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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION (UPDATED)

CLASS - 9
Question Paper Code : UN489

KEY

1. B	2. B	3. C	4. A	5. C	6. D	7. D	8. A	9. B	10. D
11. C	12. A	13. B	14. C	15. C	16. B	17. D	18. C	19. D	20. A
21. C	22. D	23. B	24. C	25. B	26. C	27. D	28. A	29. D	30. B
31. B	32. C	33. B	34. D	35. C	36. C	37. B	38. B	39. C	40. D
41. D	42. D	43. A	44. D	45. A	46. C	47. A	48. C	49. B	50. D
51. B	52. B	53. C	54. D	55. D	56. C	57. A	58. A	59. D	60. C

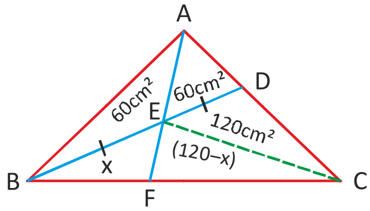
SOLUTIONS

MATHEMATICS

01. (B) Cost : Join EC

Area of ΔABD = $\frac{1}{3}$ of area of ΔABC

= 120 cm^2



$\therefore$ Area of ΔABE = Area of ΔADE

= $\frac{1}{2}\times 120\text{ cm}^2 = 60\text{ cm}^2$

In ΔBCD, CE is median $\Rightarrow$ Area of ΔBCD

$\therefore$ Area of ΔCDE = Area of ΔBCE

= $\frac{1}{2}\times 240\text{ cm}^2$ = 120 cm^2

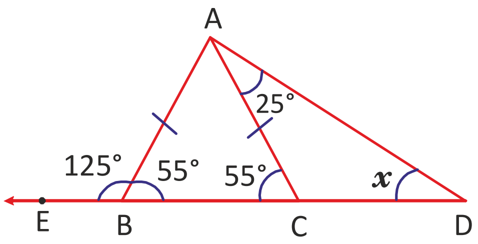
$\therefore \frac{EF}{EA} = \frac{\text{Area of }\Delta BEF}{\text{Area of }\Delta ABE} = \frac{\text{Area of }\Delta CEF}{\text{Area of }\Delta ACE}$

$\Rightarrow \frac{x}{60} = \frac{120-x}{(60+120)} \Rightarrow \frac{x}{\cancel{60}_1}\times \cancel{180}^3 = 120 - x$

$4x$ = 120

Area of ΔBEF(x) = 30 cm^2

02. (B) In ΔABC, $\angle ABC = 180° - 125° = 55°$



$\therefore \angle ABC = \angle ACB = 55°$

[$\because$ Given in ΔABC, AB = AC]

In ΔACD, $\angle ACB = x + 25°$

$\therefore x + 25° = 55°$

$x = 55° - 25° = 30°$

03. (C)

$$
\begin{array}{r|l|l}
x-\sqrt{2} & x^3 - 2\sqrt{2} & (x^2 + \sqrt{2}x + 2) \\
 & x^3 - \sqrt{2}x^2 & \\
 & (-)\quad(+) & \\
\hline
 & \sqrt{2}x^2 - 2\sqrt{2} & \\
 & \sqrt{2}x^2 - 2x & \\
 & (-)\quad(+) & \\
\hline
 & 2x - 2\sqrt{2} & \\
 & 2x - 2\sqrt{2} & \\
 & (-)\quad(+) & \\
\hline
 & 0 &
\end{array}
$$

(OR)

$$\frac{x^3 - 2\sqrt{2}}{x-\sqrt{2}} = \frac{x^3 - (\sqrt{2})^3}{x - \sqrt{2}} = \frac{\cancel{(x-\sqrt{2})}[x^2 + \sqrt{2}x + (\sqrt{2})^2]}{\cancel{(x-2)}}$$

