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NATIONAL LEVEL SCIENCE TALENT SEARCH EXAMINATION

Paper Code: UN 421

Solutions for Class : 10

Mathematics

1. (A) Let the smallest angle be $\angle C$ and the largest angle be $\angle A$.

Then according to the problem,

$$\angle C = \frac{1}{5} (\angle A + \angle B) \quad \dots(1)$$

$$\text{and } \angle A = \angle B + \angle C + 20^\circ \quad \dots(2)$$

Since $\angle A + \angle B + \angle C = 180^\circ$,

$$\angle C = 180^\circ - (\angle A + \angle B) \quad \dots(3)$$

From (1) and (3),

$$\frac{1}{5} (\angle A + \angle B) = 180^\circ - (\angle A + \angle B)$$

$$\Rightarrow \angle A + \angle B + \frac{1}{5} \angle A + \frac{1}{5} \angle B = 180^\circ$$

$$\Rightarrow \frac{6}{5} (\angle A + \angle B) = 180^\circ$$

$$\Rightarrow \angle A + \angle B = \frac{180^\circ \times 5}{6} = 150^\circ$$

$$\Rightarrow \angle A = 150^\circ - \angle B \quad \dots(4)$$

$$\text{and } \angle C = \frac{1}{5} \times 150^\circ = 30^\circ \quad \dots(5)$$

From (2) and (4),

$$150^\circ - \angle B = \angle B + \angle C + 20^\circ$$

$$\Rightarrow 130^\circ = 2\angle B + \angle C \quad \dots(6)$$

$$= 2\angle B + 30^\circ$$

$$\Rightarrow \angle B = \frac{130^\circ - 30^\circ}{2} = 50^\circ$$

$$\therefore \angle A = 150^\circ - 50^\circ = 100^\circ$$

Hence the largest angle is **100°**.

2. (C) Let the point on x -axis be $(x, 0)$.

$$\text{Then, } c = \sqrt{(2-x)^2 + (3-0)^2}$$

$$= \sqrt{(2-x)^2 + 9} \geq 3$$

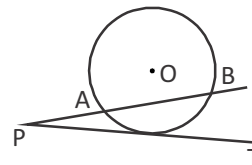
(For $x = 0, 1, \dots$ etc)

But as it is given that $c < 3$, no such point exists.

3. (B) $45^\circ = \left(\frac{45^\circ \times \pi}{180^\circ} \right)^c$

$$= \left(\frac{\pi}{4} \right)^c = 0.25 \pi$$

4. (B) Given $PA = 4$ cm and $AB = 5$ cm



$$\Rightarrow PT^2 = AP \times PB$$

$$\Rightarrow PT^2 = 4 \times 9$$

$$\Rightarrow PT = 6$$

Hence, the length of PT is **6 cm**.

5. (B) $318 = 2 \times 3 \times 53$

$$477 = 3 \times 3 \times 53$$

$$\Rightarrow \text{L.C.M. (318, 477)}$$

$$= 2 \times 3 \times 3 \times 53 = 954$$

Given that

$$954 = 159 \times p + 318,$$

$$p = \frac{954 - 318}{159} = 4$$

6. (A) Let the length of the side of the smaller square be 'x' m. Then its area is x^2 sq. m.
 \therefore The length of the side of the larger square = $(x + 4)$ m
 \Rightarrow Its area = $(x + 4)^2$ sq. m
 $= x^2 + 8x + 16$ sq. m

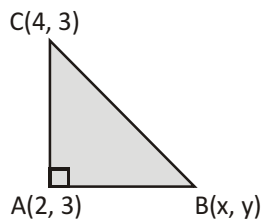
Given that the sum of their areas is 208 sq. m.

$$\begin{aligned} \Rightarrow x^2 + x^2 + 8x + 16 &= 208 \\ \Rightarrow 2x^2 + 8x + 16 &= 208 \\ \Rightarrow x^2 + 4x + 8 - 104 &= 0 \\ \Rightarrow x^2 + 4x - 96 &= 0 \\ \Rightarrow x^2 + 12x - 8x - 96 &= 0 \\ \Rightarrow x(x + 12) - 8(x + 12) &= 0 \\ \Rightarrow x &= -12 \text{ or } 8 \end{aligned}$$

Since the side of a square cannot be negative, the side of the smaller square is 8 m.

