

Answers

1. Answer: d

Explanation:

Debanjan Nandy directed the Indian animated short film 'Chhaya', in which an elderly widower develops a tender emotional bond with the shadow of his late wife.

The film premiered on the independent animation circuit and drew attention for its minimalist visual style and poignant storytelling about memory, loss and companionship.

Hence, Chhaya is the correct title of the film described.

2. Answer: a

Explanation:

Take 108 as a convenient common capacity (LCM of 10.8, 21.6 and 18 expressed in tenths).

Rate of first pipe = $108/10.8 = 10$ units/hr; rate of second = $108/21.6 = 5$ units/hr; rate of outlet = $108/18 = 6$ units/hr (negative).

Combined inflow = $10 + 5 - 6 = 9$ units/hr.

Time to fill 108 units = $108/9 = 12$ hours.

Hence, the tank is filled in 12 hours.

3. Answer: d

Explanation:

An electropositive element is one that readily loses electrons from its outermost shell to form positive ions.

Metals have loosely held valence electrons and low ionisation energies, so they lose electrons easily and are therefore electropositive. Non-metals and metalloids do the opposite – they tend to gain or share electrons and are electronegative or weakly electropositive.

Hence, Metals are electropositive in nature.

4. Answer: c

Explanation:

The number of girls stays unchanged at 10, since only boys are added.

After the addition, girls form 10 % of the new total, so new total = $10 \div 0.10 = 100$.

Original total = $10 + 10 = 20$, so boys added = $100 - 20 = 80$.

Hence, 80 boys were added to the group.

Note: RRB did not award marks for this question in the official key.

5. Answer: a

Explanation:

In the landmark 2017 judgment in Justice K. S. Puttaswamy versus Union of India, a nine-judge bench of the Supreme Court unanimously held that the Right to Privacy is a fundamental right under the Constitution.

The Court located this right primarily within Article 21 (Right to Life and Personal Liberty), together with the freedoms guaranteed in Part III, confirming it as an intrinsic facet of the Fundamental Rights chapter rather than a Directive Principle or Duty.

Hence, Right to Privacy is an integral part of the Fundamental Rights.

6. Answer: a

Explanation:

Items A, B and C — wet soil, clay and earth — are all natural, soil-related substances that occur in nature and are of the same category.

Plastic (D), on the other hand, is a synthetic polymer made industrially from petrochemicals and is not a naturally occurring soil-type material, so it does not fit the group.

Hence, D is the odd one out.

7. Answer: c

Explanation:

Bharat 22 is an exchange-traded fund launched by the Union Finance Ministry in November 2017 as part of the Government's disinvestment strategy.

It comprises 22 stocks, including shares of central public-sector enterprises, public-sector banks and the Government's residual holdings in private companies under the SUUTI portfolio, and is managed by ICICI Prudential Mutual Fund.

Hence, the ETF launched to boost disinvestment is Bharat 22.

8. Answer: c

Explanation:

Phloem is one of the two vascular tissues in plants; the other is xylem.

Xylem conducts water and dissolved minerals upward from the roots, while phloem transports food — mainly sucrose produced during photosynthesis — from leaves to the rest of the plant in a process called translocation.

Hence, the function of phloem is Conduction of food.

9. Answer: a

Explanation:

Convert the train's speed to metres per second: $54 \text{ km/hr} \times \frac{5}{18} = 15 \text{ m/s}$.

Total distance covered while crossing the platform = speed $\times$ time = $15 \times 44 = 660 \text{ m}$.

This distance equals the length of the train plus the length of the platform, so
platform length = $660 - 162 = 498 \text{ m}$.

Hence, the platform is 498 m long.

10. Answer: a

Explanation:

By definition in classical mechanics, linear momentum p of a body equals its mass m multiplied by its velocity v , i.e. $p = mv$.

Force is the rate of change of this momentum, pressure is force per unit area and thrust is a push force acting on an object; none of these matches the mass-times-velocity product directly.

Hence, the product of mass and velocity is called Momentum.

11. Answer: a

Explanation:

Energy stored in a body by virtue of its position above a reference level is gravitational potential energy, $U = mgh$.

Substituting $m = 10 \text{ kg}$, $g = 9.8 \text{ m/s}^2$ and $h = 6 \text{ m}$ gives $U = 10 \times 9.8 \times 6 = 588 \text{ joule}$.

Hence, the energy stored is 588 J.

12. Answer: d

Explanation:

Let the two parts be $9x$ and $5x$.

Given $(9x + 8) \div (5x + 8) = 5/3$, cross-multiplying gives $3(9x + 8) = 5(5x + 8)$, i.e. $27x + 24 = 25x + 40$.

Solving: $2x = 16$, so $x = 8$.

The larger part = $9x = 9 \times 8 = 72$.

Hence, the greater number is 72.

13. Answer: c

Explanation:

Perimeter of the rectangle = $2(12 + 4) = 32 \text{ cm}$. The rhombus has the same perimeter as the rectangle, so its perimeter is also 32 cm and each side = $32 \div 4 = 8 \text{ cm}$.

Area of a rhombus with side a and one angle θ is $a^2 \sin\theta$.

Substituting $a = 8 \text{ cm}$ and $\theta = 60^\circ$: $\text{area} = 8^2 \times \sin 60^\circ = 64 \times (\sqrt{3} / 2) = 32\sqrt{3} \text{ cm}^2$.

Hence, the area of the rhombus is $32\sqrt{3} \text{ cm}^2$.

14. Answer: b

Explanation:

In a series circuit, the total resistance is the sum of the individual resistances.

$$R = 0.2 + 0.3 + 0.4 + 0.5 + 12 = 13.4 \text{ ohm.}$$

By Ohm's law, the common current $I = V/R = 12 / 13.4 \approx 0.895 \text{ A}$. In a series loop the same current flows through every resistor, including the 0.3 ohm one.