04. (A) $\sqrt{10 + \sqrt{24} - \sqrt{60} - \sqrt{40}}$

$$= \sqrt{10 + 2\sqrt{6} - 2\sqrt{15} - 2\sqrt{10}}$$

$$= \sqrt{10 + 2\sqrt{2}\times\sqrt{3} - 2\sqrt{3}\times\sqrt{5} - 2\sqrt{5}\times\sqrt{2}}$$

$$= \sqrt{(\sqrt{2})^2 + (\sqrt{3})^2 + (\sqrt{5})^2 + 2\sqrt{2}\times\sqrt{3} - 2\sqrt{5}\times\sqrt{3} - 2\sqrt{3}\times\sqrt{2}}$$

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

$$= (\sqrt{2} + \sqrt{3} - \sqrt{5})$$

05. (C) Given $p(x) = \dfrac{2x+1}{x-2}$

$$\therefore \quad p\left(\frac{2x+1}{x-2}\right) = \frac{2\left(\frac{2x+1}{x-2}\right)+1}{\left(\frac{2x+1}{x-2}\right)-2}$$

$$= \frac{\left[\frac{4x+2+(x-2)}{x-2}\right]}{\left[\frac{2x+1-2(x-2)}{x-2}\right]}$$

$$= \frac{(4x+\cancel{2}+x-\cancel{2})}{\cancel{(x-2)}} \times \frac{\cancel{(x-2)}}{(\cancel{2x}+1-\cancel{2x}+4)}$$

$$= \frac{5x}{5} = x$$

06. (D) Proudct of two irrational numbers is a real number.

07. (D) $\dfrac{1}{\sqrt{11}-3} = \dfrac{1}{\sqrt{11}-3} \times \dfrac{\sqrt{11}+3}{\sqrt{11}+3}$

$$= \frac{\sqrt{11}+3}{(\sqrt{11})^2 - 3^2} = \frac{\sqrt{11}+3}{11-9} = \frac{\sqrt{11}+3}{2}$$

Similarly,

$$\frac{1}{3-\sqrt{7}} = \frac{3+\sqrt{7}}{2}$$

$$\frac{1}{\sqrt{7}-\sqrt{5}} = \frac{\sqrt{7}+\sqrt{5}}{2}$$

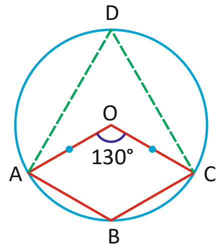
$$\frac{1}{\sqrt{5}-\sqrt{3}} = \frac{\sqrt{5}+\sqrt{3}}{2}$$

$$\therefore \quad \frac{\sqrt{5}+\sqrt{3}}{2} < \frac{\sqrt{7}+\sqrt{5}}{2} < \frac{3+\sqrt{7}}{2} < \frac{\sqrt{11}+3}{2}$$

i.e., $\dfrac{1}{\sqrt{5}-\sqrt{3}} < \dfrac{1}{\sqrt{7}-\sqrt{5}} < \dfrac{1}{3-\sqrt{7}} < \dfrac{1}{\sqrt{11}-3}$

$\Rightarrow \quad \sqrt{5}-\sqrt{3} > \sqrt{7}-\sqrt{5} > 3-\sqrt{7} > \sqrt{11}-3$

08. (A) Construction : Notice 'D' on the major are join AD and CD.



$$\angle ADC = \frac{\angle AOC}{2} = \frac{130^\circ}{2} = 65^\circ$$

ABCD is a cyclic quadrilateral

∴ $\angle ADC + \angle ABC = 180^\circ$

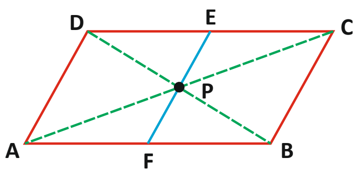
$65^\circ + \angle ABC = 180^\circ$

$\angle ABC = 180^\circ - 65^\circ = 115^\circ$

09. (B) Construction draw EF||AD

AFED is a parallelogram

∴ Area of $\Delta APD = \frac{1}{2}$ area of the parallelogram AFED



Similarly area of $\Delta BPC = \frac{1}{2}$ area of the parallelogram FBCE

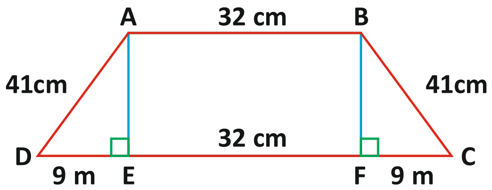
∴ Area of ΔAPD + area of $\Delta BPC = \frac{1}{2}$[area parallelogram AFED + area of parallelogram FBCE]

