

Answers

1. Answer: a

Explanation:

Area of a trapezium = $\frac{1}{2} \times (\text{sum of parallel sides}) \times (\text{perpendicular distance})$.

Area of $PQRS = \frac{1}{2} \times (12 + 22) \times 14 = \frac{1}{2} \times 34 \times 14 = 238 \text{ m}^2$.

Since the field is shared equally by two crops, each crop gets $\frac{238}{2} = 119 \text{ m}^2$.

Hence, 119 m^2 is correct.

2. Answer: a

Explanation:

The Rigveda, the oldest of the four Vedas, is organised into ten books called Mandalas.

These Mandalas together contain 1,028 Suktas (hymns) with a total of 10,600 verses (mantras) composed in Vedic Sanskrit.

Hence, 1,028 is correct.

3. Answer: c

Explanation:

Check the relation in the first pair: $34 \times \frac{3}{2} = 51$. Verify with the second: $28 \times \frac{3}{2} = 42$. So each right number is 1.5 times the left number.

Apply the same rule to 46: $46 \times \frac{3}{2} = 69$.

Hence, 69 is correct.

4. Answer: a

Explanation:

A parasite draws nutrition from a living host without immediately killing it. This includes ectoparasites, endoparasites and parasitic plants.

Lice feed on skin and blood, tapeworms live in the intestine, leeches suck blood, and Cuscuta (Amarbel) is a rootless parasitic plant that draws sap from the host.

Lion, yeast and mushroom are not parasites in this sense (lion is a predator; yeast and mushroom are saprophytes; orchid is largely epiphytic, not parasitic).

Hence, Lice, Tapeworm, Leech, Cuscuta (Amarbel) is correct.

5. Answer: b

Explanation:

An algebraic expression of degree two set equal to zero is called a quadratic equation. The general form is $ax^2 + bx + c = 0$ with $a \neq 0$.

The expression $x^2 - 2x + 3 = 0$ has highest power 2 and an equality sign, so it is a quadratic equation. It would be a quadratic polynomial only without the $= 0$.

Hence, Quadratic equation is correct.

6. Answer: d

Explanation:

Let Rohan's age be R . Then Mohan's age is $1.5R$ and Sohan's age is $2.5R$.

Sum of ages: $R + 1.5R + 2.5R = 5R = 60$, so $R = 12$.

Hence, 12 years is correct.

7. Answer: b

Explanation:

A closed box is a cuboid, so the plastic sheet needed equals its total surface area $2(lw + wh + lh)$.

With $l = 5$, $w = 10$, $h = 15$: $2(50 + 150 + 75) = 2 \times 275 = 550 \text{ cm}^2$.

Hence, 550 cm^2 is correct.

8. Answer: c

Explanation:

In redox chemistry, gain of oxygen (or loss of hydrogen/electrons) by a substance is called oxidation, and the opposite is called reduction.

So a substance that gains oxygen during a chemical reaction is said to be oxidized. Neutralization is an acid-base reaction and decomposition is a break-up into simpler substances, neither describes an oxygen gain.

Hence, **Oxidized** is correct.

9. Answer: a

Explanation:

Selling price after 5% discount on MP = $275 \times (1 - 0.05) = 275 \times 0.95 = ₹ 261.25$.

The seller earns 4.5% profit on cost price, so $SP = CP \times 1.045$. Therefore $CP = \frac{261.25}{1.045} = ₹ 250$.

Hence, ₹250 is correct.

10. Answer: d

Explanation:

Start at the bank $(0, 0)$. Walk 90 m south $\rightarrow (0, -90)$. Turn right (now facing west), walk 110 m $\rightarrow (-110, -90)$.

Turn right (facing north), walk 90 m $\rightarrow (-110, 0)$. Turn right (facing east), walk 220 m $\rightarrow (110, 0)$.

The final point $(110, 0)$ lies 110 m due east of the bank.

Hence, **East** is correct.

11. Answer: d

Explanation:

Number the eight chairs clockwise (as seen from above) $C_1, M_1, C_2, M_2, C_3, M_3, C_4, M_4$, where C is a corner and M a mid-side chair. Everyone faces the centre, so a person's right is the anticlockwise neighbour and the left is the clockwise neighbour.

E and I sit on diagonally opposite corners: take E at C_1 and I at C_3 .

G sits immediately to the right of E, so G is at M_4 . H is second to the left of G, i.e. two chairs clockwise from M_4 , so H is at M_1 .

Two corners are empty, so C_2 and C_4 are empty and F, D take M_2 and M_3 . D is second to the right of F, which works only with F at M_3 and D at M_2 .

The chair directly opposite H at M_1 is M_3 , occupied by F.

Hence, F is correct.

12. Answer: c

Explanation:

For a ray to retrace its path after reflection, it must strike the mirror along the normal at that point, which passes through the centre of curvature C.

For a convex mirror the centre of curvature lies behind the reflecting surface, i.e. on the same side as the outgoing reflected light. By the new Cartesian sign convention (distances measured from the pole and taken positive in the direction of the incident light going through the mirror), PC is positive.

Since radius of curvature magnitude is 20 cm, $PC = +20$ cm.

Hence, 20 cm is correct.