Hence, the current through the 0.3 ohm resistor is 0.895 A.

15. Answer: c

Explanation:

Treat the sequence as two interlaced sub-series at alternate positions.

Odd positions (1st, 3rd, 5th): 22P, 24Q, 26R — the number increases by 2 (22, 24, 26) and the letter advances by one place (P, Q, R).

Even positions (2nd, 4th, 6th): 2Z, 4Y, ? — the number increases by 2 (2, 4, 6) and the letter moves backwards (Z, Y, X).

So the next term, at the 6th position, is 6X.

Hence, the next term in the series is 6X.

16. Answer: d

Explanation:

Factorise numerator and denominator: $273 = 3 \times 7 \times 13$ and $195 = 3 \times 5 \times 13$.

Their highest common factor is $3 \times 13 = 39$.

Divide both by 39: $273 \div 39 = 7$ and $195 \div 39 = 5$.

So $273/195$ reduces to $7/5$, in which 7 and 5 share no common factor other than 1.

Hence, the simplest form is $7/5$.

17. Answer: d

Explanation:

Nitrogen gas exists as the diatomic molecule N_2 , whose molar mass is $2 \times 14 = 28$ g/mol.

Mass = number of moles $\times$ molar mass = $0.6 \times 28 = 16.8$ g.

Hence, the mass of 0.6 mole of nitrogen is 16.8 g.

18. Answer: d

Explanation:

The National Sports Development Fund (NSDF) was set up by the Central Government in 1998 under the Charitable Endowments Act, 1890.

Its stated objective is to pool resources from the Government, the private and corporate sector and Non-Resident Indians to support training of elite athletes,

procurement of equipment and promotion of sports and games in India.

The Khel Ratna is an individual sportsperson award and the Khelo India programme is a separate grassroots scheme, so neither matches the described fund.

Hence, the fund constituted for this purpose is the National Sports Development Fund.

19. Answer: c

Explanation:

From Statement 1, one-fourth of a crate's weight is 4 kg, so one crate weighs $4 \times 4 = 16$ kg. Five equal crates therefore weigh $5 \times 16 = 80$ kg — the total is fully determined.

Statement 2 only tells us what the crates contain and gives no numerical weight data, so it alone cannot answer the question.

Since Statement 1 alone suffices and Statement 2 adds nothing useful, only Statement 1 is sufficient.

Hence, only statement 1 is sufficient.

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20. Answer: c

Explanation:

A number that leaves remainder 4 on division by each of 5, 6, 7 and 8 is of the form $\text{LCM}(5, 6, 7, 8) \cdot k + 4$.

$\text{LCM}(5, 6, 7, 8) = 840$, so the general term is $840k + 4$ for $k = 1, 2, 3, \dots$

Writing these in ascending order gives 844, 1684, 2524, 3364, ... The second term is therefore 1684.

Hence, the second number in ascending order is 1684.

21. Answer: d

Explanation:

In a lateral mirror image (mirror held on the right), left and right are interchanged while top and bottom stay the same, so the characters appear in reverse order 4, 3, C, 2, 6, B and each character is flipped sideways.

The figure labelled A is the original B62C34, C is upside down (water image) and D is rotated through 180° ; only the figure labelled B shows the reversed, sideways-flipped characters with the tops kept upright.

Hence, B.

22. Answer: b

Explanation:

Interest earned by Akshay from his friend in one year at 9% simple interest = $3000 \times 9 \times 1 / 100 = ₹270$.

Interest paid by Akshay in one year at 6% simple interest = $3000 \times 6 \times 1 / 100 = ₹180$.

Profit in one year = interest earned - interest paid = $270 - 180 = ₹90$.

Hence, Akshay's profit in one year is ₹90.

23. Answer: c

Explanation:

Monetary policy in India — the control of money supply, interest rates and inflation — is formulated by the Reserve Bank of India.

The policy is finalised by the six-member Monetary Policy Committee, which is chaired by the Governor of the RBI, who also serves as the Committee's final-vote authority. The Prime Minister, Finance Minister and President have no direct role in setting monetary policy; the Finance Ministry handles fiscal policy, not monetary.

Hence, the monetary policy is formulated by the Governor of RBI.

24. Answer: b

Explanation:

The pH scale ranges from 0 to 14 and measures the hydrogen-ion concentration of an aqueous solution.

Values below 7 indicate acidic solutions (higher H^+ concentration), values above 7 indicate basic or alkaline solutions and exactly 7 indicates a neutral solution, in which the H^+ and OH^- concentrations are equal (as in pure water at $25^\circ C$).

Hence, the pH of a neutral solution is 7.

25. Answer: b

Explanation:

Newton's second law of motion states that the net force acting on a body equals the rate of change of its momentum, which for constant mass reduces to $F = m \cdot a$.

Thus mass multiplied by acceleration gives force, measured in newton ($kg \cdot m/s^2$). Velocity is a kinematic quantity, pressure is force per unit area and thrust is a specific pushing force — none of them is simply mass times acceleration.

Hence, the product of mass and acceleration is Force.

26. Answer: d

Explanation:

In 2017, Jharkhand Police launched the community outreach programme named 'Taare Zameen Par' in Naxal-affected districts of the state.

The initiative was aimed at bringing school children in affected villages into the mainstream through sports, cultural activities and interaction with police personnel.

Hence, Jharkhand is the correct answer.

27. Answer: b

Explanation:

The modern periodic table has a stair-step or zig-zag line running from boron down to astatine on the right side of the table.

Elements to the left of this line are metals, while elements to the right are non-metals; the elements lying along the line itself are metalloids.

Thus the zig-zag line serves as the boundary that divides the two major families of elements.

