed here is:

J R D R C E B D → J(10) R(18) D(04) R(18) C(03) E(05) B(02) D(05)

J(10) + D(04) →10 + 4 = 14

R(18) - B (02) → 18 - 2 = 16

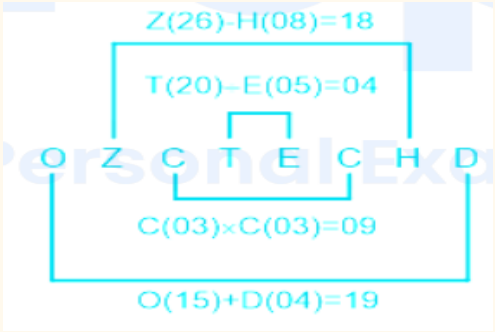
D(04) × E(05) → 4 × 5 = 20

R(18) ÷ C(03) → 18 ÷ 3 = 06

Here, the code for J R D R C E B D is 14 16 20 06

Similarly,

O Z C T E C H D → O(15) Z(26) C(03) T(20) E(05) C(04) H(08) D(04)



O(15) + D(04) → 15 + 4 = 19

Z(26) - H (08) → 26 - 8 = 18

C(03) × C(03) → 3 × 3 = 09

T(20) ÷ E(05) → 20 ÷ 5 = 04

Here, the code for O Z C T E C H D will be 19 18 09 04.

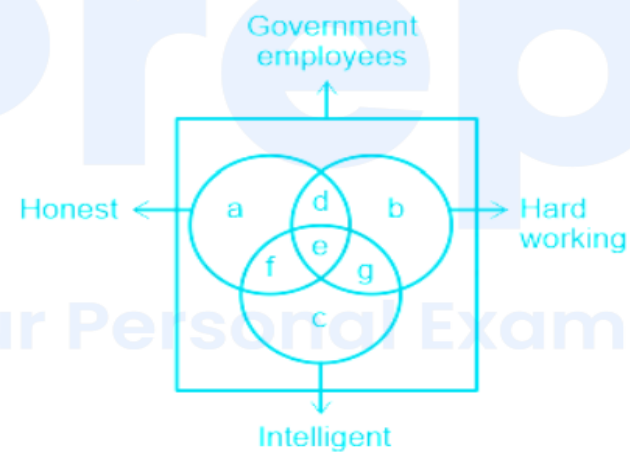
Hence, the correct answer is '19 18 09 04'.

91.Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the number-pair that is different from the rest.

a. 31 : 33
b.41 : 43
c.17 : 19
d.29 : 31

Ans. a
Explanation:
The logic followed here is:
41 : 43, 17 : 19, and 29 : 31 are pairs of twin primes.
Whereas, 31 : 33 is not a pair of twin primes.
because 33 is not a prime number. So, "31 : 33" is different from the rest.
Hence, the correct answer is "31 : 33" .

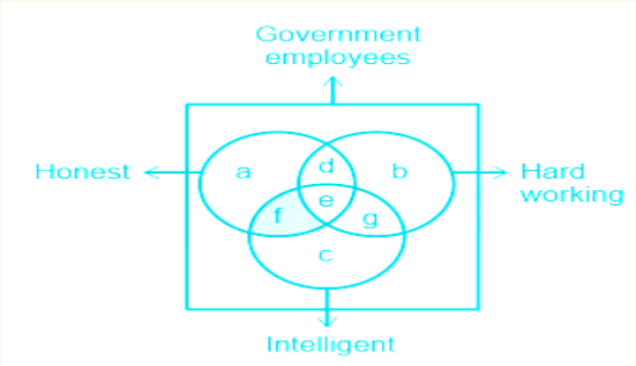
92.Study the given Venn diagram and answer the question that follows.



In the given Venn diagram, which part stands for government employees who are honest, intelligent but NOT hardworking?

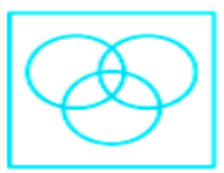
a. a
b. f
c. c
d. g

Ans. b
Explanation:
In the given Venn diagram, the Government Employees who are, Honest and Intelligent but not hardworking is represented by the shaded region given below:

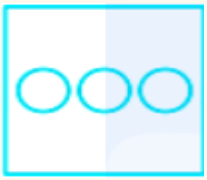


Here, the given area is represented by only f.
Hence, 'f' is the correct answer.