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13. Answer: c

Explanation:

For semi-annual compounding the rate per half year is $\frac{8}{2} = 4\%$ and the number of periods in one year is 2.

$$\text{Amount } A = P \left(1 + \frac{r}{100}\right)^n = 9375 \times (1.04)^2 = 9375 \times 1.0816 = ₹ 10,140.$$

Hence, ₹10,140 is correct.

14. Answer: c

Explanation:

From the pie chart, State B has 25% and State C has 18% of the rice production.

$$\text{Shortfall of C relative to B} = \frac{25 - 18}{25} \times 100 = \frac{7}{25} \times 100 = 28\%.$$

Hence, 28% is correct.

15. Answer: a

Explanation:

Use the lens formula $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ with $u = -12$ cm and $f = +8$ cm.

$$\frac{1}{v} = \frac{1}{8} + \frac{1}{-12} = \frac{3-2}{24} = \frac{1}{24}, \text{ so } v = 24 \text{ cm.}$$

Magnification $m = \frac{v}{u} = \frac{24}{-12} = -2$. The image height = $|m| \times \text{object height} = 2 \times 1.0 = 2.0$ cm (inverted).

Hence, 2.0 cm is correct.

16. Answer: b

Explanation:

Faraday's law gives the induced EMF as $\varepsilon = -N \frac{d\Phi}{dt}$, where $\Phi = BA$ and N is the number of turns.

Increasing N (more turns) or increasing B (stronger field) both raise ε directly. Resistivity of the wire changes the induced current for a given EMF but does not change the EMF magnitude itself.

Hence, Both (i) and (ii) is correct.

17. Answer: a

Explanation:

Article 16 of the Indian Constitution guarantees equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State.

Article 14 covers equality before the law, Article 17 abolishes untouchability and Article 18 abolishes titles, so these belong to other articles.

Hence, **Equality of opportunity in matters of public employment** is correct.

18. Answer: a

Explanation:

Total percentage spent = $16 + 40 + 14 = 70\%$, so the remaining 30% of monthly income equals ₹9,630.

Monthly income = $\frac{9630}{0.30} = ₹ 32,100$. Annual income = $12 \times 32100 = ₹ 3,85,200$.

Hence, ₹3,85,200 is correct.

19. Answer: c

Explanation:

The stomach secretes gastric juice containing hydrochloric acid and the proenzyme pepsinogen. In the acidic medium pepsinogen is converted to pepsin, which digests proteins into peptides.

HCl only provides the acidic environment, enterokinase is secreted by the duodenum, and maltase acts on maltose, not proteins.

Hence, **Pepsin** is correct.

20. Answer: b

Explanation:

Resistance of a wire follows $R = \rho \frac{L}{A}$. When the material and length are unchanged but the cross-sectional area is doubled, the resistance is halved.

New resistance = $\frac{0.5}{2} = 0.25 \Omega$.

Hence, 0.25Ω is correct.

21. Answer: c

Explanation:

For a spherical mirror the focal length equals half the radius of curvature: $f = \frac{R}{2}$.

With $R = 16.0 \text{ cm}$, $f = \frac{16.0}{2} = 8.0 \text{ cm}$ from the pole.

Hence, 8.0 cm is correct.

22. Answer: c

Explanation:

Fix each event with its year: Simon Commission arrived in India in 1928 (1-b); Cripps Mission arrived in 1942 (2-c); the Jallianwala Bagh massacre took place on 13 April 1919 (3-a); the Chauri-Chaura incident occurred on 4 February 1922 (4-d).

Only one option matches every pair.

Hence, 1-b, 2-c, 3-a, 4-d is correct.

23. Answer: d

Explanation:

For $2x^2 + 4x - 1 = 0$, sum of roots $= -\frac{b}{a} = -\frac{4}{2} = -2$ and product of roots $= \frac{c}{a} = -\frac{1}{2}$.

New roots are -2 and $-\frac{1}{2}$; their sum $= -\frac{5}{2}$ and product $= 1$. The required equation is $x^2 - (\text{sum})x + \text{product} = 0$, giving $x^2 + \frac{5}{2}x + 1 = 0$.

Multiplying both sides by 2: $2x^2 + 5x + 2 = 0$.

Hence, $2x^2 + 5x + 2 = 0$ is correct.

24. Answer: a

Explanation:

The Kila Raipur Sports Festival, held annually in the Ludhiana district of Punjab since 1933, is popularly known as the Rural Olympics because of its wide range of traditional rural games and athletic contests.

Pushkar Mela is a camel and cattle fair, Dree is an agricultural festival of the Apatani tribe, and Onam is Kerala's harvest festival, so they do not carry this title.

Hence, **Kila Raipur Sports Festival** is correct.

25. Answer: c

Explanation:

On strong heating lead nitrate decomposes as $2\text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{PbO} + 4\text{NO}_2 + \text{O}_2$.

The brown pungent gas evolved is nitrogen dioxide (NO_2). Nitrous oxide is colourless, carbon dioxide is colourless, and carbon monoxide is colourless too, so none match a brown gas.

Hence, **Nitrogen dioxide** is correct.

26. Answer: b

Explanation:

For any two numbers, the product equals $\text{LCM} \times \text{HCF}$.