Hence, non-metals from metals is the correct answer.

28. Answer: c

Explanation:

Mughal emperor Jalaluddin Muhammad Akbar died on 27 October 1605 at Fatehpur Sikri after a short illness.

His body was taken to Sikandra, near Agra, where his son Jahangir completed the construction of his tomb, which stands there even today.

Shah Jahan died in 1666 at Agra Fort, Mumtaz Mahal died in 1631 at Burhanpur and Humayun died in 1556 at Delhi, so none of them matches the given details.

Hence, Emperor Akbar is the correct answer.

29. Answer: b

Explanation:

The molecular formula of sodium carbonate is Na_2CO_3 .

Using atomic masses $\text{Na} = 23$, $\text{C} = 12$ and $\text{O} = 16$, we get $2 \times 23 + 12 + 3 \times 16 = 46 + 12 + 48 = 106 \text{ u}$.

Hence, 106 is the correct answer.

Your Personal Exams Guide

30. Answer: a

Explanation:

The figure is a row of rectangular panels: the two end panels each contain a square crossed by diagonals and an inner tilted square, and the middle panels contain long slanted lines meeting at the base and top.

Count the triangles panel by panel — first the smallest triangles formed by the diagonals in each end panel, then the larger triangles made by two or more small parts, and then the triangles formed by the slanted lines across the middle panels, taking care not to count any triangle twice where panels share a side.

Adding the counts for both end panels and the middle panels gives 35 triangles in all, as per the official key.

Hence, 35.

31. Answer: c

Explanation:

A lion is an animal that lives in a forest, so the lion class is shown wholly inside the forest class.

A pitcher (घड़ा) has no relation with lions or forests, so its circle stands completely apart.

The diagram with a small circle A drawn inside a larger circle C and a separate circle B matches this relation; the other diagrams show three overlapping circles, three separate circles, or both A and B inside C.

Hence, the diagram with lion inside forest and pitcher separate.

32. Answer: d

Explanation:

Count the straight line segments in each figure of the series: the slanted H-shape has 3 lines, the bracket shape has 3 lines and the triangle has 3 lines.

So the missing figure must also be made of exactly 3 straight lines.

The figure labelled A (a '4'-shape) has 3 lines, while B (rhombus with a diagonal) has 5, C (shield with a diagonal) has 6 and D (hour-glass) has 4.

Hence, A.

Your Personal Exams Guide

33. Answer: d

Explanation:

In both reference sequences the first number decreases by 2 to give the second number and then by 1 to give the third number: $5876 - 2 = 5874$, $5874 - 1 = 5873$ and similarly $9875 - 2 = 9873$, $9873 - 1 = 9872$.

Checking the given options against the same -2, -1 rule: $1238 - 2 = 1236$ and $1236 - 1 = 1235$, which matches perfectly.

The other options follow a different difference pattern, so they do not fit the rule derived from I and II.

Hence, 1238, 1236, 1235 is the correct answer.

34. Answer: b

Explanation:

The hour hand moves 360° in 12 hours, i.e. 0.5° per minute, and the minute hand moves 360° in 60 minutes, i.e. 6° per minute.

At 2:12 the hour hand is at $2 \times 30 + 12 \times 0.5 = 60 + 6 = 66^\circ$ from the 12 mark.

The minute hand is at $12 \times 6 = 72^\circ$ from the 12 mark, so the angle between the two hands is $72 - 66 = 6^\circ$.

Hence, 6° is the correct answer.

35. Answer: b

Explanation:

The Sports Authority of India was set up in 1984 after the IX Asian Games held in Delhi to look after the sports infrastructure left behind by the games.

In 1987, the Society for National Institutes of Physical Education and Sports, which ran the Netaji Subhas National Institute of Sports, Patiala and the Lakshmibai National College, was merged with SAI to bring training institutes under a single body.

Hence, 1987 is the correct answer.

36. Answer: b

Explanation:

Since Supriya is Akhil's sister, both of them share the same father.

Akhil's father's mother is the paternal grandmother of Akhil, and therefore she is the paternal grandmother of Supriya as well.

Hence, Grandmother is the correct answer.

37. Answer: d

Explanation:

One day's work of A, B and C together is $\frac{1}{2}$, of A and B together is $\frac{1}{2.4} = \frac{5}{12}$ and of B and C together is $\frac{1}{4}$.

Subtracting the A+B rate from the A+B+C rate gives C's one day's work: $\frac{1}{2} - \frac{5}{12} = \frac{6}{12} - \frac{5}{12} = \frac{1}{12}$.

Now B's one day's work = $(B+C) - C = \frac{1}{4} - \frac{1}{12} = \frac{3}{12} - \frac{1}{12} = \frac{2}{12} = \frac{1}{6}$, so B alone needs 6 days.

Hence, 6 is the correct answer.

38. Answer: d

Explanation:

The Tropic of Cancer ($23^{\circ}30' N$) passes through eight Indian states — Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura and Mizoram.

It cuts across the country roughly midway, so the Indian landmass is divided into almost two equal halves by this latitude.

The Equator and Tropic of Capricorn lie south of India, and the Prime Meridian is a longitude passing through Greenwich, so none of these splits India into two halves.

Hence, Tropic of Cancer is the correct answer.

39. Answer: a

Explanation:

By Vieta's formulas, for the equation $6x^2 - 5x + 1 = 0$, the sum of roots $\alpha + \beta = 5/6$ and the product of roots $\alpha\beta = 1/6$.

The sum of squares of the roots is $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = (5/6)^2 - 2 \times 1/6$.

This equals $25/36 - 12/36 = 13/36$.

Hence, $\frac{13}{36}$.

40. Answer: d

Explanation:

The sum has terms at $5^\circ, 10^\circ, 15^\circ, \dots, 90^\circ$, i.e. 18 terms in all.

