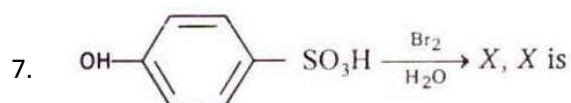


1. Which of the following are iso-structural species ?  
(a)  $\text{NH}_4^+$  and  $\text{NH}_2^-$   
(b)  $\text{CH}_3^-$  and  $\text{CH}_3^+$   
(c)  $\text{SO}_4^{2-}$ ,  $\text{PO}_4^{3-}$  and  $[\text{BF}_4^-]$   
(d)  $\text{NH}_4^+$  and  $\text{NH}_3$
2. The elements which have same number of nucleons but different number of protons are known as :  
(a) isobar (b) isotope  
(c) isotone (d) none of these
3. What is the name to a phenomenon in which both adsorption and absorption takes places ?  
(a) Chemisorption (b) Physisorption  
(c) Desorption (d) Sorption
4. Which of the following is known as alpha particle ?  
(a) Electron  
(b) Charged helium atom  
(c) Proton  
(d) Positron
5. The number of atoms in a simple cubic unit cell are :  
(a) 1 (b) 2  
(c) 3 (d) 4
6. In aqua-regia the ratio of conc.  $\text{HNO}_3$  and conc.  $\text{HCl}$  present is :  
(a) 1 : 3 (b) 3 : 1  
(c) 2 : 3 (d) 3 : 2



identified as :

- (a) 2, 4, 6-tribromophenol  
 (b) 2-bromo-4-hydroxyl benzene sulphonic acid  
 (c) 3,5-dibromo-4-hydroxy benzene sulphonic acid  
 (d) 2-bromophenol
8. Absolute zero temperature is the temperature at which :
- (a) mass becomes zero  
 (b) volume becomes zero  
 (c) all molecular motion ceases  
 (d) the temperature of substance is zero
9. Among which of the following factor the specific reaction rate of a first order reaction does not depend on :
- (a) temperature  
 (b) concentration of reactant  
 (c) pressure  
 (d) volume
10. A solution is formed by diluting 250 mL of 0.400 N  $\text{H}_2\text{SO}_4$  with one litre of water. The normality of above formed solution is :
- (a) 0.400 N                      (b) 0.899 N  
 (c) 0.040 N                      (d) 0.080 N
11. Which of the following product is formed by the reaction of sulphur dioxide with chlorine in presence of sunlight ?
- (a)  $\text{SO}_2\text{Cl}$                       (b)  $\text{SO}_2\text{Cl}_2$   
 (c)  $\text{SOCl}_2$                       (d)  $\text{SO}_3\text{Cl}$

12. Reaction of  $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$  with a mixture of  $\text{Br}_2$  and  $\text{KOH}$  produce  $\text{RNH}_2$ . During the reaction which of the intermediate product is formed ?
- (a)  $\text{R}-\text{NH}-\text{Br}$               (b)  $\text{H}-\text{CO}-\text{NBr}_2$   
 (c)  $\text{R}-\text{N}=\text{C}=\text{O}$             (d) all of these

13. Which of the following process is related with the removal of sulphur by heating in the air ?  
(a) Smelting                      (b) Calcination  
(c) Annealing                      (d) Roasting
14. Which of the following product is obtained by treating 1-butyne with  $\text{HgSO}_4$  and  $\text{H}_2\text{SO}_4$  ?  
(a)  $\text{CH}_3\text{CH}_2\text{COCH}_3$     (b)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$   
(c)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$     (d)  $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$
15. In nuclear reactor the control rods are made up of cadmium because cadmium :  
(a) absorbs excess neutrons  
(b) absorbs excess electrons  
(c) emit neutrons  
(d) emit electrons
16. In the fusion of one mole of a solid melting at  $27^\circ\text{C}$  the entropy change can be represented by which of the following (latent heat of fusion =  $2930 \text{ J mol}^{-1}$ ) ?  
(a)  $2930 \text{ JK}^{-1}\text{mol}^{-1}$     (b)  $16.64 \text{ JK}^{-1}\text{mol}^{-1}$   
(c)  $104.67 \text{ JK}^{-1}\text{mol}^{-1}$     (d)  $9.77 \text{ JK}^{-1}\text{mol}^{-1}$
17. The discoveror of argon gas was :  
(a) Rayleigh                      (b) Ramsay  
(c) both (a) and (b)    (d) none of these
18. Which of the following is the composition of solder ?  
(a)  $\text{Cu} + \text{Zn}$                       (b)  $\text{Pb} + \text{Sb}$   
(c)  $\text{Cu} + \text{Sn}$                       (d)  $\text{Pb} + \text{Sn}$
19. Which of the following has the maximum viscosity ?  
(a) Glycol                              (b) Ethanol  
(c) Water                              (d) Acetone