2[Area of ΔAPD + area of ΔBPC] = Area of the parallelogram ABCD

∴ Area of the parallelogram ABCD = 2×24 cm^2

= 48 cm^2

10. (D)



Construction : AE $\perp$ CD and BF $\perp$ CD

$\Delta ADE \cong \Delta BCF$ [$\because$ RHS congruency]

∴ DE = FC [$\because$ CPCT]

But ABFE is a rectangle

∴ EF = AB = 32 cm

∴ DE = CF = $\frac{50\text{ cm} - 32\text{ cm}}{2} = 9\text{ cm}$

In ΔADE, LE = 90° $\Rightarrow AD^2 = AE^2 + ED^2$

$41^2 = 9^2 + AE^2$

$41^2 - 9^2 = AE^2$

$(41 + 9)(41 - 9) = AE^2$

$50 \times 32 = AE^2$

$\sqrt{1600} = AE$

AE = 40 cm

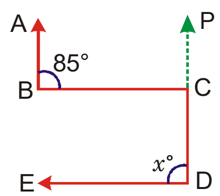
Area of the trapezium ABCD

$= \frac{1}{2} \times AE(AB + CD)$

$= \frac{1}{\cancel{2}_1} \times \cancel{40}^{20} (32 + 50)\text{ cm}^2$

= 1640 cm^2

11. (C) Extend the line DC to a point P, such that AB||CP,



Then $\angle BCP = \angle EDC = x^\circ$

(Corresponding angles)

Also, $\angle ABC + \angle BCP = 180^\circ$

$\Rightarrow$ $\angle BCP = 95^\circ$

and $\angle BCP = \angle EDC = 95^\circ$

12. (A) Given $3\pi r^2 = 1848\ cm^2$

$$\Rightarrow 3\times\frac{22}{7}\times r^2 = 1848\ cm^2$$

$$r^2 = 1848 \times \frac{7}{22}\times\frac{1}{3}\ cm^2$$

$$r = \sqrt{196} = 14\ cm$$

Volume of hemisphere

$$= \frac{2}{3}\times\pi\times 14\times 14\times 14\ cm^3$$

Given

$$\frac{1}{3}\pi\times 7\times 7\times h = \frac{2}{3}\times\pi\times 14\times 14\times 14$$

$$h = \frac{2}{3}\times 14^2\times 14^2\times 14\times 3\times\frac{1}{7}\times\frac{1}{7}$$

h = 112 cm

$$l = \sqrt{h^2+r^2} = \sqrt{112^2+7^2}$$

$$= \sqrt{12544+49} = \sqrt{12593}\ cm$$

= 112.21 cm

13. (B) Given $x+\frac{1}{x} = \sqrt{5}$

Squaring on both sides

$$\left(x+\frac{1}{x}\right)^2 = \sqrt{5}^2$$

$$x^2+2\times x\times\frac{1}{x}+\left(\frac{1}{x}\right)^2 = 5$$

$$x^2+\frac{1}{x^2} = 5-2 = 3$$

Cubing on both sides

$$\left(x^2+\frac{1}{x^2}\right)^3 = 3^3$$

$$\Rightarrow (x^2)^3 + 3x^2\times\frac{1}{x^2}\left(x^2+\frac{1}{x^2}\right)+\left(\frac{1}{x^2}\right)^3 = 27$$

$$\Rightarrow x^6 + 3(3) + \frac{1}{x^6} = 27$$

$$\Rightarrow x^6 + \frac{1}{x^6} = 27-9 = 18$$

14. (C) From the given figure, we have

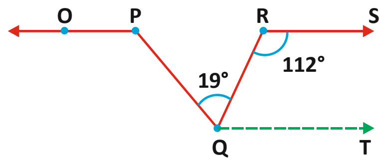
AD = BC

$\Rightarrow$ AD – CD = BC – CD

[Equal are subtracted from equals]