Using the identity $\cos^2 \theta + \cos^2(90^\circ - \theta) = \cos^2 \theta + \sin^2 \theta = 1$, pair up $(5^\circ, 85^\circ), (10^\circ, 80^\circ), \dots, (40^\circ, 50^\circ)$ to get 8 pairs each summing to 1, i.e. 8.

The remaining terms are $\cos^2 45^\circ = 1/2$ and $\cos^2 90^\circ = 0$, giving a total of $8 + 1/2 + 0 = 8\frac{1}{2}$.

Hence, $8\frac{1}{2}$ is the correct answer.

41. Answer: d

Explanation:

A strong argument must be directly related to the question and must give a substantial, well-founded reason, not just a casual observation.

Argument I is strong because community washing centres pool water, detergent and energy, so they clearly save resources — a concrete and important benefit.

Argument II is weak because the mere fact that a practice is new or that people currently wash at home is not a sound reason to oppose promoting a resource-saving facility.

Hence, Only argument I is strong is the correct answer.

42. Answer: b

Explanation:

The question figure is a square containing a dashed square tilted as a diamond, with a small diamond at its centre.

Cutting the sheet along a diagonal leaves a right-angled triangle that carries half of the dashed diamond and part of the small central diamond along the cut edge.

The figure labelled C shows exactly this triangular half with the dashed lines and the small diamond; A and D are empty triangles or squares and B shows the whole dashed diamond without the cut.

Hence, C.

43. Answer: b

Explanation:

In the series $\pi \blacktriangle \pi$, $\pi \pi \blacktriangledown$, $\pi \blacktriangleleft \pi$ the black triangle alternates between the middle and the right-hand position.

Its direction also changes step by step: up, down, left — so the next direction is right.

The fourth figure must therefore have the triangle at the right end pointing right, i.e. $\pi \pi \blacktriangleright$, which is the figure labelled C.

Hence, C.

44. Answer: d

Explanation:

Each letter is replaced by its position in the English alphabet: T = 20, E = 5, E = 5 and N = 14 concatenate to 205514, which matches the given code for TEEN.

Applying the same rule to ENTER: E = 5, N = 14, T = 20, E = 5, R = 18, concatenating gives 5 14 20 5 18 = 51420518.

Hence, 51420518 is the correct answer.

45. Answer: c

Explanation:

Argument I overstates the case: a single apple supplies a limited set of nutrients and cannot by itself keep all diseases away, so it is not well-founded.

Argument II does not address the question either, because the need to eat other fruits for development says nothing about whether an apple a day prevents disease.

Since neither argument gives a substantial and well-reasoned answer to the question asked, both must be treated as weak.

Hence, Neither argument I nor II is strong is the correct answer.

46. Answer: c

Explanation:

The figure is a large triangle whose apex is joined to points on the base, with two horizontal lines and two crossing slanted lines inside it.

Count systematically: first the smallest triangles between adjacent lines, then triangles formed by joining two, three and more adjacent parts, both those with the apex as a vertex and those standing on the horizontal lines and the base.

Adding all the categories gives 27 triangles, as per the official key.

Hence, 27.

47. Answer: a

Explanation:

Read the line chart (number of screws in thousand) month by month: January 200, February 300, March 250, April 300, May 350 and June about 290.

Only January lies below the 250 mark; May, June and February are all above it.

Hence, January.

48. Answer: c

Explanation:

Argument I is strong because it cites proven evidence that music improves the state of the body and mind and so can help patients recover faster — a substantial, well-reasoned ground for introducing music therapy.

Argument II is weak as it merely asserts that the therapy will not help without giving any supporting reason or evidence.

Hence, Only argument I is strong is the correct answer.

49. Answer: c

Explanation:

Average speed is defined as total distance travelled divided by total time taken.

Total distance = $20 + 15 = 35$ m, and total time = $4 + 2 = 6$ s.

Therefore, average speed = $35 \div 6 = 5.833... \approx 5.83 \text{ ms}^{-1}$.

Hence, 5.83 ms^{-1} is the correct answer.

50. Answer: c

Explanation:

Vinod and Vishal are brothers, so Vishal is Vicky's uncle on the father's side.

Since Vicky is the son of Vinod, Vicky is the nephew of his father's brother Vishal.

Hence, Nephew is the correct answer.

51. Answer: c**Explanation:**

The autobiography 'Khullam Khulla: Rishi Kapoor Uncensored' was co-written with journalist Meena Iyer and published by HarperCollins India in January 2017.

In the book, Rishi Kapoor candidly discusses his film career, his relationship with his father Raj Kapoor, his marriage to Neetu Singh and the ups and downs of the Hindi film industry.

Hence, Rishi Kapoor.

52. Answer: c**Explanation:**

The Rajya Sabha, the Council of States, acts as the permanent chamber of Indian Parliament and represents the states and union territories.

Under Article 249 of the Constitution, the Rajya Sabha is empowered to pass a resolution authorising Parliament to legislate on a subject in the State List in the national interest, giving it a distinctive role in shaping policy that applies uniformly across the country.

Hence, Rajya Sabha.

53. Answer: b

Explanation:

Cricketer Yuvraj Singh was appointed the first Indian global ambassador of the Laureus Sport for Good Foundation, which uses sport as a tool for social change worldwide.

Yuvraj, a cancer survivor, was recognised for his YouWeCan foundation that supports cancer patients and awareness drives, making him a natural fit for the Laureus social mission.

Hence, Yuvraj Singh.

54. Answer: b

Explanation:

Pressure is defined as force applied per unit area, so its SI unit is derived from the SI units of force (newton) and area (square metre).