Given $\text{LCM} = 54$ and $\text{HCF} = 9$, so $27 \times n = 54 \times 9 = 486$.

Therefore $n = \frac{486}{27} = 18$. Hence **18** is correct.

27. Answer: a

Explanation:

The series alternates two sub-sequences.

Odd positions: 25, 23, 21, 19, 17 (decrease by 2).

Even positions: 29, 25, ?, 17 (decrease by 4), so the missing term = $25 - 4 = 21$.

Hence **21** is correct.

28. Answer: c

Explanation:

Number seats 1 to 8 from the left. H is at 3, A is at 4.

With three persons between A and D , D takes seat 8; then G (second left of D) sits at 6, with F and C at 5 and 7.

Four persons between E and C forces $C = 7$, $F = 5$, $E = 2$, leaving B at 1.

Between $B(1)$ and $F(5)$ sit E, H, A . Hence **Three** is correct.

29. Answer: a

Explanation:

Days run Mon-Sat. R is on Tuesday and no one writes before U , so $U =$ Monday.

S is on the day right after R , giving $S =$ Wednesday. Exactly one student sits between P and R , so $P =$ Thursday, and Q (right after P) = Friday.

The only unused day is Saturday, which must be T .

Hence **Saturday** is correct.

30. Answer: b

Explanation:

Simplify the innermost bracket: $20 - x$.

Then $35 - (20 - x) = 15 + x$, so $23 - \{15 + x\} = 8 - x$, and $[23 - \{...\}] = 8 - x$.

Now $35 - (8 - x) = 27 + x = 42$, giving $x = 15$.

Hence **15** is correct.

31. Answer: a

Explanation:

The chain reads $B > D > H < T = P < A$.

Between B and H : $B > D$ and $D > H$, so by transitivity $B > H$.

The other options mix a $>$ and a $<$ across the H pivot, so no fixed relation can be drawn.

Hence $B > H$ is correct.

32. Answer: a

Explanation:

Rewrite $4 + 4^{n+5} = 260$ as $4^{n+5} = 256$.

Since $256 = 4^4$, we get $n + 5 = 4$, so $n = -1$.

Then $5^{n+3} = 5^2 = 25$.

Hence **25** is correct.

33. Answer: b

Explanation:

Under the Indian High Courts Act, 1861, the British Crown set up the first three chartered High Courts in India in 1862.

These were established at Calcutta, Bombay and Madras, the three Presidency capitals.

The Allahabad High Court followed in 1866, and later ones after independence.

Hence **Calcutta, Bombay and Madras** is correct.

34. Answer: b

Explanation:

Clusters from left to right: TED, LAY, HOC, CET, RGE.

First cluster from the right is RGE and its second letter is *G*; first cluster from the left is TED and its second letter is *E*.

Between *E* and *G* in the alphabet lies only *F*, i.e. one letter.

Hence **One** is correct.

35. Answer: b

Explanation:

The Central Institute of Indian Languages (CIIL) is an autonomous body under the Union Ministry of Education.

It was set up in 1969 in Mysuru (Mysore), Karnataka, to co-ordinate the development of Indian languages and their linguistic research.

Hence **Mysore** is correct.

36. Answer: c

Explanation:

Use $\tan^2 A = \sec^2 A - 1$, so the equation becomes $\sec^2 A + \sec A - 12 = 0$.

Factorise: $(\sec A + 4)(\sec A - 3) = 0$. Since A is acute, $\sec A = 3$, giving $\cos A = \frac{1}{3}$.

Then $\sin A = \frac{2\sqrt{2}}{3}$, $\tan A = 2\sqrt{2}$, so $\cot A = \frac{1}{2\sqrt{2}}$.

Hence $\frac{1}{2\sqrt{2}}$ is correct.

37. Answer: d

Explanation:

Days run Monday to Saturday. Given: B = Saturday, D = Friday, C = Monday.

Exactly three people lecture before E, so E takes the fourth day, Thursday.

A lectures on the day immediately before E, so A = Wednesday.

The only day left is Tuesday, which goes to F.

Hence, Tuesday is correct.

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38. Answer: d

Explanation:

A Municipal Corporation is a local self-government body whose members are elected by the residents of city wards.

The elected member of a ward is called a Councillor, or Parshad in Hindi.

The Commissioner is an appointed civil servant, while security and administrative staff are recruited, not elected.

Hence **Councillor (Parshad)** is correct.

39. **Answer: c**

Explanation:

Plants do carry out excretion, but they lack any dedicated excretory organs unlike animals.

They store or release wastes slowly and in small amounts through leaves (transpiration), by shedding leaves and bark, by storing gums, resins and crystals, or by diffusing gases through stomata.

So the statement claiming plants have specific excretory organs is false.

Hence **Plants have specific organs for the removal of their waste products.** is the incorrect statement.

40. **Answer: b**

Explanation:

Face West, walk 500 m; left turn faces South, walk 250 m; left turn faces East, walk 750 m; left turn faces North, walk 250 m.

Net east-west displacement = $750 - 500 = 250$ m East. Net north-south displacement = $250 - 250 = 0$.

So she ends 250 m due east of her home.

Hence **East, 250 m** is correct.