\therefore The side of the larger square is **12 m**.

7. (A) According to the problem,
 $BC^2 = AB^2 + AC^2$



$$\begin{aligned} \Rightarrow (x - 4)^2 + (y - 3)^2 &= [(x - 2)^2 + (y - 3)^2] \\ &+ [(4 - 2)^2 + (3 - 3)^2] \end{aligned}$$

$$\begin{aligned} \Rightarrow x^2 - 8x + 16 + y^2 - 6y + 9 &= (x^2 - 4x + 4 + y^2 - 6y + 9) + 4 + 0 \\ \Rightarrow -8x - 6y + 25 &= -4x - 6y + 13 + 4 \\ \Rightarrow -8x + 25 &= -4x + 17 \\ \Rightarrow 4x &= 8 \Rightarrow x = 2 \end{aligned}$$

8. (A) Given $\alpha + \beta + \gamma = 2$, $\alpha\beta\gamma = (-14)$ and $\alpha\beta + \beta\gamma + \gamma\alpha = (-7)$, the required polynomial is
 $x^3 - (\alpha + \beta + \gamma)x^2 + (\alpha\beta + \beta\gamma + \gamma\alpha)x - \alpha\beta\gamma$
 $= x^3 - 2x^2 + (-7)x - (-14)$
 $= x^3 - 2x^2 - 7x + 14$
Hence, the polynomial is **$x^3 - 2x^2 - 7x + 14$** .

9. (B) Let x , y and z be the three radii.
 $\therefore x + y = 7$ cm (1)
 $y + z = 11$ cm (2)
and $x + z = 6$ cm (3)
Subtracting eq. (2) from eq. (1), we get
 $x - z = -4$ (4)

Adding eq.(3) and eq.(4), we get

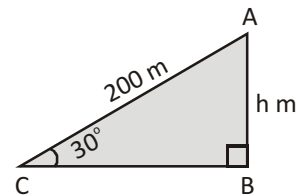
$$\begin{aligned} 2x &= 2 \Rightarrow x = 1 \text{ cm} \\ \text{from eq. (1)} \Rightarrow y &= 6 \text{ cm} \\ \text{from eq. (3)} \Rightarrow z &= 6 - 1 = 5 \text{ cm} \\ \therefore x &= 1 \text{ cm, } y = 6 \text{ cm, } z = 5 \text{ cm} \end{aligned}$$

10. (A) Odd numbers starting from 11 are 11, 13, 15, 17, 19,

Sum to 'n' odd numbers, where $a = 11$, $d = 2$ is

$$\begin{aligned} S_n &= \frac{n}{2} [2a + (n - 1)d] \\ &= \frac{n}{2} [2 \times 11 + (n - 1)2] \\ &= \frac{n}{2} [22 + 2n - 2] \\ &= \frac{n}{2} [20 + 2n] \\ &= n(10 + n) = \mathbf{10n + n^2} \end{aligned}$$

11. (C)

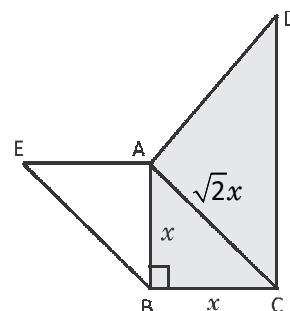


According to the problem, $\sin 30^\circ = \frac{h}{200}$

$$\begin{aligned} \Rightarrow h &= 200 \sin 30^\circ \\ &= 200 \times \frac{1}{2} = 100 \text{ m} \end{aligned}$$

\therefore The kite is **100 m** above the ground.