93.Select the Venn diagram that best represents the relationship between the given set of classes.
Polygons, Quadrilaterals and Triangles

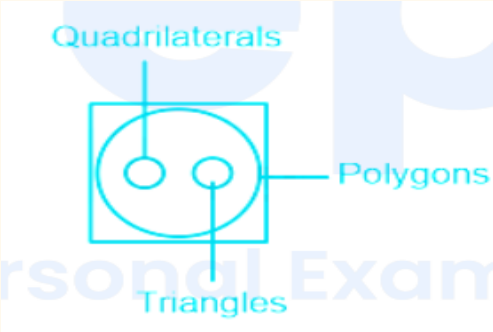
a. 

b. 

c. 

d. 

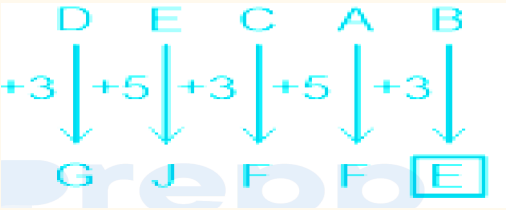
Ans. b
Explanation:
The relationship between Polygons, Quadrilaterals and Triangles is as follows:
i) All triangles are polygon
ii) All quadrilaterals are polygon
iii) No Quadrilateral is triangle.
Here, the possible Venn diagram will be as follows:

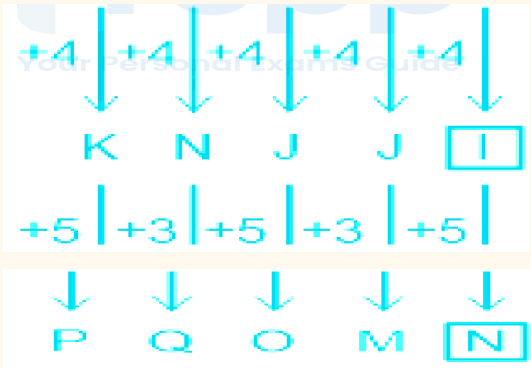


Hence, the correct answer is the figure given in option 2.

94.The given letter clusters follow a certain pattern. Select the option that gives the correct sequence of the letters that are missing from the letter clusters.
DECAB / GJFF_ / KNJJ_ / PQOM_
a. MFJ
b. ENI
c. EIN
d. FJM

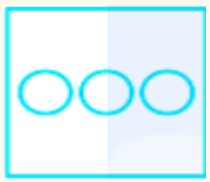
Ans. c
Explanation:
The pattern followed here is:



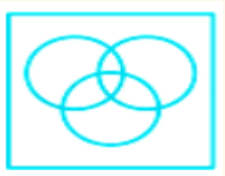


Here, 'EIN' gives the correct sequence of the letters that are missing from the letter clusters. Hence, EIN is the correct answer

95.Select the Venn diagram from the given options that best represents the relationship between the given set of classes.
Prose, Literature and Poetry

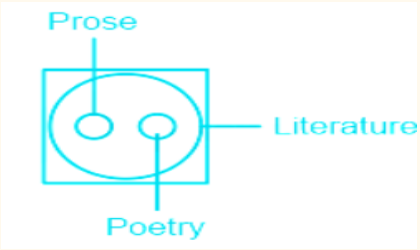
a. 

b. 

c. 

d. 

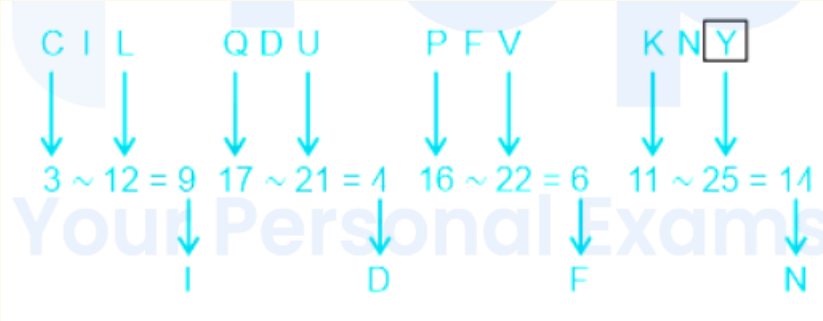
Ans. : d
Explanation:
The relationship between Prose, Literature and Poetry is as follows.
i) All Prose are Literature.
ii) All Poetry are Literature.
iii) No Poetry is Prose.
The Venn diagram from the given options that best represents the relationship between the given set of classes is as follows:



Hence, the figure given in option 4 is the correct answer.

96. Select the letter from the given options that can replace the question mark (?) and complete the 4 th letter cluster in the following series.
CIL, QDU, PFV, KN?
a. X
b.Y
c. W
d. Z

Ans. b
Explanation:
The logic followed here is :
(Third letter - first letter) = Second letter.
Given series- CIL, QDU, PFV, KN?



