

# Sample Paper

# 3

## ANSWER KEYS

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



- (c) Metals present at the upper position of the reactivity series are more reactive and can displace metals below them from their salt solution.
- (c)  $\text{Zn} + \text{H}_2\text{SO}_4 \longrightarrow \text{ZnSO}_4 + \text{H}_2$  (Burns with PoP sound)  
(X) (Y)
- (c) Calcium chloride is good dehydrating agent so it is used to absorb moisture from the hydrogen chloride gas.
- (c) Cu, Au, Ag are known as coinage metals and occur free in nature. Because of nobility they are frequently found in their native state.
- (d)
- (c) The tooth paste commonly used is basic which help in neutralisation of the extra acid formed during tooth decay.
- (a) All are characteristics of metal.
- (a)
- (d)  $\text{NaHCO}_3$  can act as acid as well as base.  $\text{NaOH}$  is soluble in water. Hence it is an alkali as well as base and corrosive in nature.  
 $\text{KHSO}_4$  is acidic salt.  $\text{Al}(\text{OH})_3$  is a weak base and not an alkali because it is not soluble in water.
- (a) Barium will form basic oxide. Aluminium will form amphoteric oxide while carbon and phosphorus will form acidic oxides.
- (a) 12. (c) 13. (d) 14. (b) 15. (a)
- (d) During the process of respiration, a six carbon molecule, glucose dissociates into 2, three carbon molecules that is pyruvate.
- (b)
- (d) For a spherical lens  $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$   
For convex lens.  $u = -f/2$  and  $f$  is +ve  
 $\therefore \frac{1}{v} = \frac{1}{f} + \frac{1}{u} + \frac{1}{f} = +\frac{1}{f} - \frac{2}{f} \therefore v = -f$
- (a) 20. (c)
- (c) Convex mirror has wider field of view. Hence it is used as rear view mirror.
- (d) 23. (d) 24. (a)
- (a)  $\text{Fe} + \text{CuSO}_4 \longrightarrow \text{FeSO}_4 + \text{Cu}$   
Blue colour Green colour (Brown deposition)  
It is a single displacement reaction.
- (d)  $(\text{NH}_4)_2\text{CO}_3$  is salt of ammonium chloride and carbonic acid  
 $2\text{NH}_4\text{Cl} + \text{H}_2\text{CO}_3 \longrightarrow (\text{NH}_4)_2\text{CO}_3 + 2\text{HCl}$
- (b)  $\text{Al}_2\text{O}_3$  is an amphoteric oxide
- (b) Formation of crystals by process of crystallization.
- (c)  $\text{Cu}(\text{OH})_2 + \text{HNO}_3 \longrightarrow \text{Cu}(\text{OH})\text{NO}_3 + \text{H}_2\text{O}$
- (c) Zinc is more reactive than tin (zinc is above tin in reactivity series) so it will react with organic acids (present in food) to form poisonous compounds. To avoid this food cans are coated with tin and not with zinc.
- (a) A combination reaction is a reaction where two or more elements or compounds combine to form a single compound. Hydrogen and chlorine combine to give hydrogen chloride.

32. (a) Bases generate hydroxide ions in water hence water soluble bases are called alkalis.
33. (b) The blood of an insect functions differently than the blood of a human. Insect blood, however, does not carry gases and has no haemoglobin which gives red colour to the blood.
34. (b)
35. (a) Metals lose electrons to form positive ions therefore they are known as electropositive elements.
36. (a) Open circulatory system is primarily found in invertebrates, in which the blood flows freely through cavities and there are no vessels to conduct the blood. This type of system is found in animals such as insects and some mollusks (snails, clams).
37. (c) The pancreas is a glandular organ. It is the part of the digestive system, located in the abdomen and produces insulin and other important enzymes and hormones that help break down foods. The enzymes include trypsin and chymotrypsin to digest proteins, amylase to break down carbohydrates and lipase, to break down fats into fatty acids and cholesterol.
38. (b) Salamanders are a group of amphibians typically characterised by a lizard-like appearance with slender bodies, blunt snouts, short limbs and a tail. Salamanders breathe through their skin and the thin membranes in the mouth and throat.
39. (b) The primary reason why the colour red is used for traffic signals is that red light is scattered the least by air molecules. So, the red light is able to travel the longest distance.
40. (c)
41. (d) Aerobic respiration uses oxygen to break down glucose, amino acids and fatty acids and is the main way the body generates adenosine triphosphate (ATP), which supplies energy to the muscles. The products of this process are carbon dioxide and water.
42. (b) Whale is a mammal and in mammals, two separate circulatory pathways are found - systemic circulation and pulmonary circulation. Oxygenated and deoxygenated bloods received by the left and right atria respectively pass on to the left and right ventricles. Thus, oxygenated and deoxygenated bloods are not mixed. This is referred to as double circulation.
43. (a) 44. (c)
45. (b)  $\frac{1}{f} = \frac{1}{v} + \frac{1}{u} \Rightarrow \frac{1}{-25} = \frac{1}{v} + \frac{1}{(-20)}$   
 $\Rightarrow \frac{1}{v} = \frac{1}{20} - \frac{1}{25} = \frac{1}{100} \Rightarrow v = 1 \times 10^2 \text{ cm behind the mirror}$
46. (c) 47. (a)
48. (c) When copper sulphate pentahydrate is heated, it loses water of crystallization and turns white due to formation of anhydrous copper sulphate.
- $$\text{CuSO}_4 \cdot 5\text{H}_2\text{O} \xrightarrow[\text{endothermic}]{\Delta} \text{CuSO}_4$$
- Blue (Anhydrous copper sulphate)  
White
49. (b) It is a characteristic of bases.
50. (c) Since for strong base (completely ionised), only concentration is the measure of strength, but for weak (incompletely ionised) base both degree of ionisation and concentration will be required.
51. (b)  $\text{Ba}(\text{OH})_2$  has two replaceable hydroxyl groups.
52. (a)
53. (a) Xylem
54. (a) Transpiration
55. (a) less transpiration and more absorption
56. (c)
57. (a) 58. (c) 59. (a)
60. (b) Different colours of light travel with different speed in prism.