12. (A) Let $AB = BC = x$



Given that $\triangle ABC$ is right angled at B.

$$\text{Therefore, } AC^2 = AB^2 + BC^2$$

$$\Rightarrow AC^2 = x^2 + x^2$$

$$\Rightarrow AC = \sqrt{2}x$$

Also, $\triangle ABE \sim \triangle ACD$

$$\Rightarrow \frac{\text{Area}(\triangle ABE)}{\text{Area}(\triangle ACD)} = \frac{AB^2}{AC^2}$$

$$\Rightarrow \frac{\text{Area}(\triangle ABE)}{\text{Area}(\triangle ACD)} = \frac{x^2}{(\sqrt{2}x)^2}$$

$$\Rightarrow \frac{\text{Area}(\triangle ABE)}{\text{Area}(\triangle ACD)} = \frac{1}{2} = 1 : 2$$

13. (B) The given points are

A (6, 3), B (-3, 5), C (4, -2) and D (x, 3x).

Area of $\triangle DBC =$

$$\frac{1}{2}[x(5+2) - 3x(-3-4) + 1(6-20)]$$

$$= \frac{1}{2}[7x + 21x - 14] = 14x - 7$$

Area of $(\triangle ABC)$

$$= \frac{1}{2}[6(5+2) - 3(-3-4) + 1(6-20)]$$

$$= \frac{1}{2}[42 + 21 - 14] = \frac{49}{2}$$

$$\therefore \frac{\text{Area}(\triangle DBC)}{\text{Area}(\triangle ABC)} = \frac{14x-7}{49/2} = \frac{1}{2} \text{ (given)}$$

$$\Rightarrow \frac{2(2x-1)}{7} = \frac{1}{2}$$

$$\Rightarrow 2x-1 = \frac{7}{4}$$

$$\Rightarrow 2x = \frac{11}{4}$$

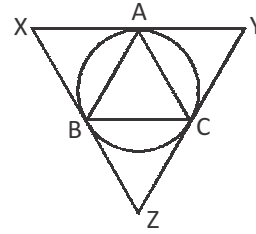
$$\Rightarrow x = \frac{11}{8}$$

14. (A) $A + B + C = 180^\circ$

$$A + B = 90^\circ \quad [\text{Since } C = 90^\circ.]$$

$$\Rightarrow \cos(A+B) = \cos 90^\circ = 0$$

15. (B) Let XY, YZ and ZX be the tangents to the circle at the vertices of an equilateral $\triangle ABC$.



Since XY is a tangent to the circle at the point A,

$$\therefore \angle XAB = \angle ACB = 60^\circ$$

Similarly, $\angle ABX = 60^\circ$.

$$\therefore \text{In } \triangle AXB, \angle AXB = 180^\circ - (60^\circ + 60^\circ) = 60^\circ$$

Similarly it can be shown that $\angle Y = 60^\circ$ and $\angle Z = 60^\circ$.

$\therefore \triangle XYZ$ is an **equilateral triangle**.

16. (C) Let α and β be the zeros of the required polynomial $f(x)$.

$$\text{Given, } \alpha + \beta = \frac{-10}{\sqrt{3}}, \alpha\beta = 7$$

$$f(x) = x^2 - (\alpha + \beta)x + \alpha\beta$$

$$= x^2 - \left(\frac{-10}{\sqrt{3}}\right)x + 7$$

$$\therefore f(x) = x^2 + \frac{10}{\sqrt{3}}x + 7$$

$$= \sqrt{3}x^2 + 10x + 7\sqrt{3}$$

Hence, the quadratic polynomial is $\sqrt{3}x^2 + 10x + 7\sqrt{3}$.

17. (D) The factors are $(3x - 1)$ and $(x + 2)$.

$$\text{Product} = (3x - 1)(x + 2)$$

$$= 3x^2 + 6x - x - 2$$

$$= 3x^2 + 5x - 2$$

$$\Rightarrow \alpha = 3 \text{ and } \beta = -2$$

18. (D) If 6^x ends with 5, then 6^x would contain the prime 5.

$$\text{But } 6^x = (2 \times 3)^x = 2^x \times 3^x.$$

\Rightarrow The only prime numbers in the factorization of 6^x are 2 and 3.

\therefore By uniqueness of fundamental theorem, there are no primes other than 2 & 3 in 6^x . So, 6^x will **never end** with 5.