20. How many electrons can be accommodated in a  $p$  sub-orbital ?  
(a) 6 electrons            (b) 2 electrons  
(c) 4 electrons            (d) none of these
21. The term used for diffusion of solvent through a semi-permeable membrane is known as :  
(a) osmosis                (b) plasmolysis  
(c) diffusion                (d) active absorption
22. Which is the most reactive species of phosphorus ?  
(a) White                 (b) Red  
(c) Scarlet                (d) Violet
23. On burning hydrogen in air the colour of flame is :  
(a) green                 (b) light bluish  
(c) yellow                 (d) none of these
24. In electrorefining of copper some gold is deposited at :  
(a) cathode                (b) electrode  
(c) cathode mud          (d) anode mud
25. Isotopes have same :  
(a) atomic number        (b) mass number  
(c) nucleons                (d) none of these
26. Which of the following hydrocarbon is mainly present in gobar gas ?  
(a) Butane                (b) Propane  
(c) Methane                (d) Ethane
27. Precipitation of IV group cations takes place when  $H_2S$  passed is :  
(a) less ionised            (b) highly ionised  
(c) not ionised            (d) none of these
28. Among the following groups the *ortho* and *para* directing group is :  
(a)  $-COCH_3$             (b)  $-NH_2$   
(c)  $-NHCOCH_3$         (d)  $-COOH$

29. The iodoform reaction is given by which of the following ?  
(a)  $\text{CH}_3\text{COCH}_3$       (b)  $\text{C}_2\text{H}_5\text{OH}$   
(c)  $\text{CH}_3\text{CHO}$       (d) All of these
30. Which of the following represents Lucas reagent ?  
(a)  $\text{H}_2\text{SO}_4 + \text{HCl}$   
(b)  $\text{MnO}_2 + \text{H}_2\text{SO}_4$   
(c)  $\text{ZnCl}_2 + \text{conc. HCl}$   
(d)  $\text{ZnCl}_2 + \text{conc. H}_2\text{SO}_4$
31. The geometry of  $[\text{Ni}(\text{CN})_4]^{2-}$  and  $[\text{NiCl}_4]^{2-}$  ions are :  
(a) tetrahedral  
(b) square planar  
(c) square planar and tetrahedral respectively  
(d) tetrahedral and square planar respectively
32. Surface water contains :  
(a) suspended impurities  
(b) organic compound  
(c) salt  
(d) salt and organic compound
33. CO is iso-electronic with :  
(a)  $\text{N}_2$       (b)  $\text{NO}_2$   
(c)  $\text{O}_2$       (d)  $\text{NH}_3$
34. Avogadro's number is the number of molecules present in :  
(a) 1 L of molecule  
(b) 1 g of molecules  
(c) gram molecular mass  
(d) 1 g atom of molecules
35. Ferric sulphate is represented by which formula ?  
(a)  $\text{FeSO}_4$       (b)  $\text{FeSO}_3$   
(c)  $\text{Fe}(\text{SO}_4)_2$       (d)  $\text{Fe}_2(\text{SO}_4)_3$
36. The maximum concentration of nitrogen is present in :  
(a) nitrolim

- (b) calcium ammonium nitrate
- (c) ammonium sulphate
- (d) urea

37. Nylon is a :
- (a) polysaccharide
  - (b) polyester
  - (c) polyamide
  - (d) all of these
38. The element used for carrying out the nuclear reactions is :
- (a) thorium-232
  - (b) uranium-238
  - (c) plutonium-239
  - (d) neptunium-293
- The metal which cannot be extracted by smelting process :
- 39.
- (a) Zn
  - (b) Al
  - (c) Pb
  - (d) Fe
40. Aniline on treatment with sodium nitrite and HCl at 0°C to produce which of the following compound ?
- (a) Diazonium salt
  - (b) Hydrozo compound
  - (c) Phenol and N<sub>2</sub>
  - (d) Nitroaniline
41. For a chemical reaction which can never be a fraction :
- (a) rate constant
  - (b) order
  - (c) molecularity
  - (d) half-life
42. Which is a planar molecule ?
- (a) PCl<sub>3</sub>
  - (b) BCl<sub>3</sub>
  - (c) NH<sub>3</sub>
  - (d) H<sub>3</sub>O<sup>+</sup>
43. Which of the following do not travel with the speed of light ?
- (a) de-Broglie waves
  - (b) X-rays
  - (c) Gamma rays
  - (d) All of the above
44. If the concentration of the reactant are doubled in a reversible chemical equation having two reactant (in equilibrium) then the equilibrium constant will :
- (a) become one fourth
  - (b) doubled
  - (c) halved
  - (d) remains same

45.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow{\text{PCl}_5} A \xrightarrow{\text{alc KOH}} B$   
*B* is identified as :  
 (a) propanal (b) propane  
 (c) propyne (d) propene
46. The transition metal with least atomic number is :  
 (a) Os (b) Zr  
 (c) Pt (d) Ru
47. Which of the following pentafluoride is not obtained ?  
 (a)  $\text{SbF}_5$  (b)  $\text{BiF}_5$   
 (c)  $\text{PF}_5$  (d)  $\text{AsF}_5$
48. Distribution law was given by :  
 (a) Ostwald  
 (b) van't Hoff  
 (c) Nernst  
 (d) Henry
49. The relative arrangements of atoms in a molecule can be studied only if we know :  
 (a) structural formula  
 (b) molecular formula  
 (c) empirical formula  
 (d) none of the above
50. The number of elements present in fifth period of periodic table is :  
 (a) 10 (b) 8  
 (c) 32 (d) 18

#### ANSWER KEYS

1. c 2. a 3. d 4. b 5. a 6. a 7. c 8. be 9. cd 10. d  
 11. b 12. c 13. d 14. a 15. a 16. d 17. c 18. d 19. a 20. b  
 21. a 22. a 23. b 24. d 25. a 26. c 27. b 28. b 29. d 30. c  
 31. c 32. a 33. a 34. c 35. d 36. d 37. c 38. c 39. b 40. a  
 41. c 42. b 43. a 44. a 45. d 46. b 47. b 48. c 49. a 50. d