$\Rightarrow$ AC = BD

15. (C) Const draw QT||RS



$\angle$QRS + $\angle$RQT = 180° [$\because$ If the lines are parallel the sum of interior angles lie same to the transversal are supplimentary]

$\therefore$ $\angle$RQT = 180° – 112°

$\angle$RQT = 68°

But $\angle$OPQ = $\angle$PQT

[$\because$ Alternative angles]

$\therefore$ $\angle$OPQ = $\angle$PQR + $\angle$RQT

= 19° + 68° = 87°

16. (B) LHS = $\frac{4(x+1)+5(x-1)+6}{x^2-1}$

$$= \frac{4x+4+5x-5+6}{x^2-1}$$

$$= \left(\frac{9x+5}{x^2-1}\right)$$

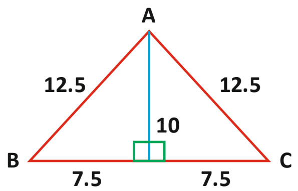
17. (D) $\dfrac{15}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$

$= \dfrac{15}{\sqrt{10}+2\sqrt{5}+2\sqrt{10}-\sqrt{5}-4\sqrt{5}}$

$= \dfrac{15}{3\sqrt{10}-3\sqrt{5}} = \dfrac{\overset{5}{\cancel{15}}}{\cancel{2}\left(\sqrt{10}-\sqrt{5}\right)}$

$= \dfrac{5}{\sqrt{10}-\sqrt{5}} \times \dfrac{\sqrt{10}+\sqrt{5}}{\sqrt{10}+\sqrt{5}} = \dfrac{\cancel{5}\left(\sqrt{10}+\sqrt{5}\right)}{\cancel{5}}$

18. (C)



Given a = 12.5 cm, b = 12.5 cm and c = 15 cm

∴ s = $\dfrac{a+b+c}{2}$

$= \dfrac{12.5\text{ cm} + 12.5\text{ cm} + 15\text{ cm}}{2}$

$= \dfrac{\overset{20}{\cancel{40}}\text{ cm}}{\underset{1}{\cancel{2}}}$

s = 20

Area of ΔABC = $\sqrt{S(s-a)(s-b)(s-c)}$

= $\sqrt{20 \times 5 \times 7.5 \times 7.5}$ cm^2

= 75 cm^2

$\dfrac{1}{2}$ × longest side × smallest altitude = Area of ΔABC

$\dfrac{1}{2}$ × 15 cm × h = 75 cm^2

h = 75 cm^2 × $\dfrac{2}{15\text{ cm}}$

h = 10 cm

19. (D) $999999999^2 - 1 = (99{,}99{,}99{,}999)^2 - 1^2$

$= (99{,}99{,}99{,}999 + 1)(99{,}99{,}99{,}999 - 1)$

$= (1{,}00{,}00{,}00{,}000 \times 999999998$

$= 999999998 \times 10^9$

20. (A) $\dfrac{125x^3}{64} - \dfrac{75x^2}{8} + 15x - 8$

$= \left[\left(\dfrac{5x}{4}\right)^3 - 3\times\dfrac{25}{8}x^2 + 3\times 5x - 2^3\right]$

$= \left[\left(\dfrac{5x}{4}\right)^3 - 3\times\dfrac{25}{16}x^2\times 2 + 3\times\dfrac{5}{4}x\times 4 - 2^3\right]$

$= \left[\left(\dfrac{5x}{4}\right)^3 - 3\left(\dfrac{5x}{4}\right)^2(2) + 3\times\dfrac{5x}{4}\times 2^2 - 2^3\right]$

