

ACE OF PACE (SOLUTION)

1. 1. (A) $R_{eq} = \frac{R}{3}$

All in parallel

$$\therefore \frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

2. (B)

$$\begin{aligned} v &= u + at \\ &= 20 + 2 \times 4 \\ &= 28 \text{ m/s} \end{aligned}$$

3. (A) during the whole motion particle acceleration is constant.

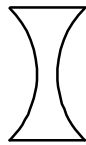
4. (C)

$$I = \frac{q}{t} = 4A$$

5. (D)



Concave mirror
 $f < 0$



Concave mirror
 $f > 0$

6. (A) Theoretical

7. (A) Particle strikes ground with some speed

$$\begin{aligned} \Delta P &= m(v - u) \\ &= m(10 - (-10)) \\ &= 1 \times 20 = 20 \end{aligned}$$

8. (C)

$$h = \frac{1}{2}gt^2$$

$$t = \sqrt{\frac{2h}{g}}$$

Time period is independent of mass.

9. (B)

$$\begin{aligned} W &= F \cdot S \\ &= 40 \times 10 \times \cos 0 \\ &= 400 \text{ J} \end{aligned}$$

10. (C)

$$\begin{aligned}
 W &= F \cdot S \\
 &= 40 \times 10 \times \cos 90 \\
 &= 0 \text{ J}
 \end{aligned}$$

11. (D) For an object placed between pole and focus of concave mirror the image is virtual.

12. (C) A prism has two triangular bases with three rectangular faces.

13. (A) A solenoid is just like a bar magnet.

14. (D) $m = \frac{\text{height of image}}{\text{height of object}}$

15. (D) Theory

16. (B) Theory

17. (D) $\text{Current} = \frac{\text{Charge}}{\text{Time}}$

18. (D) Dispersion is splitting of light into its constituent colors.

19. (C) Theory

20. (C) A negative charge will be attracted by positive charge at higher potential points.

21. (D) Theoretical

22. (A) Concave lens is diverging in nature.

23. (B) Theoretical

24. (B) When a ray of light travels from one medium to another medium, then velocity and wave length both change simultaneously but frequency remains constant

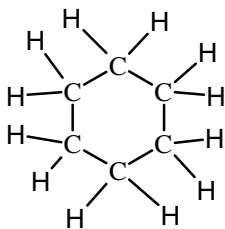
25. (C) $I = \frac{V}{R} = \frac{10}{5} = 2 \text{ A}$

26. (B) $\text{CaCO}_{3(s)} \xrightarrow{\Delta} \text{CaO}_{(s)} + \text{CO}_{2(g)}$
 (A) (B) (C)

$\text{CaO}_{(s)} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_{2(aq)}$
 (B) (D)

$\text{Ca(OH)}_{2(aq)} + \text{CO}_{2(g)} \rightarrow \text{CaCO}_{3(s)} + \text{H}_2\text{O}_{(l)}$
 (D) (A)

27. (D)
- | | pH |
|------------------|-------|
| Gastric Juice | – 1.2 |
| Lemon juice | – 2.2 |
| Blood | – 7.4 |
| Milk of Magnesia | – 10 |
28. (A) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ - Plaster of Paris is used for supporting fractured bone by doctors
29. (A) Na_2CO_3 – Sodium carbonate is used for removing permanent hardness of water
30. (D) In chlor-alkali process $2\text{NaCl}_{(\text{ar})} + 2\text{H}_2\text{O}_{(\text{l})} \rightarrow 2\text{NaOH}_{(\text{aq})} + \text{Cl}_{2(\text{g})} + \text{H}_{2(\text{g})}$
31. (C) $\text{NaCl}_{(\text{aq})} + \text{AgNO}_{3(\text{aq})} \rightarrow \text{AgCl}_{(\text{s})} + \text{NaNO}_{3(\text{aq})}$
White Precipitate
32. (A) Fe, Zn and Pb are more reactive than Cu and Ag is less reactive, So Ag can't displace Cu from CuSO_4 solution
33. (D) CaCl_2 – Calcium chloride is used to dry any gas in the laboratory
34. (C) Toothpastes, are generally basic for cleaning the teeth can neutralise the excess acid and prevent tooth decay.
35. (B) Brass – Cu and Zn
Bronze – Cu and Sn
Stainless steel – Fe, Ni and Cr
Solder – Pb and Sn
36. (B) Sodium hydrogen carbonate (NaHCO_3) is used in Soda-acid fire extinguishers
37. (D) The compounds formed by the transfer of electrons from a metal to a non-metal are known as ionic compounds Eg, CaO , MgCl_2 etc;
38. (D) Alloy of mercury is amalgam
Brass is an alloy of Cu and Zn
Bronze is an alloy of Cu and Sn
39. (B) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O} \xrightarrow[373\text{K}]{\Delta} \text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O} + 1\frac{1}{2} \text{H}_2\text{O}$
40. (D)
- $$\begin{array}{c} \text{CH}_3 - \text{C} - \text{O} - \text{CH}_3 \\ \parallel \\ \text{O} \end{array}$$
- is an ester (methylethanoate) a sweet smelling substance used in making perfumes.
41. (A) Milk of magnesia is a $\text{Mg}(\text{OH})_2$ solution of pH 10. It is alkaline solution.
42. (D) Cyclohexane is C_6H_{12}