41. **Answer: c**

Explanation:

A dehydrating agent removes water molecules from another substance in a chemical reaction.

Concentrated sulphuric acid has a strong affinity for water and readily strips it, for example turning sugar into a black carbon column and dehydrating ethanol to ethene.

Ethanol and ethanoic acid are actually dehydrated by such acids, and ethene is a product of dehydration.

Hence **Concentrated sulphuric acid** is correct.

42. Answer: b

Explanation:

Human somatic cells carry 22 pairs of autosomes plus one pair of sex chromosomes (XY in males).

During meiosis a male produces gametes with 22 autosomes and one sex chromosome, half of them carrying X and half carrying Y.

So half of the sperm show the complement $22 + X$.

Hence $22 + X$ is correct.

43. Answer: a

Explanation:

The empirical relation between the three central tendencies states $\text{Mode} = 3 \times \text{Median} - 2 \times \text{Mean}$.

$$\text{Rearranging, Mean} = \frac{3 \times \text{Median} - \text{Mode}}{2}.$$

$$\text{Substituting Median} = 12 \text{ and Mode} = 15: \text{Mean} = \frac{36 - 15}{2} = \frac{21}{2} = 10.5.$$

Hence **10.5** is correct.

44. Answer: a

Explanation:

In In Vitro Fertilization the sperm and ovum are collected and combined outside the body, in a laboratory dish, so fertilization is external.

The resulting embryo is then transferred back into the mother's uterus, where it continues to develop internally.

So the defining step of IVF is external fertilization of sperm and ovum.

Hence **External fertilization of sperm and ovum** is correct.

45. Answer: d

Explanation:

The Sanjeevani Pariyojana was launched by the Haryana government in May 2021 to treat Covid-positive patients at home in villages and towns.

Under the scheme, mobile teams monitored oxygen levels and delivered medical kits to reduce hospital load during the second Covid wave.

Hence **Sanjeevani Pariyojana** is correct.

46. Answer: b

Explanation:

In the diagram the three circles are Boys, Athletes and College students.

Boys who are also college students and athletes lie in the region common to all three circles, which shows 9.

Hence, 9 is correct.

47. Answer: a

Explanation:

Approximate each root: $\sqrt{530} \approx 23.02$ and $\sqrt{255} \approx 15.97$.

Compute the arithmetic term: $85 \div 24 \times 4 = \frac{85 \times 4}{24} \approx 14.17$.

Sum inside the bracket: $23.02 + 14.17 - 15.97 \approx 21.22$; dividing by 3 gives $\approx 7.07 \approx 7$.

Hence 7 is correct.

48. Answer: d

Explanation:

Mendeleev arranged the known elements in groups and periods largely by atomic mass and by their similar physical and chemical properties.

He famously left gaps and predicted properties of undiscovered elements such as eka-aluminium (gallium) and eka-silicon (germanium).

However, his table gave no consistent slot for isotopes of the same element, since they share properties but differ in mass.

Hence **Correct position of isotopes**. is NOT a feature of his classification.

49. **Answer: c**

Explanation:

From the line-graph, wheat production in 2015 is 964000 tonnes and in 2017 is 948000 tonnes.

Production in 2018 = $948000 \times 0.9 = 853200$ tonnes.

Difference from 2015 = $964000 - 853200 = 110800$ tonnes.

Hence, 1,10,800 is correct.

50. **Answer: b**

Explanation:

Acid-base indicators change colour depending on the pH of a solution.

Phenolphthalein, methyl orange and litmus are all common acid-base indicators used in the laboratory.

Starch paper, on the other hand, tests for the presence of iodine (turning blue-black) and is not an acid-base indicator.

Hence **Starch paper** is correct.

51. **Answer: a**

Explanation:

Tropical Evergreen Forests grow in regions receiving more than 200 cm of annual rainfall with high humidity and a mean temperature above 22°C, so the canopy never sheds all its leaves at once.

The listed belts—North-East India, parts of the Western Ghats, the Andaman & Nicobar Islands, Upper Assam, the lower slopes of the Eastern Himalayas and Odisha—are the standard locations of this forest type. Moist deciduous forests shed their leaves in the dry season, while dry deciduous and subtropical montane forests need lower rainfall or higher altitude.

Hence, **Tropical Evergreen Forest** is correct.

52. Answer: a**Explanation:**

Total students = 40. Ashok is 21st from the right, so his position from the left is $40 - 21 + 1 = 20$.

Ali is at the 15th position from the left. Between the 15th and 20th positions there are $20 - 15 - 1 = 4$ students.

Hence, **Four** is correct.

53. Answer: a**Explanation:**

In triangle ACD , let P be the midpoint of AD and Q the midpoint of AC . By the midpoint theorem, $PQ = \frac{1}{2}CD$, so $CD = 2 \times 2 = 4$ units.

Opposite sides of a parallelogram are equal, so $AB = CD = 4$. Perimeter $= 2(AD + CD) = 20$, giving $AD + 4 = 10$, hence $AD = 6$ units.

Hence, **6 units** is correct.

54. Answer: a

Explanation:

The chemical formula of bleaching powder is calcium oxychloride, written as CaOCl_2 (or $\text{Ca}(\text{OCl})\text{Cl}$). Statement-I is therefore true.