$= \left(\dfrac{5x}{4} - 2\right)^3$

$= \left(\dfrac{5x}{4} - 2\right)^2\left(\dfrac{5x}{4} - 2\right)$

$= \left[\dfrac{25}{16}x^2 - \cancel{2}\times\dfrac{5}{\cancel{4}_{\cancel{2}}}\times\cancel{2} + 2^2\right]\left(\dfrac{5x}{4} - 2\right)$

$= \left(\dfrac{25x^2}{16} - 5x + 4\right)\left(\dfrac{5x}{4} - 2\right).$

21. (C) On y-axis at the x-coordinates are zero

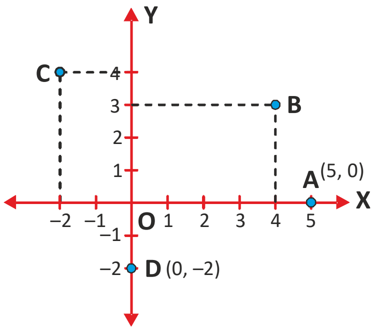
∴ $2(0) - 3y = 6$

$-3y = 6$

$y = \dfrac{6}{-3} = -2$

∴ Required point = (0, –2)

22. (D)



∴ The coordinate of A, B, C and D are (5, 0), (4, 3), (–2, 4) and (0, –2) respectively.

23. (B) Let the common factor of both be $(x + k)$

Given $(x + k)$ is a factor of $p(x) = x^2 + 5x + p$

∴ $p(-k) = 0 \Rightarrow (-k)^2 + 5(-k) + p = 0$

$k^2 - 5k + p = 0$ ..... (1)

Similarly $9(-k) = 0$

$\Rightarrow$ $(-k)^2 + 3(-k) + q = 0$

$k^2 - 3k + q = 0$ ..... (2)

From (1) & (2) $k^2 - 5k + p = k^2 - 3k + q$

$p - q = 2k$

$$k = \left(\frac{p-q}{2}\right)$$

Substitute $k = \left(\frac{p-q}{2}\right)$ in eq (1)

$$\left(\frac{p-q}{2}\right)^2 - 5\left(\frac{p-q}{2}\right) + p = 0$$

$(p - q)^2 = 2(3p - 5q)$

24. (C) Side of each tile are 36 cm, 29 cm & 25 cm

∴ $S = \frac{a+b+c}{2} = \frac{(36 + 29 + 25)}{2}$ cm

$S = 45$ cm

Area of each tile

$= \sqrt{S(s-a)(s-b)(s-c)}$

$= \sqrt{45 \times 9 \times 16 \times 20}\ cm^2$

$= \sqrt{5 \times 9 \times 9 \times 4 \times 4 \times 5 \times 2 \times 2}\ cm^2$

$= 5 \times 9 \times 4 \times 2\ cm^2$

$= 360\ cm^2$

∴ Area of 16 tiles $= 360\ cm^2 \times 16$

$= 5760\ cm^2$

∴ Total cost for polishing

$= 5760\ \cancel{cm^2} \times \frac{80 \text{ paise}}{1\ \cancel{cm^2}}$

$= ₹\ 576\cancel{0} \times \frac{8\cancel{0}}{1\cancel{0}\cancel{0}}$

$= ₹\ 4608$

25. (B) Given r = AC = 53 & LB = 90°

∴ $AC^2 = AB^2 + BC^2$

$53^2 = 45^2 + BC^2$

$53^2 - 45^2 = BC^2$

$(53 + 45)(53 - 45) = BC^2$

$98 \times = BC^2$

$\sqrt{49 \times 16} = BC$

$BC = 7 \times 4 = 28$

Area of the rectangle ABCD = AB × BC

$= 45 \times 28\ cm^2$

$= 1260\ cm^2$

PHYSICS

26. (C) The gravitational force that the moon exerts on the planet is equal in magnitude to the gravitational force that the planet exerts on the moon (Newton's third law).

27. (D) As per Newton's 3rd law, the same force pulls both the trolleys. Let mass of X and Y be 2 m and m respectively.

Force on X is ma = Force on Y is ma.