19. (B) 1st term of 'n' A.M.s between 'a' & 'b'

$$= a + \frac{b-a}{n+1}$$

$$= \frac{an+b}{n+1}$$

Last term of 'n' A.M.s between 'a' & 'b'

$$= b - \frac{b-a}{n+1}$$

$$= \frac{bn+a}{n+1}$$

Sum of the terms

$$= \frac{n}{2} \left[\frac{na+b}{n+1} + \frac{bn+a}{n+1} \right]$$

$$= \frac{n}{2} \left[\frac{(n+1)(a+b)}{n+1} \right]$$

$$= \frac{n}{2}(a+b)$$

20. (A) In a right angled triangle, hypotenuse is the square root of sum of squares of other two sides. Hence, the sides cannot have values as **1, 1 and 2**.

21. (C) The ratio in which a line is trisected is 1 : 2.

$$= \left(\frac{1(5)+2(-2)}{1+2}, \frac{4+2(-19)}{1+2} \right)$$

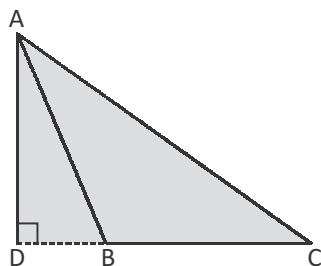
∴ The point of trisection of the line

$$\text{joining the points} = \left(\frac{1}{3}, \frac{-34}{3} \right)$$

22. (C) $\frac{\sin(90^\circ - 81^\circ)}{\sin(90^\circ - 42^\circ)} - \frac{\cos 81^\circ}{\cos 42^\circ}$

$$= \frac{\cos 81^\circ}{\cos 42^\circ} - \frac{\cos 81^\circ}{\cos 42^\circ} = 0$$

23. (A)



$$AC^2 = AD^2 + DC^2$$

$$= AD^2 + (BC + BD)^2$$

$$= AD^2 + BC^2 + BD^2 + 2 \cdot BC \cdot BD$$

$$= AB^2 + BC^2 + 2 \cdot BC \cdot BD$$

$$(Since AD^2 + DB^2 = AB^2.)$$

24. (D) Here, $a = 28$, $a + d = 22$, $a + 4d = 4$

$$\Rightarrow d = (-6).$$

Since 'x' is the 3rd term,

$$\begin{aligned} x &= a + 2d = 28 + 2(-6) \\ &= 28 - 12 = 16 \end{aligned}$$

and 'y' is the 4th term = $a + 3d$

$$\begin{aligned} &= 28 + 3(-6) \\ &= 28 - 18 = 10 \end{aligned}$$

∴ The required values are **16** and **10**.

25. (A) Let the two consecutive even numbers be 'n' and (n + 2).

Then, according to the problem,

$$n^2 + (n + 2)^2 = 340$$

$$\Rightarrow n^2 + n^2 + 4n + 4 = 340$$

$$\Rightarrow 2n^2 + 4n + 4 = 340$$

$$\Rightarrow 2n^2 + 4n - 336 = 0$$

$$\Rightarrow n^2 + 2n - 168 = 0$$

$$\Rightarrow n^2 + 14n - 12n - 168 = 0$$

$$\Rightarrow n(n+14) - 12(n+14) = 0$$

$$\Rightarrow (n+14)(n-12) = 0$$

$$\Rightarrow n = -14 \text{ or } 12$$

∴ The required numbers are **12** and **14**.

Physics

26. (D)

Yes, the body of the bird behaves like a resistor in an electrical circuit. But since the two feet of the bird have the same potential, the current will not flow through the body, i.e. the bird will not get electrocuted. Remember that current can only flow when there is a potential difference.

27. (D)

The top of box-type solar cooker is covered with glass so that the heat radiated from inside the box is reflected back into the box. Thus, radiation loss is reduced.

28. (D)

All the given mirrors form a virtual image of a real object according to the given positions.