One pascal equals one newton per square metre ($1 \text{ Pa} = 1 \text{ N/m}^2$), named after French mathematician Blaise Pascal. Joule is the unit of energy, newton the unit of force and dyne is the CGS unit of force.

Hence, Pascal.

55. Answer: b

Explanation:

For $\frac{55}{x-19}$ to be an integer, $(x-19)$ must be an exact divisor of 55.

Divisors of 55 are ± 1 , ± 5 , ± 11 and ± 55 , so $x-19$ can be any of these values, giving $x = 20, 18, 24, 14, 30, 8, 74$ or -36 .

The least (most negative) value in this set is obtained from $x-19 = -55$, which gives $x = -55 + 19 = -36$.

Hence, -36 .

56. Answer: c

Explanation:

Baahubali 2: The Conclusion, released on 28 April 2017, was directed by Telugu filmmaker S. S. Rajamouli and produced by Shobu Yarlagadda and Prasad Devineni under Arka Media Works.

The film became the highest grossing Indian film at the time of its release, continuing the story of Amarendra and Mahendra Baahubali started in the 2015 original Baahubali: The Beginning.

Hence, S.S. Rajamouli.

Your Personal Exams Guide

57. Answer: d

Explanation:

Applying the BODMAS rule, resolve the innermost bracket first: $-16 \div -2 = 8$, so the inner expression becomes $32 \div 8 = 4$.

Next apply 'of': $(-4) \text{ of } 4 = -16$. The square bracket now reads $-5 + (-16) = -21$.

Finally the whole expression reduces to $84 \div (-21) = -4$.

Hence, -4 .

58. Answer: a

Explanation:

The printed rule says ' $\div$ ' is to be read as '+' and '-' is to be read as 'x'; the '<' sign does not occur in the expression.

Replacing the signs, $((7 \div 5) - 2) - 5$ becomes $((7 + 5) \times 2) \times 5$.

Innermost bracket: $7 + 5 = 12$; next: $12 \times 2 = 24$; finally $24 \times 5 = 120$.

Hence, 120.

59. Answer: b

Explanation:

Sclerenchyma is a mechanical plant tissue made of long, narrow cells with thick, lignified walls. The cells die at maturity, leaving only the hard cell wall, which gives the tissue great strength and rigidity.

Collenchyma and parenchyma are living tissues with thinner walls, used for flexible support and storage respectively, while aerenchyma is a parenchyma variant that stores air for aquatic plants.

Hence, Sclerenchyma.

60. Answer: c

Explanation:

In humans, the full term of pregnancy, called gestation, lasts about 40 weeks counted from the first day of the last menstrual period, which corresponds to

roughly 9 calendar months.

Gestation is divided into three trimesters of about three months each, during which the fertilised ovum develops into a fully formed foetus ready for birth.

Hence, 9.

61. Answer: b

Explanation:

The National Development Council was constituted on 6 August 1952 by an executive resolution of the Government of India on the recommendation of the first Five Year Plan draft.

Headed by the Prime Minister, it includes all Union cabinet ministers, Chief Ministers of states and members of the Planning Commission (later NITI Aayog), and reviews the working of the national plan periodically.

Hence, 1952.

62. Answer: c

Explanation:

Project 'Sashakt' was launched by the Union Finance Minister in July 2018 as a five-pronged strategy to resolve bad loans and stressed assets of public sector banks in India.

The plan was based on recommendations of a committee headed by PNB chairman Sunil Mehta and covered small, medium and large non-performing accounts through SME resolution, bank-led resolution, AMC/AIF-led resolution and NCLT resolution.

Hence, Finance Minister.

63. Answer: a

Explanation:

Convert each letter to its position in the English alphabet and add the attached number: $I(9)+3 = 12$, $L(12)+4 = 16$, $O(15)+7 = 22$ and $R(18)+6 = 24$.

Among the four sums, 12, 16 and 24 are exactly divisible by 4, whereas 22 is not. Therefore O7 breaks the pattern that the other three codes share.

Hence, C.

64. Answer: a

Explanation:

Karun Nair scored an unbeaten 303 for India against England in the fifth Test at Chennai in December 2016, becoming only the second Indian after Virender Sehwag to post a triple century in Test cricket.

Sehwag had earlier scored 309 against Pakistan at Multan in 2004 and 319 against South Africa at Chennai in 2008. Dravid, Kohli and K. L. Rahul have Test double centuries but no triple hundred.

Hence, Karun Nair.

65. Answer: c

Explanation:

Palaeontology is the branch of biology that deals with the study of fossils, which are the preserved remains or traces of plants and animals from past geological periods.

Palaeobotany is a narrower sub-field restricted to plant fossils, palaeobiology combines palaeontology with modern biology, and taxonomy is the science of classifying living organisms.

Hence, Palaeontology.

66. Answer: d

Explanation:

The Brahmaputra originates in the Kailash range of the Himalayas in Tibet (China), where it is known as the Yarlung Tsangpo. It enters India through Arunachal Pradesh and flows into Bangladesh.

The Koel, Sankh and Brahmani are all tributaries of the Brahmani river system that rise within India in the Chota Nagpur plateau region of Jharkhand and Odisha.

Hence, Brahmaputra.

67. Answer: c

Explanation:

Atomic volume generally increases down a group as new electron shells are added and tends to decrease across a period as effective nuclear charge grows.

Helium (He) has only two electrons filling the first shell ($1s^2$) and no inner shielding, giving it the smallest atomic radius and hence the smallest atomic volume among the four. Silicon, phosphorus and sulphur all have three occupied shells and much larger volumes.

Hence, He.

68. Answer: d

Explanation:

Legendary Tamil film music composer and conductor Ilaiyaraaja was conferred the Padma Vibhushan, India's second-highest civilian honour, in 2018 for his contribution to the field of Art – Music.