Bleaching powder reacts with a dilute acid such as HCl : $\text{CaOCl}_2 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{Cl}_2$, releasing chlorine gas. Statement-II is also true.

Hence, **Both statements are true.** is correct.

55. Answer: c

Explanation:

Look at the code pattern position by position. In $\text{SUJLAM} \rightarrow \text{TTKKBL}$: $\text{S}+1=\text{T}$, $\text{U}-1=\text{T}$, $\text{J}+1=\text{K}$, $\text{L}-1=\text{K}$, $\text{A}+1=\text{B}$, $\text{M}-1=\text{L}$. In $\text{CHOKY} \rightarrow \text{DGPJZ}$: $\text{C}+1=\text{D}$, $\text{H}-1=\text{G}$, $\text{O}+1=\text{P}$, $\text{K}-1=\text{J}$, $\text{Y}+1=\text{Z}$. The rule is alternately $+1$ and -1 starting with $+1$.

Applying to CURDX : $\text{C}+1=\text{D}$, $\text{U}-1=\text{T}$, $\text{R}+1=\text{S}$, $\text{D}-1=\text{C}$, $\text{X}+1=\text{Y} \Rightarrow \text{DTSCY}$.

Hence, **DTSCY** is correct.

56. Answer: c

Explanation:

List the sequence with positions: 4, 5, &, 20, %, 7, 2, 4, @, 6, 11, &, 2, 8, 25, #, 3, 5, 6, &, •, 9. A number qualifies only if the item just before it AND the item just after it are both symbols.

Check every number. 20 sits between & and %—symbol on both sides, so it qualifies. No other number has a symbol on both sides (6 has @ before but 11 after, 2 has & before but 8 after, 3 has # before but 5 after, 9 has • before but nothing after).

Hence, **One** is correct.

57. Answer: c

Explanation:

Indian pacer Jhulan Goswami became the highest wicket-taker in Women's Cricket World Cup history during the 2022 edition held in New Zealand. She overtook Australia's Lyn Fullston's long-standing record and finished the tournament with 43 World Cup wickets overall.

The other players listed either played the tournament without holding this record or were not part of it.

Hence, **Jhulan Goswami** is correct.

58. Answer: c

Explanation:

Split each 6-letter word into two halves. The first three letters shift forward by 4 and the last three letters shift backward by 5 (mod 26). Check with OPTION: O+4=S, P+4=T, T+4=X, I-5=D, O-5=J, N-5=I → STXDJI. It also fits MODEST → QSHZNO.

Apply to MEDIUM: M+4=Q, E+4=I, D+4=H, I-5=D, U-5=P, M-5=H ⇒ QIHDPH.

Hence, QIHDPH is correct.

59. Answer: c

Explanation:

The empirical relation between mean, median and mode is $\text{Mode} = 3 \text{ Median} - 2 \text{ Mean}$, which rearranges to $\text{Mean} - \text{Mode} = 3(\text{Mean} - \text{Median})$.

Given $\text{Mean} - \text{Mode} = 72$, so $\text{Mean} - \text{Median} = \frac{72}{3} = 24$.

Hence, **24** is correct.

60. Answer: d

Explanation:

India's first para-badminton academy was inaugurated at Lucknow in January 2022 as part of the national push to develop para-shuttle athletes ahead of the 2024 Paralympics. It was set up under Dronacharya awardee Gaurav Khanna, coach of the Indian para-badminton team.

Nagpur, Bhopal and Raipur do not host the country's first para-badminton academy.

Hence, **Lucknow** is correct.

61. Answer: c

Explanation:

According to the Centre for Monitoring Indian Economy (CMIE) data, average monthly female employment in 2021 stood roughly 4.90% higher than in 2020, reflecting a modest post-pandemic recovery even as the female labour-force participation rate stayed low.

The other options do not match the CMIE published figure for the year-on-year change.

Hence, **4.90%** is correct.

62. Answer: d

Explanation:

For a parallel combination, equivalent resistance is $R_{eq} = \frac{R_1 R_2}{R_1 + R_2} = \frac{10 \times 20}{30} = \frac{20}{3} \Omega$.

Power delivered by the battery is $P = \frac{V^2}{R_{eq}} = \frac{6^2}{20/3} = \frac{36 \times 3}{20} = 5.4 \text{ W}$. Energy supplied in 1 second is $E = P \cdot t = 5.4 \times 1 = 5.4 \text{ J}$.

Hence, **5.4 J** is correct.

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63. Answer: b

Explanation:

Energy flow in an ecosystem is unidirectional—solar energy is captured by producers (green plants) through photosynthesis, passes to herbivores that eat the plants, and then to carnivores that eat the herbivores. Read with left-arrows, the same flow becomes Carnivore ← Herbivore ← Producer ← Sunlight.

Options placing apex carnivores before producers, or reversing the arrows entirely, violate the trophic direction.

Hence, **Carnivore** $\leftarrow$ **Herbivore** $\leftarrow$ **Producer** $\leftarrow$ **Sunlight** is correct.

64. Answer: b

Explanation:

The policeman gains on the thief at a relative speed of $14 - 13 = 1$ km/h. In 6 minutes, i.e. $\frac{6}{60} = 0.1$ hour, the gap closes by $1 \times 0.1 = 0.1$ km = 100 m.