∴ 2 m × 2 = m × a

So, a = 4 m/s^2 i.e., 4 m/s^2 is the initial acceleration of Y.

28. (A) The K.E is maximum at point Q. The total energy is the same at all the points.

29. (D) In the first case:

Initial velocity, u = 0

Final velocity, v = 6 m s^{-1}

Time, t = 30 s

Acceleration a = $\frac{v-u}{t}$

Substituting the given values of u, v and t in the above equation, we get

$$a=\frac{(6\,m\,s^{-1}-0\,m\,s^{-1})}{30\,s}=0.2\ m\,s^{-2}$$

In the second case :

Initial velocity, u = 6 m s^{-1}

Final velocity, v = 4 m s^{-1}

Time, t = 5 s

Then, $$a=\frac{(4\,m\,s^{-1}-6\,m\,s^{-1})}{5\,s}=-0.4\,m\,s^{-2}$$

The acceleration of the bicycle in the first case is 0.2 m s^{-2} and in the second case, it is – 0.4 m s^{-2}.

30. (B) Due to inertia of motion, the water in the tank would move forward on sudden application of the brake.

31. (B) $\frac{1}{2}mv^2=1500$

$$m=\frac{1500\times 2}{10^2}=30\ kg$$

$$K.E=\frac{1}{2}mv^2=\frac{1}{2}\times 30\times 40^2=24\,000\ J$$

Increase in Kinetic energy

= 24 000 – 1500 = 22 500 J

32. (C) Distance travelled = Area under the speed-time graph. If the object is moving with constant speed, its speed-time graph must be a horizontal straight line.

Distance covered is equaled to the area under the straight line.

33. (B) Inertia is the property of mass that resists changes in motion. A body at rest tends to remain at rest.

34. (D) The principle of conservation of energy states that the total energy of a system remains constant. The total energy includes the internal energy. The total of KE and PE at the end is 0.

35. (C) Density of iron, d = 7.8 × 10^{-3} kg/m^3

Volume of iron piece,

V = 100 cm^3 = 100 × 10^{-6} m^3 = 10^{-4} m^3

Mass of iron piece,

M = V × d = (10^{-4} m^3) × (7.8 × 10^{-3} kg/m^3) = 0.78 kg

Weight of iron piece,

W = Mg = (0.78 kg)(10 m/s^2) = 7.8 N

(b) Upthrust, F_B = Weight of water displaced

= Volume of water displaced × Density of water × g

= Volume of iron piece × density of water × g

(volume of water displaced = Volume of iron piece)

= (10^{-4} m^3)(1000 kg/m^3)(10 m/s^2) = 1 N

(c) Apparent weight = true weight of iron piece – upthrust on iron piece in water

= W – F_B = 7.8 N – 1 N = 6.8 N.

CHEMISTRY

36. (C) Equal volumes contain equal no. of molecules. Hence, no. of atoms of H_2, He, O_2 and O_3 will be in the ratio 2 : 1 : 2 : 3.

37. (B) $\text{Mass\%} = \dfrac{\text{Mass of solute}}{\text{Mass of solute + Solvent}}$

(A) $\text{Mass\%} = \dfrac{5}{5+95} \times 100 = 5$

(B) $\text{Mass\%} = \dfrac{15}{150} \times 100 = 10$

(C) $\text{Mass\%} = \dfrac{10}{200} \times 100 = 5$

(D) $\text{Mass\%} = \dfrac{25}{400} \times 100 = 6.25$

15 g of oxalic acid present in 150 g of its aqueous solution has maximum mass percentage.

38. (B)

(i) Molecular mass of C_6H_5COOH

= 6 × at. mass of C + 5 × at. mass of H + 1 × at. mass of C + at. mass of O + at. mass of O + at. mass of H

= 6 × 12.0 u + 5 × 1.0 u + 1 × 12.0 u + 16 u + 16 u + 1.0 u

= 72 + 5 + 12 + 16 + 16 + 1 = 122 u

(ii) Molecular mass of Al_2O_3

= 2 × at. mass of Al + 3 × at. mass of O

= 2 × 27 u + 3 × 16 u = 102 u

(iii) Molecular mass of Na_2SO_4

= 2 × at. mass of Na + at. mass of S + 4 × at. mass of O

= 2 × 23 u + 32 u + 4 × 16 u = 142 u.

