

1. For neutralisation of one mol of NaOH the mass of 70%  $\text{H}_2\text{SO}_4$  required is :  
(a) 48 g                      (b) 70 g  
(c) 49 g                      (d) 35 g
2. Philosopher's wool on treatment with cobalt nitrate produce :  
(a)  $\text{CoBaO}$                       (b)  $\text{CoZnO}$   
(c)  $\text{CoSrO}$                       (d)  $\text{CoMgO}$
3. The most stable carbonium ion is :  
(a)  $\text{CH}_3\overset{+}{\text{C}}\text{H}_2$                       (b)  $\text{C}_6\text{H}_5\overset{+}{\text{C}}\text{H}_2$   
(c)  $\text{C}_6\text{H}_5\overset{+}{\text{C}}\text{HC}_6\text{H}_5$                       (d)  $\text{C}_6\text{H}_5\text{CH}_2\overset{+}{\text{C}}\text{H}_2$
4. The highest dipole moment is of :  
(a)  $\text{CF}_4$                       (b)  $\text{CH}_3\text{OH}$   
(c)  $\text{CO}_2$                       (d)  $\text{CH}_3\text{F}$
5. The normality of mixture obtained by mixing 100 mL of 0.2 M  $\text{H}_2\text{SO}_4$  and 200 mL of 0.2 M HCl is :  
(a) 0.0267                      (b) 0.2670  
(c) 1.0267                      (d) 1.1670
6. The green house effect is caused by :  
(a) NO                      (b)  $\text{NO}_2$   
(c) CO                      (d)  $\text{CO}_2$
7. The density of air is 0.001293 g/cc. Its vapour density is :  
(a) 0.001293                      (b) 8.2786  
(c) 14.48                      (d) 6.2706

8. The process of heating and suddenly cooling of steel is known as :
- (a) tempering                      (b) annealing  
(c) hardening                      (d) nitriding
9. The bonding present between the carbon atoms of graphite :
- (a) metallic  
(b) ionic  
(c) covalent  
(d) van der Waals' forces
10. Compressibility factor for 1 mole of a van der Waals' gas at  $0^{\circ}\text{C}$  and 100 atmospheric pressure is found to be 0.5 the volume of gas molecules is :
- (a) 2.0224                      (b) 1.4666  
(c) 0.8542                      (d) 0.1119
11. An ideal gas is allowed to expand under adiabatic conditions. The zero value is of :
- (a)  $\Delta T = 0$                       (b)  $\Delta S = 0$   
(c)  $\Delta G = 0$                       (d) none of these
12. The maximum valency of an element having atomic number seven is :
- (a) 1                                      (b) 3  
(c) 5                                      (d) 7
13.  $\text{NH}_4\text{Cl}$  solution is :
- (a) neutral                              (b) acidic  
(c) basic                                      (d) amphoteric
14. For first order reaction, the unit of rate constant is :
- (a)  $\text{L mol}^{-1} \text{time}^{-1}$   
(b)  $\text{mol L}^{-1} \text{time}^2$   
(c)  $\text{time}^{-1}$   
(d) none of the above

15. Aniline chloroform and alcoholic KOH reacts to produce a bad smelling substance which is :
- (a) phenyl isocyanide
  - (b) phenyl cyanide
  - (c) chloro benzene
  - (d) benzyl alcohol
16. In the titration of iodine against hypo the indicator used is :
- (a) starch
  - (b) potassium ferricyanide
  - (c) methyl orange
  - (d) methyl red
17. Excess of ethanol and conc.  $H_2SO_4$  on heating up to  $140^\circ C$ . To produce :
- (a) diethyl ether
  - (b) diethyl sulphate
  - (c) ethyl hydrogen sulphate
  - (d) ethylene
18. The shape of  $IF_7$  molecule is :
- (a) pentagonal bipyramidal
  - (b) trigonal pyramidal
  - (c) tetrahedral
  - (d) square planar
19. The kinetic energy of 14 g of nitrogen gas at  $127^\circ C$  is [gas constant =  $8.31 J/K/mol$ ]
- (a) 4.4673 kJ
  - (b) 3.857 kJ
  - (c) 2.493 kJ
  - (d) 1.857 kJ
20. Born-Haber cycle is used to determine :
- (a) electron affinity
  - (b) lattice energy
  - (c) crystal energy
  - (d) all of these

21. The oxidation number of phosphorus in  $\text{Ba}(\text{H}_2\text{PO}_2)_2$  is :  
(a) +1 (b) -1  
(c) +2 (d) +3
22. A gas diffuses four times as quickly as oxygen. The molecular weight of gas is :  
(a) 2 (b) 4  
(c) 8 (d) 16
23. Vitamin  $\text{B}_{12}$  contains the metal is :  
(a) cobalt (b) manganese  
(c) magnesium (d) iron
24. The compound responds to Tollen's reagent is :  
(a)  $\text{CH}_3\text{COCH}_3$  (b)  $\text{CH}_3\text{CHO}$   
(c)  $\text{CH}_3\text{CONH}_2$  (d)  $\text{CH}_3\text{COOH}$
25. When chloroform is exposed to air and sunlight the compound obtained is :  
(a) chloral (b) acetyl chloride  
(c) phosgene (d) methyl chloride
26. The laughing gas is :  
(a) nitrous oxide (b) dinitrogen trioxide  
(c) nitric oxide (d) nitrogen peroxide
27. Alkyl halide on heating with dry  $\text{Ag}_2\text{O}$  produce :  
(a) ether (b) ester  
(c) ketone (d) hydrocarbon