The initial gap was 150 m, so the remaining distance is $150 - 100 = 50$ m.

Hence, 50 m is correct.

65. Answer: c

Explanation:

Resistors in series add directly: $R_{eq} = 12 + 24 = 36 \Omega$.

Power dissipated by the battery is $P = \frac{V^2}{R_{eq}} = \frac{6^2}{36} = 1$ W. Heat produced in 1 second is $H = P \cdot t = 1 \times 1 = 1.0$ J.

Hence, 1.0 J is correct.

66. Answer: d

Explanation:

The Consumer Protection Bill was passed by both Houses of Parliament and received the President's assent in 1986, becoming the Consumer Protection Act,

1986. It provided for consumer councils and a three-tier redressal machinery at district, state and national levels.

The 1986 Act was later replaced by the Consumer Protection Act, 2019.

Hence, **1986** is correct.

67. Answer: a

Explanation:

Let $HCF = x$ and $LCM = 3x$. For any two numbers, $LCM \times HCF = \text{product of the numbers}$, so $3x \cdot x = 432$, giving $x^2 = 144$ and $x = 12$.

Therefore $HCF = 12$ and $LCM = 3 \times 12 = 36$.

Hence, **36 and 12** is correct.

68. Answer: c

Explanation:

Agro industries are the rectangle on the left. The part of it that overlaps the food processing square shows 7, and the part that overlaps the cold storage pentagon shows 3; these two parts do not overlap each other.

Agro industries that are either food processing industries or cold storages $= 7 + 3 = 10$.

Hence, 10 is correct.

69. Answer: b

Explanation:

Use the identity $\left(x - \frac{1}{x}\right)^3 = x^3 - \frac{1}{x^3} - 3\left(x - \frac{1}{x}\right)$, which rearranges to $x^3 - \frac{1}{x^3} = \left(x - \frac{1}{x}\right)^3 + 3\left(x - \frac{1}{x}\right)$.

Substituting $x - \frac{1}{x} = 8$: $x^3 - \frac{1}{x^3} = 8^3 + 3(8) = 512 + 24 = 536$.

Hence, **536** is correct.

70. Answer: a

Explanation:

While preparing his periodic table, Mendeleev left gaps for undiscovered elements and named them after the preceding element in the same group using the Sanskrit prefix 'Eka' (meaning 'one'). Eka-boron, Eka-aluminium and Eka-silicon were later discovered as Scandium, Gallium and Germanium respectively.

The other option triples do not fit Mendeleev's Eka-predictions.

Hence, **Scandium, Gallium and Germanium** is correct.

71. Answer: b

Explanation:

Let $x = 0.4\overline{32} = 0.4323232 \dots$. Multiplying suitably to align the repeating block: $1000x = 432.3232 \dots$ and $10x = 4.3232 \dots$. Subtracting: $990x = 432.32 \dots - 4.32 \dots = 428$.

So $x = \frac{428}{990} = \frac{214}{495}$ (dividing numerator and denominator by 2).

Hence, $\frac{214}{495}$ is correct.

72. Answer: d

Explanation:

At sunrise and sunset the Sun's light passes through a thicker layer of the atmosphere at a grazing angle. Because atmospheric density decreases with height, different rays bend by different amounts—an effect called atmospheric refraction—which raises the apparent lower edge more than the upper edge and squashes the disc vertically.

Dispersion, total internal reflection and scattering explain other phenomena (rainbows, mirages, sky colour), not this vertical flattening.

Hence, **Atmospheric refraction** is correct.

73. Answer: b

Explanation:

Evaluate the given expression as it stands: $[\{(102 + 42) - (4 \times 3)\} \div (2 - 4)] \times 3 = [144 - 12] \div (-2) \times 3 = [132 \div (-2)] \times 3 = -198$, which is not 36.

Interchange the '-' and '+' signs everywhere. The expression becomes $[\{(102 - 42) + (4 \times 3)\} \div (2 + 4)] \times 3 = [60 + 12] \div 6 \times 3 = [72 \div 6] \times 3 = 12 \times 3 = 36$. It balances.

Hence, -, + is correct.

74. Answer: b

Explanation:

The decision is to freeze hiring for the next two months.

Statement I says the company has just landed its largest project needing a massive workforce—this argues for immediate hiring, contradicting the freeze, so it does NOT support the decision. Statement II says attrition has risen by 12% due to a management change—replacing outgoing staff also calls for hiring, so it too does NOT support the freeze.

Hence, **Both statements I and II do not support the decision.** is correct.

75. Answer: d

Explanation:

Statements: 'No computer is a remote', 'Some televisions are machines', 'All machines are computers'.

Conclusion I: Since every machine is a computer and no computer is a remote, no machine can be a remote either, so no remote is a machine. This follows.

Conclusion II: Some televisions are machines and all machines are computers, so those televisions are computers, giving 'Some computers are televisions'. This also follows.

Hence, **Both conclusions I and II follow.** is correct.

76. Answer: c

Explanation:

The magnetic field on the axis of a long solenoid carrying current I with n turns per unit length is given by $B = \mu_0 n I$.