43. (C) Bleaching powder is CaOCl_2 ie, calcium chloro hypochlorite.
44. (C) Fe, Co and Ni was placed in group – 8 in Mendeleev's periodic table.
45. (A) The reaction of iron (III) oxide (Fe_2O_3) with aluminium is used to join railway tracks or cracked machine parts. This reaction is known as the thermite reaction.

$$\text{Fe}_2\text{O}_{3(s)} + 2\text{Al}_{(s)} \rightarrow 2\text{Fe}_{(l)} + \text{Al}_2\text{O}_{3(s)}$$
46. (C) NaCl is electrovalent (or) ionic compound exists as Na^+ and Cl^- ions.
47. (A)
- $$\begin{array}{ccc} \text{CH}_3\text{CH}_2\text{OH} & \xrightarrow{\Delta} & \text{CH}_2 = \text{CH}_2 \\ \text{Ethanol} & -\text{H}_2\text{O} & \text{Ethene (x)} \end{array}$$
- $$\begin{array}{ccc} \text{CH}_2 = \text{CH}_2 & \xrightarrow{\text{H}_2} & \text{CH}_3 - \text{CH}_3 \\ \text{Ethene} & & \text{Ethane} \\ \text{(X)} & & \text{(Y)} \end{array}$$
48. (C) $\text{FeO}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$
 This reaction is involved in thermite process.
 It is a displacement reaction
49. (B) Pb (Lead) is used in storage battery
50. (B) Oxygen (Z=8) 2, 6
 Sulphur (Z=16) 2, 8, 6
 Both have '6' valence electrons
51. (D) (A) Gymnosperms, (B) Angiosperms, (C) Pteridophytes
52. (B) 5'-A-A-T-A-A-A-G-C-T-3'
 3'-T-T-A-T-T-T-C-G-A-5'
53. (A) Chlorophyll a
54. (B) Mg
55. (C) relative amount required in plants
56. (A) low stability and high resilience
57. (C) $^{14}\text{CO}_2$

58. (A) the root dies first
59. (B) H₂O containing ¹⁸O
60. (C) water comes out by exosmosis
61. (C) paper is moistened by the transpiring water
62. (B) eliminate the effect of gravity causing geotropism
63. (D) Only vertebrates have ribs. Animals can be cold blooded also. Organs can be internally Present and hence not exposed to atmosphere
64. (C) Such marriage shall lead foetus to suffer from HDN i.e. hemolytic disease of newborn
65. (A) Uricotelism is feature of animals to conserve water in body
66. (B) Muscles produce movements via regular contraction & relaxation. Contraction is an active process that involves ATP
67. (C) 11th & 12th pair of ribs are floating as they are not connected to sternum or coastal cartilage
68. (B) Adrenaline is released by ANS that is functional during emergency condition of fright-Flight-Fight
69. (B) Man, Dog and Camel are ureotelic as they all are mammals.
70. (B) Loop of Henle of nephron is responsible for osmoregulation due to difference in permeability Of both limbs of loop of Henle.
71. (B) Larger the surface area more shall be exchange of gases.
72. (C) Pulmonary artery carries deoxygenated blood. Valves are found in veins and venous blood is returned to right atrium.
73. (C) Efferent means motor nerve fibres.
74. (B) Liver is devoid of enzymes and saliva and gastric juice has limited enzymes.
75. (D) Hypothalamus is the centre for regulation of temperature, hunger, thirst.