28. Borazine is represented by the molecular formula :
- (a)  $B_6H_6$  (b)  $B_5NH_6$   
(c)  $B_4N_2H_6$  (d)  $B_3N_3H_6$
29. The product is obtained by the reaction of an aldehyde and hydroxylamine is :
- (a) hydrazone (b) aldoxime  
(c) primary amine (d) alcohol
30. Which one of the following is not a chromophore ?
- (a)  $—NO$  (b)  $—N=N—$   
(c)  $—NO_2$  (d)  $—NH_2$
31. The isomer of ethyl alcohol is :
- (a) diethyl ether (b) dimethyl ether  
(c) acetaldehyde (d) acetone
32. Buffer solutions can be obtained by mixing aqueous solution of :
- (a) NaOH and HCl  
(b)  $CH_3COOH$  and NaOH  
(c)  $CH_3COONa$  and  $CH_3COOH$   
(d)  $CH_3COONa$  and HCl
33. An element having atomic number 56 belongs to :
- (a) lanthanides  
(b) actinides  
(c) alkaline earth metals  
(d) none of the above
34. Dry ice is :
- (a) dry  $CO_2$  gas (b) solid  $SO_2$   
(c) solid  $NH_3$  (d) solid  $CO_2$

35. The alicyclic compound is :  
(a) cyclohexane      (b) cyclohexene  
(c) pyrrole          (d) hexane
36. Adsorbed hydrogen by palladium is known as :  
(a) nascent          (b) atomic  
(c) heavy            (d) occluded
37. In benzylic acid rearrangement :  
(a) benzoin is converted into benzylic acid  
(b) benzaldehyde is converted into benzoin  
(c) benzyl is converted into benzylic acid  
(d) benzylic acid is converted into benzyl
38. On heating  $O_3$ , its volume :  
(a) remains unchanged  
(b) becomes doubled  
(c) becomes half  
(d) becomes  $\frac{3}{2}$  times
39. Chloramphenicol is an :  
(a) analgesic          (b) antipyretic  
(c) antiseptic          (d) antibiotic
40. Which of the following compound can be easily sulphonated ?  
(a) Chlorobenzene      (b) Nitrobenzene  
(c) Toluene            (d) Benzene
41.  $l = 3$  then the values of magnetic quantum numbers are :  
(a)  $\pm 1, \pm 2, \pm 3$       (b)  $0, \pm 1, \pm 2, \pm 3$   
(c)  $-1, -2, -3$           (d)  $0, +1, +2, +3$

42. The electrical conduction is shown by :  
(a) potassium                      (b) sodium  
(c) graphite                        (d) diamond
43. Carborundum is :  
(a)  $\text{CaC}_2\text{O}_4$                       (b)  $\text{Al}_2(\text{CO}_3)_3$   
(c)  $\text{CaH}_2$                             (d)  $\text{SiC}$
44. The base not present in DNA is :  
(a) uracil                            (b) guanine  
(c) adenine                         (d) cytosine
45. The monomers of terylene are :  
(a) phenol and formaldehyde  
(b) ethylene glycol and phthalic acid  
(c) adipic acid and hexamethylene diamine  
(d) ethylene glycol and terephthalic acid
46. The most polar bond is :  
(a)  $\text{C—F}$                             (b)  $\text{C—O}$   
(c)  $\text{C—Br}$                             (d)  $\text{C—S}$
47. Brownian movement is found in :  
(a) unsaturated solution  
(b) saturated solution  
(c) colloidal solution  
(d) suspension solution
48. The rate of a chemical reaction depends on :  
(a) pressure                        (b) time  
(c) concentration                (d) all of these
49. The positive charge of an atom is :  
(a) distributed around the nucleus  
(b) concentrated at the nucleus  
(c) spread all over the atom  
(d) none of the above

50. The increasing order of acidity of  $\text{H}_2\text{O}_2$ ,  $\text{H}_2\text{O}$  and  $\text{CO}_2$  is :
- (a)  $\text{H}_2\text{O}_2 > \text{H}_2\text{O} > \text{CO}_2$
  - (b)  $\text{H}_2\text{O}_2 > \text{CO}_2 > \text{H}_2\text{O}$
  - (c)  $\text{H}_2\text{O} > \text{H}_2\text{O}_2 > \text{CO}_2$
  - (d)  $\text{H}_2\text{O} < \text{H}_2\text{O}_2 < \text{CO}_2$

**ANSWER KEYS**

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