Here μ_0 is the permeability of free space, a constant, so the field depends linearly on both the number of turns per unit length and the current.

Therefore the magnitude of B is directly proportional to the product nI .

Hence, nI is correct.

77. Answer: d

Explanation:

The idea of a Constituent Assembly to frame a constitution for India was first put forward by **M. N. Roy** in 1934.

This proposal was later officially adopted by the Indian National Congress in 1935 and eventually realised through the Cabinet Mission Plan of 1946, under which the Constituent Assembly was constituted.

Hence, **M. N. Roy** is correct.

78. Answer: a

Explanation:

The Mahanadi rises in the Sihawa range of the Bastar plateau region of the Dandakaranya highlands, in the erstwhile Bastar area of Madhya Pradesh which is now part of Chhattisgarh.

It flows eastwards through Chhattisgarh and Odisha, finally emptying into the Bay of Bengal after forming a large delta.

Hence, **Mahanadi river system** is correct.

79. Answer: b

Explanation:

Examine the three positions separately.

First letter: D, F, H, J, ? — each advances by 2, so the next letter is L.

Middle number: 5, 9, 13, 17, ? — each increases by 4, so the next number is 21.

Third letter: A, C, E, G, ? — each advances by 2, so the next letter is I.

Hence, **L21I** is correct.

80. Answer: a

Explanation:

Let the cost price be $CP = 100$.

To earn a gain of 15%, the selling price must be $SP = 115$.

The selling price is 92% of the marked price after an 8% discount, so $MP \times 0.92 = 115$, giving $MP = \frac{115}{0.92} = 125$.

Thus the marked price is 25 above the cost price of 100, a markup of 25%.

Hence, 25% is correct.

81. Answer: d

Explanation:

Areolar connective tissue is a loose connective tissue found beneath the skin and between internal organs.

It fills the spaces inside organs, provides support to structures such as blood vessels, nerves and muscle fibres, and plays a key role in the repair of damaged tissues.

Muscular tissue helps in movement, epithelial tissue covers surfaces, and adipose tissue stores fat, so none of them match all three functions listed.

Hence, **Areolar tissue** is correct.

82. Answer: a

Explanation:

Look for the operation linking the three numbers in each set.

In $(3, 8, 1)$: $3^2 - 1^2 = 9 - 1 = 8$, which is the middle number.

In $(8, 48, 4)$: $8^2 - 4^2 = 64 - 16 = 48$, again the middle number.

Apply the same rule to the options. For $(8, 55, 3)$: $8^2 - 3^2 = 64 - 9 = 55$, which matches.

Hence, **(8, 55, 3)** is correct.

83. Answer: a

Explanation:

Let Bheem's present age be B years. Then Ram's age is $R = B - 6$.

After 3 years: Bheem is $B + 3$ and Ram is $R + 3$. The condition gives $B + 3 = 2(R + 3)$.

Substituting $B = R + 6$: $R + 6 + 3 = 2R + 6$, which simplifies to $R = 3$.

So Ram's present age is 3 years.

Hence, **3 years** is correct.

84. Answer: b

Explanation:

The hour hand of a clock rotates 360° in 12 hours, that is 720 minutes.

So in one minute the hour hand turns $\frac{360^\circ}{720} = 0.5^\circ$.

In 18 minutes it turns $18 \times 0.5^\circ = 9^\circ$.

Hence, 9° is correct.

85. Answer: d

Explanation:

Interchange $+$ with $-$ and $\times$ with $\div$: $49 - 4 \div 120 \times 8 + 100$ becomes $49 + 4 \times 120 \div 8 - 100$.

By BODMAS, $4 \times 120 = 480$ and $480 \div 8 = 60$.

So the value is $49 + 60 - 100 = 9$.

Hence, 9 is correct.

86. Answer: d

Explanation:

Pachmarhi Biosphere Reserve in Madhya Pradesh covers the Satpura range, whose dry deciduous forests and grasslands hold fauna such as tiger, leopard, chital, wild dog and chinkara (Indian gazelle).

Snow leopard and musk deer are high-altitude Himalayan species, and barasingha is chiefly found in Kanha; none of these occur in Pachmarhi.

Hence, Chinkara is correct.

87. Answer: b

Explanation:

Compare the first pair: C L E A R $\rightarrow$ E N G C T. Each letter has moved forward by 2 positions in the alphabet.

Check the second pair: M I G H T $\rightarrow$ O K I J V. Each letter is again shifted by +2.

Apply the same shift to T R U C K: T $\rightarrow$ V, R $\rightarrow$ T, U $\rightarrow$ W, C $\rightarrow$ E, K $\rightarrow$ M, giving VTWEM.

Hence, VTWEM is correct.

88. Answer: c

Explanation:

Let the number be x .

The condition says $\frac{x}{3} = x - 4$.

Multiply both sides by 3: $x = 3x - 12$, so $2x = 12$ and $x = 6$.

Check: one-third of 6 is 2, and $6 - 2 = 4$ as required.

Hence, 6 is correct.

89. Answer: a

Explanation:

Kadam is the name of India's first indigenously developed polycentric prosthetic knee.

It was designed and developed by the Centre for Non-Destructive Evaluation at IIT Madras in collaboration with Society for Biomedical Technology, and offers greater stability and a more natural gait for above-knee amputees.