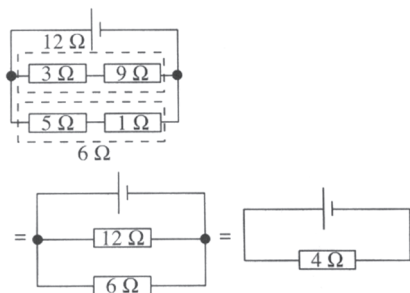
29. (B) One of the factors that determines the strength of the electromagnet is the magnitude of the current flowing in the solenoid. Having more cells connected in series can increase the voltage across the solenoid and hence increase the current flowing through the solenoid.

Another factor is the type of materials. Iron is a soft magnetic material. It will make a stronger electromagnet than steel which is a hard magnetic material.

30. (C) When the ciliary muscles contract the lens becomes thick. The focal length decreases and enables us to see near objects. When the ciliary muscles relax, the lens becomes thin and the focal length increases which helps us to see distant objects clearly.

31. (B) The $3\ \Omega$ resistor and the $9\ \Omega$ resistor are connected in series. Their effective resistance is $12\ \Omega$.

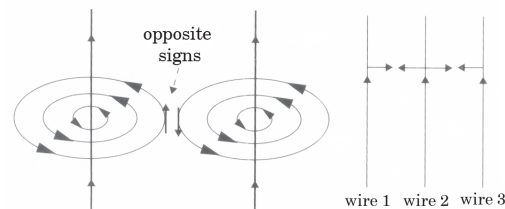
The $5\ \Omega$ resistor and the $1\ \Omega$ resistor are connected in series. Their effective resistance is $6\ \Omega$.



The $12\ \Omega$ (combined) resistor and the $6\ \Omega$ resistor (combined) are connected in parallel.

$$\frac{1}{R} = \frac{1}{12} + \frac{1}{6}, \quad \frac{1}{R} = \frac{1}{4}, \quad R = 4\ \Omega$$

32. (A) A typical solar cell develops a potential difference of 0.5 – 1 V and 0.7 W of electricity.
33. (B) The speed of light is higher in a rarer medium than in a denser medium.
34. (D) By using the right-hand grip rule on wire 1 and wire 2, it can be seen that the interaction between the two fields create opposite signs. This implies that there is an attractive force caused by the interaction of the fields.

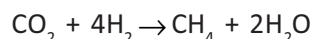


The interaction between wire 2 and wire 3 is also similar as their current directions are the same as wire 1 and wire 2.

This implies that wire 2 will be attracted to both wire 1 and wire 3. These two forces will have zero resultant force as the current flowing through the three wires is of the same magnitude.

35. (A) Parameters of electricity supply is different in different countries. In India it has a potential difference of 220 V, frequency of 50 Hertz and current rating of 5A/15A.

36. (A) Biogas is produced when wet organic matter is decomposed by bacteria in the absence of oxygen. A type of anaerobic bacteria break down biomass to sugars, organic acids and other compounds. These are further decomposed by other bacteria to form CO_2 and H_2 which combine to form methane and water as given below.



Biogas is a mixture of several gases like methane (75%), carbon dioxide (23%) and other gases including hydrogen and hydrogen sulphide is (2%). The above combustible gases form an excellent, renewable fuel and help to conserve our energy sources.

37. (A) Current in PR is 4 A as PR (4 A) + QR (6 A) = RS (10 A). Based on the calculation, all other options are incorrect.

38. (B) Use the lens equation

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$$

where u is the object distance, v is the image distance and f is the focal length.