He had earlier received the Padma Bhushan in 2010. Ilaiyaraaja has scored more than 1,000 Indian films across several languages and is widely considered among the most influential composers in Indian cinema.

Hence, Padma Vibhushan.

69. Answer: c

Explanation:

Let the present ages of X and Y be $5k$ and $4k$ respectively. After three years their ages become $(5k + 3)$ and $(4k + 3)$.

Using the future ratio, $\frac{5k+3}{4k+3} = \frac{11}{9}$. Cross multiplying gives $9(5k + 3) = 11(4k + 3)$, i.e. $45k + 27 = 44k + 33$, so $k = 6$.

Therefore Y's present age is $4k = 4 \times 6 = 24$ years.

Hence, 24 years.

70. Answer: c

Explanation:

Free electrons inside a metal are in continuous random thermal motion and keep colliding with the vibrating positive ions of the lattice. Each collision changes the direction of motion, so the electron does not travel along a straight path.

The result is a zig-zag trajectory which, over many collisions, traces an irregular curved path through the metal. Even under an applied electric field, the drift motion is superimposed on this curved random path.

Hence, curved.

71. Answer: d

Explanation:

Total weight of the original 25 items is $25 \times 50 = 1250$ kg. After adding item X, the number of items becomes 26 and the new average rises by 0.5 kg to 50.5 kg.

New total weight = $26 \times 50.5 = 1313$ kg. Therefore the weight of X equals the increase in total weight, i.e. $1313 - 1250 = 63$ kg.

Hence, 63 kg.

72. Answer: d

Explanation:

The question figure is a square containing a circle, inside which a small rectangle holds a curved hook-like line.

The figure labelled C keeps all three nested elements — outer square, circle and inner rectangle with the curve — in the same arrangement.

The other figures drop the inner rectangle, change the curve or replace the square/circle combination with an ellipse.

Hence, C.

73. Answer: c

Explanation:

Sher Shah Suri, founder of the Sur Empire (1540–1545), rebuilt and extended the ancient Uttarapatha route, renaming it the Sadak-e-Azam, which later came to be called the Grand Trunk Road. It stretched from Sonargaon in Bengal to Peshawar in the north-west.

Along this highway he constructed sarais (rest houses) for travellers, wells for drinking water and mosques, and introduced an efficient postal system of horse relays.

Hence, Emperor Sher Shah Suri.

74. Answer: b

Explanation:

Let the number of books on shelves 1, 2, 3 and 4 be a , b , c and d ; the four shelves together hold all 24 books, so $a + b + c + d = 24$.

Statement 2 fixes $d = 12$ and statement 3 fixes $c = 6$, leaving $a + b = 6$. Statement 1 adds the relation $a = 2b$, giving $3b = 6$, so $b = 2$ and $a = 4$.

Any one or two of the statements by itself leaves two unknowns, so none is sufficient alone; all three together are needed to determine $a = 4$.

Hence, Statements 1, 2 and 3 together are sufficient.

75. Answer: d

Explanation:

Total marks obtained by the 18 boys = $18 \times 16 = 288$. Total marks obtained by all 30 students = $30 \times 18.1 = 543$.

Number of girls in the class = $30 - 18 = 12$ and their combined marks = $543 - 288 = 255$.

Therefore the average marks of the girls = $\frac{255}{12} = 21.25$.

Hence, 21.25.

76. Answer: a

Explanation:

Ionisation potential is the energy needed to remove the outermost electron from a neutral gaseous atom. It rises across a period and falls down a group.

Helium (atomic number 2) has a completely filled 1s shell and the smallest atomic radius among all elements, so its sole electron is held most tightly of all atoms. Its first ionisation energy of about 2372 kJ/mol is the highest value on the periodic table.

Only Hg (mercury) and Br (bromine) are liquid at room temperature, not the whole set Sc, Fr, Hg, Ga, Br, so the liquid-elements statement is wrong. The coinage metals are Cu, Ag and Au (not As, which is a metalloid), ruling out the coinage-metals statement. Lithium, not scandium, is the lightest metal, so the lightest-metal statement fails.

Hence, Helium has the maximum ionisation potential.

77. Answer: c

Explanation:

The speed of a mechanical wave such as sound depends on the elasticity and density of the medium. In a solid the particles are tightly packed and the modulus of elasticity is very large, so a disturbance passes from one particle to the next almost instantly.

Typical speeds are about 343 m/s in air, 1480 m/s in water, 1324 m/s in kerosene oil and roughly 5960 m/s in steel. Sound therefore travels fastest in steel, slower in liquids and slowest in gases.

Hence, Steel.

78. Answer: d

Explanation:

Let the number be x . From the statement, 76% of x equals 95.

So $76/100 \times x = 95$, which gives $x = 95 \times 100 / 76$.

Simplify: $95/76 = 5/4$, hence $x = (5/4) \times 100 = 500/4 = 125$.

Check: 76% of 125 = $0.76 \times 125 = 95$. ✓

Hence, 125.

79. Answer: b

Explanation:

Take the total work as 80 units (the LCM of 20 and 80). Then Indra does $80/20 = 4$ units a day and Chandra does $80/80 = 1$ unit a day.

One complete cycle lasts $3 + 5 = 8$ days. In those 8 days Indra does $3 \times 4 = 12$ units and Chandra does $5 \times 1 = 5$ units, so 17 units are completed per 8-day cycle.

After 4 cycles that is 32 days and $4 \times 17 = 68$ units of work. Only $80 - 68 = 12$ units remain.

On the 33rd day Indra resumes and does 4 units per day. In 3 more days he completes $3 \times 4 = 12$ units, exactly finishing the work.

Total time = $32 + 3 = 35$ days.

Hence, 35.