Hence, **Kadam** is correct.

90. Answer: a

Explanation:

Indian Oil Corporation Limited was formed on **30 June 1959** as Indian Oil Company Limited, and it was renamed Indian Oil Corporation Limited on 1 September 1964 following its merger with Indian Refineries Limited.

It is a Maharatna public sector undertaking under the Ministry of Petroleum and Natural Gas and is India's largest commercial oil company.

Hence, **1959** is correct.

91. Answer: a

Explanation:

From the given proportion, $\frac{2x + 7y}{4x - 3y} = \frac{8}{3}$.

Cross multiplying: $3(2x + 7y) = 8(4x - 3y)$, that is $6x + 21y = 32x - 24y$.

Rearranging: $45y = 26x$, so $\frac{x}{y} = \frac{45}{26}$.

Hence, 45 : 26 is correct.

92. Answer: c

Explanation:

In April 2022, NITI Aayog and UNICEF India signed a Statement of Intent focused on advancing the well-being of **Children** under the Sustainable Development Goals framework.

The joint effort centred on nutrition, health, education and protection of children so as to strengthen India's progress on child-related SDG targets.

Hence, **Children** is correct.

93. Answer: d

Explanation:

Balance $xS_8 + yC \rightarrow zCS_2$ atom by atom.

Sulphur: the left side has $8x$ atoms and each CS_2 carries 2, so $8x = 2z$, i.e. $z = 4x$.

Carbon: $y = z$.

Smallest whole numbers: $x = 1$, $y = 4$, $z = 4$, giving $S_8 + 4C \rightarrow 4CS_2$.

Hence, 1, 4, 4 is correct.

94. Answer: b

Explanation:

Devendra's one-day work is $\frac{1}{20}$ and Ishwar's is $\frac{1}{25}$.

Working alternately starting with Devendra, two days complete $\frac{1}{20} + \frac{1}{25} = \frac{5+4}{100} = \frac{9}{100}$ of the job.

In 22 days (11 cycles) they finish $\frac{99}{100}$ of the work, leaving $\frac{1}{100}$ remaining.

The 23rd day is Devendra's; he does $\frac{5}{100}$ per full day, so he needs $\frac{1/100}{5/100} = \frac{1}{5}$ of a day.

Total time = $22 + \frac{1}{5} = 22\frac{1}{5}$ days.

Hence, $22\frac{1}{5}$ days is correct.

95. Answer: b

Explanation:

The investment multiplier k is given by $k = \frac{1}{1 - \text{MPC}} = \frac{1}{\text{MPS}}$.

When $\text{MPC} = \text{MPS}$, both must equal 0.5 because $\text{MPC} + \text{MPS} = 1$.

Therefore $k = \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$.

Hence, 2 is correct.

96. Answer: a

Explanation:

Fill the blanks with 7, 5, 2, 2, 6: 2, 6, 7, 8, 2, 5, 7, 5, 2, 4, 7, 2, 2, 3, 6, 9, 2, 2, 6, 6.

Read it in groups of four: 2 6 78, 2 5 75, 2 4 72, 2 3 69, 2 2 66.

Each group starts with 2, the second digit falls by 1 (6, 5, 4, 3, 2) and the last two digits form a number falling by 3 (78, 75, 72, 69, 66).

Hence, 7, 5, 2, 2, 6 is correct.

97. Answer: a

Explanation:

In triangle ABC, $AB = AC$ implies the base angles are equal, so $\angle B = \angle C$.

The given conditions say $\angle C = \angle P$ and $\angle B = \angle Q$, which together imply $\angle P = \angle Q$.

In triangle PQR, equal angles imply the sides opposite them are equal, so $QR = PR$; hence PQR is also isosceles.

However, no linear dimension is given equal between the two triangles, so they need not be congruent.

Hence, **isosceles, but not congruent.** is correct.

98. Answer: d

Explanation:

The Dr. Ambedkar Centre of Excellence (DACE) scheme was launched on 22 April 2022 by the Ministry of Social Justice and Empowerment.

Under the scheme, **31** Central Universities were selected to establish the centres and provide free coaching to Scheduled Caste candidates preparing for competitive examinations conducted by UPSC, SSC and other bodies.

Hence, **31** is correct.

99. Answer: b

Explanation:

Compute the differences between consecutive terms of 11, 44, 85, 129, 181, 236: they are 33, 41, 44, 52, 55.

Look at the second-level pattern: +8, +3, +8, +3. The differences alternately add 8 and 3.

The next difference is therefore $55 + 8 = 63$, so the missing term is $236 + 63 = 299$.

Hence, **299** is correct.

100. Answer: a

Explanation:

Place the six persons from tallest (rank 1) to shortest (rank 6).

P is tallest, so P is at rank 1. R is taller than only one person, so R is at rank 5.

Since $S > U > R$, S and U occupy positions among ranks 2 to 4.

T is taller than Q with exactly three persons between them, so the pair T-Q must occupy ranks 2 and 6. Hence T is at rank 2 and Q is at rank 6.

S and U then fill ranks 3 and 4 with $S > U$, giving the order P, T, S, U, R, Q.

The shortest is Q.

Hence, **Q** is correct.