$$\frac{1}{18} + \frac{1}{v} = \frac{1}{10}$$

$$\Rightarrow \frac{1}{v} = \frac{1}{10} - \frac{1}{18}$$

$$\Rightarrow v = 22.5\ \text{cm}$$

39. (C) Internal magnetic field lines are developed in the bar which increases the magnetic field inside the bar.
40. (D) The focal length of the eye lens is more or the eye ball has shrunk. The image is formed behind the retina and the person faces difficulty in seeing the near objects clearly. Use of convex lens is advised for correcting the defect.
41. (A) An ideal electromagnet has very strong magnetic strength when in operation and zero magnetic strength when it is switched off. To achieve that, the core of the electromagnet must not retain any magnetism when it is taken out from the coil.
42. (B) Hydrogen has a high calorific value of 1,50,000 kJ/kg.
43. (D) If light from two different sources has the same colour, it also has the same wavelength even if the origins are different. Sodium lamp is an artificial source of light while sunlight is a natural source of light.
44. (D) When a man wearing yellow coloured glass for left eye and red coloured glass for right eye and stands in front of a plane mirror, he observes his image in the mirror as left eye coloured red and right coloured yellow due to lateral inversion.
45. (A) When an appliance is marked "240 V, 40 W", it means that a 240 V across the appliance will produce a power of 40 W.
 $P = VI$
 $\Rightarrow 40 = 240 I$
 $\Rightarrow I = \frac{40}{240} \text{ A} = 0.17 \text{ A}$
46. (D) Light scattering occurs when light passes through air particles. The blue light is scattered the most while the red light is scattered the least. Natural phenomena such as the blue skies and the red skies during sunset are examples of light scattering.
47. (C) A strong smelling substance called ethyl mercaptan (C_2H_6S) is added to LPG cylinders to help in the detection of gas leakage. Ethyl mercaptan has a foul smell resembling that of hydrogen sulphide gas which can be easily detected.
48. (A) When an object is placed anywhere between the pole and infinity in front of a convex mirror, the image is formed between the pole and focus. It is virtual, erect and diminished (smaller than the object).
49. (D) $R = \rho \frac{L}{A}$, $R_A : R_B$
 $(2 \times 4) \div (2)^2 : (1 \times 3) \div (3)^2$
 $2 : \frac{1}{3}, 6 : 1$
 When resistor B is 2Ω , resistance of resistor A = $2 \times 6 = 12 \Omega$
50. (B) When a real object is placed in front of a convex lens of focal length 'f' at its principal focus, then the image is formed at infinity.
 $\therefore -\frac{1}{f} = \frac{1}{v} - \frac{1}{f}, \frac{1}{v} = 0 \text{ (or) } v = \infty$
- Chemistry**
51. (C) The metal with lowest density is lithium – 0.534 g cm^{-3}
52. (C) When hydrogen sulphide gas is passed through copper sulphate solution, then a black precipitate of copper sulphide is formed along with sulphuric acid.
 $CuSO_4(aq.) + H_2S(g) \rightarrow CuS(s) + H_2SO_4(aq.)$
 Two compounds copper sulphate and hydrogen sulphide react by an exchange of ions to form two new compounds copper sulphide and sulphuric acid.
53. (A) Ethanoic acid reacts with ethanol by warming it in the presence of a few drops of concentrated sulphuric acid to form a sweet smelling liquid called ester.
54. (C) The highest pH is the most alkaline solution. Potassium oxide dissolved in water to form potassium hydroxide, a strong alkali.

55. (C) Statements (A), (B) and (D) are not true. As the atomic radius of elements of group 1 increases down the group, the number of electrons occupied in various shells also increases from 1 to 7 as given below:

Elements	Number of shells	
Hydrogen	1	1s ¹
Lithium	2	2s ¹
Sodium	3	3s ¹
Potassium	4	4s ¹
Rubidium	5	5s ¹
Cesium	6	6s ¹
Francium	7	7s ¹

56. (C) A chemical reaction must follow the law of conservation of mass.

57. (B) The highly reactive metals such as potassium, sodium, calcium, magnesium and aluminium are extracted by the electrolytic reduction of their molten chlorides or oxides. The metals extracted by this process are very pure and do not contain any impurities.

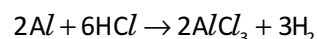
58. (B) Let the given ratio of atomic weights of X, Y, Z be 5x, 11x, 7x respectively.

Sum of extreme elements
(5x + 17x) = 176 (given).

$$22x = 176, x = \frac{176}{22} = 8$$

∴ At wt. of X = 5 × 8 = 40,
Y = 11 × 8 = 88, Z = 17 × 8 = 136.

59. (C) Most of the acids react with metals to form salt and evolve hydrogen gas. This shows that hydrogen is common in all acids.



Aluminium metal at first reacts slowly with dilute hydrochloric acid due to the presence of a tough protective layer of aluminium oxide on its surface. But when the thin, outer oxide layer gets dissolved in acid, then fresh aluminium metal is exposed which reacts rapidly with dilute hydrochloric acid.