80. Answer: c

Explanation:

Apply the symbol substitutions: $>$ becomes $+$, $<$ becomes $-$ and $\times$ becomes $\div$. The expression becomes $((1 + 2 - 3) + 15) \div 10$.

Inside the innermost bracket: $1 + 2 - 3 = 0$.

Next bracket: $0 + 15 = 15$.

Finally: $15 \div 10 = 1.5$.

Hence, 1.5.

81. Answer: b

Explanation:

A catalyst is a substance that alters the rate of a chemical reaction without itself being consumed in the overall process. It works by offering an alternative pathway with lower activation energy, so a larger fraction of molecules has enough energy to react.

The common usage of the word catalyst refers to a positive catalyst, which increases the rate of reaction. A substance that slows a reaction is called an inhibitor or negative catalyst, not a catalyst in general.

Catalysts neither release the reactants nor deactivate reactions, so the only accurate description is that they speed up reactions.

Hence, speed up reactions.

82. Answer: b

Explanation:

Draw the Venn diagram. From 'Some toys are plastic' the toy and plastic circles overlap. From 'Some plastic are black' the plastic and black circles overlap, but the overlap need not touch the toy region.

Conclusion 1 says all toys are black. This is universal; the statements only give an intersection, so the universal does not follow.

Conclusion 2 says all toys are plastic. The first statement only says some toys are plastic, meaning the rest may or may not be. The universal again does not follow.

Since both proposed conclusions overshoot the information given, neither follows.

Hence, Neither conclusion 1 nor 2 follows.

83. Answer: a

Explanation:

Each letter is replaced by its position in the English alphabet: A = 1, B = 2, ..., Z = 26. These numbers are then concatenated in the order of the letters.

Check TAIL: T = 20, A = 1, I = 9, L = 12. Joined this gives 20-1-9-12 = 201912, matching the clue.

Apply the same rule to HORN: H = 8, O = 15, R = 18, N = 14. Concatenating gives 8-15-18-14 = 8151814.

Hence, 8151814.

84. Answer: c

Explanation:

Analyse statement 1. 'This is my home' has four distinct words and its code has four words 'Te e me huch'. We cannot tell which code word stands for 'home' because each English word could map to any one of the four codes. Statement 1 alone is not sufficient.

Analyse statement 2. 'Home sweet home' repeats 'home' twice; the code 'huch tee huch' also repeats 'huch' twice at the first and third positions, matching the position of 'home'. The code word that occurs twice must therefore be 'huch', so Home = huch. Statement 2 alone is sufficient.

Hence, Only statement 2 is sufficient.

Note: RRB did not award marks for this question in the official key.

85. Answer: d

Explanation:

An assumption is something taken for granted that must be true for the statement to make sense. Kajal is suggesting that they go to a movie, so she herself must enjoy watching movies; otherwise she would not propose it. Assumption I is implicit.

Assumption II claims that they are thinking where to go. The sentence names a specific destination (a movie), so it does not reveal any wider deliberation about choosing between places. Assumption II is not implicit.

Hence, Only I is implicit.

86. Answer: d

Explanation:

A number is divisible by 9 if and only if the sum of its digits is divisible by 9.

45699: $4 + 5 + 6 + 9 + 9 = 33$, not a multiple of 9.

12381: $1 + 2 + 3 + 8 + 1 = 15$, not a multiple of 9.

45696: $4 + 5 + 6 + 9 + 6 = 30$, not a multiple of 9.

12348: $1 + 2 + 3 + 4 + 8 = 18$, which is 9×2 . So 12348 is divisible by 9.

Hence, 12348.

87. Answer: d

Explanation:

The reference figure is a wide rectangle with a double border containing a flattened pentagon and a small circle near the bottom corner.

The figure labelled D is the only one that has the double-bordered wide rectangle, the flattened pentagon and the small circle together.

A has an upright pentagon, B a squashed pentagon without the circle and C a square frame without the circle.

Hence, D.

88. Answer: b

Explanation:

Spectroscopic analysis of sunlight shows that the Sun is almost entirely a ball of hot plasma made of the two lightest elements. By mass the Sun is about 73% hydrogen and 25% helium, with all other elements making up less than 2%.

The outer layers (photosphere, chromosphere and corona) that are collectively called the Sun's atmosphere have the same composition, so hydrogen remains the dominant element there as well. The energy of the Sun comes from the fusion of hydrogen nuclei into helium.

Oxygen and neon are present only in trace quantities compared with hydrogen.

Hence, Hydrogen.

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89. Answer: a

Explanation:

Apply BODMAS. First resolve the bracket. Inside it, division is done before subtraction: $35 \div 5 = 7$, so the bracket becomes $55 - 7 = 48$.

The expression is now $108 \div 18 \times 48 \div 3$.

Division and multiplication are evaluated left to right. $108 \div 18 = 6$, so we have $6 \times 48 \div 3$.

Continuing: $6 \times 48 = 288$, and $288 \div 3 = 96$.

Hence, 96.

90. Answer: a

Explanation:

In the Cartesian sign convention used in optics, distances measured in the direction of the incident light are taken as positive and those against it are negative. For a mirror the pole is the origin.

For a concave mirror the centre of curvature and focus lie on the same side as the object, so the focal length comes out negative. For a convex mirror these lie behind the mirror, in the direction of the reflected light, giving a positive focal length.

A positive focal length of +15 cm therefore identifies a convex mirror. A plane mirror has an infinite focal length and 'double lens' is not a type of mirror.

Hence, Convex mirror.

91. Answer: b

Explanation:

The given figure is a six-sided outline with a rhombus formed inside it by crossing edges.

Placing one regular pentagon cut on the transparent sheet and overlapping it with an inverted copy of the same pentagon gives exactly such an outline: the outer edges form the hexagon-like boundary and the crossing edges form the inner rhombus.