39. (C) Statements I, II and VI are true.

40. (D) An ice cube and water have mass and occupy space, so they are matter.

An ice cube has a definite shape and a definite volume, so it is a solid.

Water has a definite volume but has no definite shape, so it is a liquid.

41. (D) With chlorine, phosphorus forms PCl_3 and PCl_5. NH_4^+ ion is a cation and is made up of N and H which are non-metal atoms.

42. (D) The solubility of a solid in water as solvent will increase if you increase the temperature of water.

43. (A)

(i) Molecular mass of $C_{12}H_{22}O_{11}$

= 12 × At. mass of C + 22 × At. mass of H + 11 × At. mass of O

= 12 × 12.0 u + 22 × 1.0 u + 11 × 16.0 u = 144 + 22 + 176 u = 342 u.

(ii) Molecular mass of $Al_2(SO_4)_3$

= 2 × At. mass of Al + 3 × [At. mass of S + 4 × At. mass of O]

= 2 × 27.0 u + 3 × (32.0 u + 4 × 16.0 u)

= 54 u + 3 (32 + 64) u = 54 + 3 × 96 u = 54 + 288 u = 342 u.

(iii) Molecular mass of $CuSO_4.5\ H_2O$

= At. mass of Cu + At. mass of S + 4 × At. mass of O + 5 × (2 × At. mass of H + 1 × At. mass of O)

= 63.5 u + 32.0 u + 4 × 16.0 u + 5 (2 × 1.0 u + 16.0 u)

= 63.5 + 32.0 + 64.0 + 90.0 u = 249.5 u.

44. (D) The solubility of $NaCl$ remains the same i.e., = 35 °C at all temperatures.

45. (A) Lower the melting points of substances, weaker or lower are the interparticle forces of attraction.

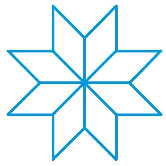
Higher the melting points of substances, stronger or higher are the interparticle forces of attraction. The increasing order of four substances P, Q, R and S based on their interparticle forces of attraction is P(78 °C), R (100 °C), S (168 °C) and Q (262 °C).

BIOLOGY

46. (C) X-Granulocytes and Y-Agranulocytes.
47. (A) The longest animal cell is nerve cell.
48. (C) Leucoplasts are the colourless plastids which store starch/protein and lipids in them.
49. (B) Rhinoviruses causes common cold.
50. (D) The functions performed by ribosomes are:
    (i) It helps in the synthesis of enzymes.
    (ii) It helps in synthesis of protein molecules.
51. (B) The scientific name of an organism include genus and species.
52. (B) Dendrites receives impulses.
53. (C) Through crop rotation with leguminous crops, nitrogen can be replenished in soil naturally. The leguminous plants, like peas, beans, soybeans, peanuts, etc., have nitrogen-fixing bacteria in their root nodules. For example, the nitrogen-fixing bacteria, viz., Rhizobium, fixes atmospheric nitrogen (N_2) into ammonium (NH_4^+) which is used by the plants.
54. (D) The steps involved in the carbon cycle are: Photosynthesis, respiration, and burning of fossil fuels.
55. (D) Afforestation, contour ploughing, and step farming prevents soil erosion.

CRITICAL THINKING

56. (C) Except option (C) rest all can be drawn without lifting the pen.



57. (A) The moon cannot support life because it does not have an atmosphere and is not goologically active.
58. (A) WTSXZY (The first three components attached are WTS)
59. (D)

60. (C) From I, we conclude that 1st, 8th, 15th, 22nd and 29th of June 2020 were Mondays.

    So, the last Monday fell on 29th.

    From II, we conclude that 30th June, 2010 was Tuesday. Thus, 29th June 2020 was the last Monday of the month.

The End