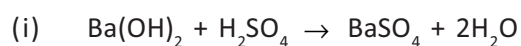
The reaction of aluminium with dilute hydrochloric acid is less rapid than that of magnesium, so aluminium is less reactive than magnesium.

60. (B) CH₂ and 14 units is the difference in formula and molecular masses of CH₃OH and C₂H₅OH

61. (C) CuO is reduced to copper metal by hydrogen. Dry hydrogen gas continues to flow through to prevent the hot copper metal from reacting with oxygen in air to form back CuO again.

62. (C) Ethene, butene and pentene are unsaturated hydrocarbons. In addition to straight chain and branched chain there exists closed chain or ring type chain called cyclic hydrocarbons that are saturated and unsaturated. Benzene is an unsaturated, cyclic hydrocarbon.

63. (B) In both the cases, precipitation occurs. A white precipitate of BaSO₄ is formed as shown below.



64. (D) y is chlorine.

65. (B) Iron, being a less reactive metal than aluminium, forms a less stable oxide that can be reduced by heating with a reducing agent. Aluminium oxide (bauxite) is very stable to reduction by reducing agents; aluminium can only be extracted by electrolysis of molten bauxite.

66. (C) During the process of respiration, the glucose present in the body cells combines with oxygen to produce energy.

67. (C) When soap is dissolved in water, it forms a colloidal suspension in water and the soap molecules cluster together to form spherical micelles. When a cloth with dirt, oil or grease is soaked in soap solution, the micelles attach to the dirt, oil or grease particles. They entrap with their hydrocarbon ends and on agitation in soap solution get dispersed by removing the dirt, oil or grease and on rinsing several times, the dirty cloth becomes clean.

68. (A) The correct ascending order of pH of given substances is as given below :

(i) Gastric juice - 1.5 to 3.5

(ii) Lemon juice - 2 to 2.4

(iii) Pure water - 7

(iv) Milk of magnesia - 10.5

69. (B) When ZnO reacts with NaOH (a strong base), sodium zincate and water are formed.

70. (A) A balanced equation is the one in which the atoms of every element will be the same on both the sides of the equation.

Biology

71. (B) The gas that diffused out from a capillary into an alveolus is carbon dioxide. During exhalation carbon dioxide gas is expelled out.

72. (B) The experimental set up is used to prove that carbon dioxide is essential for photosynthesis.

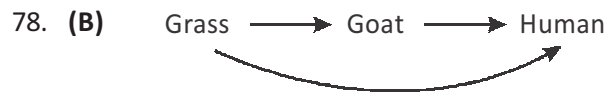
73. (C) Placenta prevents the mixing of the blood of the foetus with that of the mother.

74. (A) 'R' represents Medulla oblongata. Medulla oblongata controls heart beating, respiration swallowing, coughing and sneezing.

75. (C) The characteristic features of vegetative reproduction are: cell division takes place only by mitosis and daughter cells formed are genetically identical to the parent.

76. (C) To remove chlorophyll, the leaf is boiled in alcohol.

77. (A) Glycolysis is the common phase between aerobic and anaerobic respiration.



79. (C) The process of cleaning the blood in kidney failures using a kidney machine is called dialysis.

80. (A) Nerve cell bodies are present in the grey matter.

81. (B) The given figure is that of the bread mould. It exhibits saprophytic nutrition

82. (D) Myelin sheath covers the axon of a neuron. It is made up of Schwann cells and chiefly consists of fatty material.

83. (D) Egg cells contain yolk which help growth after fertilisation.

84. (C) X represents a vesicle. It releases chemicals that act as neurotransmitters.

85. (D) Palaeontologists deal with the evidence of embryology, fossil and homologous and analogous organs.

86. (A) Cardiac refers to heart.

87. (D) In the given flow chart P is testes Q is ovum and R is Fertilisation

88. (C) The progressive increase in the accumulation of a harmful substance in organisms at successively higher trophic levels is called biomagnification.

89. (B) Renin helps in curdling of milk.

90. (D) Spinal cord controls involuntary actions.