A rectangle, a right triangle or the house-shaped pentagon cannot produce the crossing rhombus in the middle.

Hence, C.

92. Answer: b

Explanation:

Divide 7 by 11 using long division. $7 \div 11 = 0$ with remainder 7, write 0. and append a zero to make 70.

$70 \div 11 = 6$, remainder $70 - 66 = 4$. Append another zero to make 40.

$40 \div 11 = 3$, remainder $40 - 33 = 7$. The remainder 7 has returned, so the digits 6 and 3 repeat endlessly.

Thus $7/11 = 0.636363\dots$ which is written as $0.\overline{63}$.

Hence, $0.\overline{63}$.

93. Answer: b

Explanation:

Dr. Zakir Husain was elected the third President of India and served from 13 May 1967 until his death in office on 3 May 1969. He was the first Muslim to hold the office.

V. V. Giri became the fourth President in 1969, after Husain's death. Dr. Fakhruddin Ali Ahmed, who served from 1974, was the second Muslim President of India. Dr. A. P. J. Abdul Kalam, the eleventh President (2002–2007), was the third Muslim President.

Hence, Dr. Zakir Husain.

94. Answer: a

Explanation:

The windpipe (trachea) in the human throat is supported by about 16 to 20 C-shaped rings of hyaline cartilage. These rings keep the airway permanently open while allowing it to flex when the neck moves or when food passes through the oesophagus behind it.

Areolar tissue is a loose connective tissue that fills spaces between organs; joints are regions where bones meet; ligaments are tough bands of fibrous tissue that connect bone to bone. None of these form the throat rings.

Hence, Cartilage.

95. Answer: d**Explanation:**

Take the tank's capacity as 42 units (LCM of 7 and 6). Then P fills $42/7 = 6$ units per hour and Q empties $42/6 = 7$ units per hour.

In the first 3 hours only P is open, filling $3 \times 6 = 18$ units. The tank now contains 18 units of water.

From the fourth hour both pipes are open. The net flow is $6 - 7 = -1$ unit per hour, i.e. the tank is losing 1 unit each hour.

To empty 18 units at the rate of 1 unit per hour needs 18 hours.

Hence, 18.

96. Answer: a**Explanation:**

Average speed is defined as the total distance covered divided by the total time taken, irrespective of the speed in individual intervals.

$$\text{Total distance} = 21 \text{ m} + 15 \text{ m} = 36 \text{ m}.$$

$$\text{Total time} = 4 \text{ s} + 2 \text{ s} = 6 \text{ s}.$$

$$\text{Average speed} = 36 \text{ m} \div 6 \text{ s} = 6 \text{ m/s}, \text{ with the SI unit metre per second written as } \text{ms}^{-1}.$$

The other options have the wrong units: s^{-1} is a frequency, m is a distance and ms^1 is dimensionally incorrect for speed.

$$\text{Hence, } 6.00 \text{ ms}^{-1}.$$

97. Answer: a

Explanation:

Let the volume of the sphere be V . The larger part $(3/5)V$ is moulded into a cone of radius r_c and height r_c (since height = base radius). Cone volume = $(1/3)\pi r_c^2 h = (1/3)\pi r_c^3$.

$$\text{So } (1/3)\pi r_c^3 = (3/5)V, \text{ giving } r_c^3 = (9V)/(5\pi).$$

The smaller part $(2/5)V$ is moulded into a cylinder of radius r_y and height $h_y = r_y$. Cylinder volume = $\pi r_y^2 h_y = \pi r_y^3$.

$$\text{So } \pi r_y^3 = (2/5)V, \text{ giving } h_y^3 = r_y^3 = (2V)/(5\pi).$$

$$\text{Required ratio } r_c : h_y. \text{ Taking the cube of the ratio: } r_c^3 / h_y^3 = [(9V)/(5\pi)] \div [(2V)/(5\pi)] = 9/2.$$

$$\text{Taking the cube root, } r_c : h_y = \sqrt[3]{9} : \sqrt[3]{2}.$$

$$\text{Hence, } \sqrt[3]{9} : \sqrt[3]{2}.$$

98. Answer: c

Explanation:

Allotropes are different structural forms of the same element in which the atoms are bonded in different arrangements, giving distinct physical properties while the element itself stays the same.

Diamond (tetrahedral sp^3 network), graphite (layered sp^2 hexagonal sheets) and fullerene (closed cage molecules like C_{60}) are all crystalline allotropes of pure carbon.

Coal, however, is not a single element. It is a sedimentary rock, a mixture of amorphous carbon with hydrogen, oxygen, nitrogen, sulphur and mineral matter, formed from fossilised plant material. Being a mixture rather than a pure form of carbon, it is not an allotrope.

Hence, Coal.

99. Answer: a

Explanation:

An inference is implicit only if the statement itself gives direct ground to draw it.

Inference I claims that stress and anxiety are major threats of the modern era. The statement talks about walking on grass and energy, not about stress or anxiety. Nothing in it supports the claim about modern-era threats, so I is not implicit.

Inference II says that walking on grass is actually a very easy exercise. The statement describes it as a routine activity people do to gain energy, which inherently treats it as an easy, accessible exercise rather than a demanding workout. Hence II can be drawn from the statement.

Hence, Only II is implicit.

100. Answer: d

Explanation:

Apply BODMAS. First resolve the brackets: $77 + 14 = 91$ and $12 - 9 = 3$. The expression becomes $91 - (42/7) \times 3 + 3$.

Next evaluate the division: $42 \div 7 = 6$, giving $91 - 6 \times 3 + 3$.

Multiplication before addition and subtraction: $6 \times 3 = 18$, giving $91 - 18 + 3$.

Finally, add and subtract left to right: $91 - 18 = 73$, then $73 + 3 = 76$.

Hence, 76.

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