

1. The gas usually filled in the electric bulb is

- (a) nitrogen
- (b) hydrogen
- (c) carbon dioxide
- (d) oxygen

2. Heavy water is

- (a) deuterium oxide
- (b) PH7
- (c) rain water
- (d) tritium oxide

3. Chemical formula for water is

- (a)  $\text{NaAlO}_2$
- (b)  $\text{H}_2\text{O}$
- (c)  $\text{Al}_2\text{O}_3$
- (d)  $\text{CaSiO}_3$

4. Which is not a type of elements ?

- (a) Metals
- (b) Non Metals
- (c) Metalloids
- (d) Gases

5. Who is regarded as father of modern chemistry ?

- (a) Rutherford
- (b) Einstein
- (c) Lavoisier
- (d) V. Raman

6. Which is used in preparation of dynamite ?

- (a) glycerol
- (b) ethyl alcohol
- (c) methyl alcohol
- (d) glycol

7. Nail polish remover contains ?

- (a) benzene
- (b) acetic acid
- (c) acetone
- (d) petroleum ether

8. What nucleus of atom contains ?

- (a) protons
- (b) electrons
- (c) electrons and protons
- (d) protons and neutrons

9. Air contains maximum amount of

- (a) oxygen
- (b) nitrogen
- (c) hydrogen
- (d) carbon dioxide

10. Toluene is nitrated and the resulting product is reduced with tin and hydrochloric acid. The product so obtained is diazotised and then heated with cuprous bromide. The reaction mixture so formed contains

- (a) mixture of o- and p-bromotoluenes
- (b) mixture of o- and p-dibromobenzenes
- (c) mixture of o- and p-bromoanilines
- (d) mixture of o- and m-bromotoluenes

11. ) Phenol, when it first reacts with concentrated sulphuric acid and then with concentrated nitric acid, gives

- (a) 2,4,6-trinitrobenzene
- (b) o-nitrophenol
- (c) p-nitrophenol
- (d) nitrobenzene

12. Larger number of oxidation states are exhibited by the actinoids than those by the lanthanoids, the main reason being

- (a) 4f orbitals more diffused than the 5f orbitals
- (b) lesser energy difference between 5f and 6d than between 4f and 5d orbitals
- (c) more energy difference between 5f and 6d than between 4f and 5d orbitals
- (d) more reactive nature of the actinoids than the lanthanoids

13. Which of the following factors is of no significance for roasting sulphide ores to the oxides and not subjecting the sulphide ores to carbon reduction directly?

- (a) Metal sulphides are thermodynamically more stable than CS<sub>2</sub>
- (b) CO<sub>2</sub> is thermodynamically more stable than CS<sub>2</sub>
- (c) Metal sulphides are less stable than the corresponding oxides
- (d) CO<sub>2</sub> is more volatile than CS<sub>2</sub>

14.  $\alpha$ -D-(+)-glucose and  $\beta$ -D-(+)-glucose are

- (a) conformers
- (b) epimers
- (c) anomers
- (d) enantiomers

15. Which one of the following is the correct statement?

- (a) Boric acid is a protonic acid
- (b) Beryllium exhibits coordination number of six
- (c) Chlorides of both beryllium and aluminium have bridged chloride structures in solid phase
- (d) B<sub>2</sub>H<sub>6</sub>.2NH<sub>3</sub> is known as 'inorganic benzene'

16. Among the following substituted silanes the one which will give rise to cross linked silicone polymer on hydrolysis is

- (a) R<sub>4</sub>Si
- (b) RSiCl<sub>3</sub>
- (c) R<sub>2</sub>SiCl<sub>2</sub>
- (d) R<sub>3</sub>SiCl

17. In a compound atoms of element Y from ccp lattice and those of element X occupy  $\frac{2}{3}$ rd of tetrahedral voids. The formula of the compound will be

- (a)  $X_4Y_3$
- (b)  $X_2Y_3$
- (c)  $X_2Y$
- (d)  $X_3Y_4$

18. Amount of oxalic acid present in a solution can be determined by its titration with  $KMnO_4$  solution in the presence of  $H_2SO_4$ . The titration gives unsatisfactory result when carried out in the presence of HCl, because HCl

- (a) gets oxidised by oxalic acid to chlorine
- (b) furnishes  $H^+$  ions in addition to those from oxalic acid
- (c) reduces permanganate to  $Mn^{2+}$
- (d) oxidises oxalic acid to carbon dioxide and water

19. Which one of the following pairs of species have the same bond order?

- (a)  $CN^-$  and  $NO^+$
- (b)  $CN^-$  and  $CN^+$
- (c)  $O^-$  and  $CN^-$
- (d)  $NO^+$  and  $CN^+$

20. A reaction was found to be second order with respect to the concentration of carbon monoxide. If the concentration of carbon monoxide is doubled, with everything else kept the same, the rate of reaction will

- (a) remain unchanged
- (b) triple
- (c) increase by a factor of 4
- (d) double

## ANSWER KEY

1a

2a

3b

4d

5c

6a

7c

8d

9b

10a

11b

12b

13a

14c

15c

16b

17a

18c

19a

20c