97. If 9 ÷ 5 + 3 × 7 = 22 and 4 ÷ 7 + 2 × 15 = 29, then find the value of 14 ÷ 5 + 35 × 9.

a.11

b.15

c. 7

d. 36

Ans. a

Explanation:

The logic followed here is

i) 9 ÷ 5 + 3 × 7 = 22

On decoding, 9 × 5 ÷ 3 + 7 = 15 + 7 = 22 (Here, 5 ÷ 3 will give us decimal values, so we will do 9 × 5 first and then divided by 3 to get 15.)

ii) 4 ÷ 7 + 2 × 15 = 29

On decoding, 4 × 7 ÷ 2 + 15 = 14 + 15 = 29

Similarly,14 ÷ 5 + 35 × 9.

On decoding 14 × 5 ÷ 35 + 9 = 2 + 9 = 11

Hence, '11' is the correct answer.

98. Rohan is Sumit's brother. Sumit wants to marry Sujata. Sujata is the daughter of Hari Chand. Rohan wants to divorce Sunita. Sujata and Sunita are sisters. How is Hari Chand related to Rohan?

a. Father

b. Father-in-law

c. Brother's father-in-law

d.Wife's paternal uncle

Ans. b

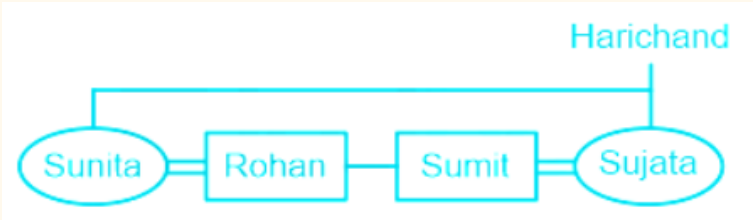
Explanation:

Preparing the family tree using the following symbols:

1)Rohan is Sumit's brother.

2) Sumit wants to marry Sujata.

3) Sujata is the daughter of Hari Chand.
4) Rohan wants to divorce Sunita.
4) Sujata and Sunita are sisters.
The family tree will be as follows:



Here, Harichand is either mother-in-law or father-in-law of Rohan. Because mother-in-law is not given in the options, Harichand is the father-inlaw of Rohan. Hence, 'father-in-law' is the correct answer.

99. If by a logic 2 = 49 and 8 = 225, then which of the following CANNOT be a value of 12?
a.323
b. 352
c. 400
d. 294

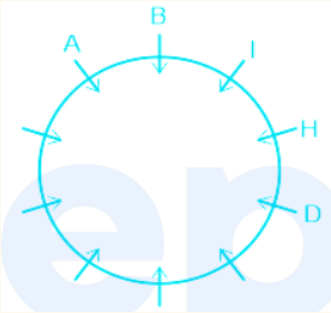
Ans. c
Explanation:
The logic followed here is:
(2 + 5) 2 = 7 2= 49;
(8 + 7) 2 = 15 2 = 225;
Applying both the logic here: (12 + 5) 2 = 17 2 =289;
(12+ 7) 2 = 19 2 = 361;
So, the value of 12 can be between 289 and 361.

Here, 400 is out of this range. Hence, 400 is the correct answer.

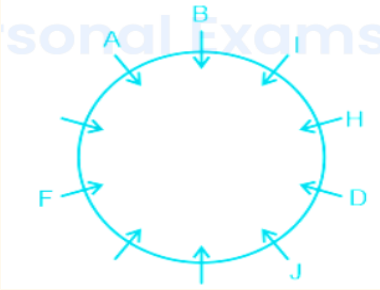
100.There are 10 persons sitting in a circle facing each other. A and J are sitting opposite to each other, whereas F and H are sitting opposite to each other. A and I are sitting to the immediate right and immediate left of B, respectively. H is sitting in between I and D. On the basis of the given information, which of the following is correct?

a. D is sitting to the immediate right of C.
b. G is sitting beside D.
c. I is sitting between H and B.
d. J is sitting between A and F.

Ans. c
Persons: 10
i) A and I are sitting to the immediate right and immediate left of B, respectively.
ii) H is sitting in between I and D.



iii) A and J are sitting opposite to each other, whereas F and H are sitting opposite to each other.



Now let us analyze the options:
i) D is sitting to the immediate right of C. → False(as D is sitting to the immediate right of J)
ii) G is sitting beside D. → False (as J and H are sitting beside D)

iii) I is sitting between H and B. → True
iv) J is sitting between A and F. → False (as J sits opposite A). Hence, 'I is sitting between H and B.' is the correct answer.