1. **10g of hydrogen and 64g of oxygen were filled in a steel vessel and exploded. Amount of water produced in this reaction will be**
2. **3 mol (B) 4 mol (C) 1 mol (D) 2 mol**
3. **Which of the following has the largest number of atoms?**
4. **0.5g atoms of Cu (C) 0.635g of Cu**
5. **0.25 moles of Cu (D) 1g of Cu**
6. **Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar**
7. **Ca < Ba < S < Se < Ar (C) S < Se < Ca < Ba < Ar**
8. **Ca < S < Ba < Se < Ar (D) Ba < Ca < Se < S < Ar**
9. **The enthalpy change in the reaction :**

**2CO + O2 2CO2 is termed as**

1. **Enthalpy of reaction (C) Enthalpy of combustion**
2. **Enthalpy of fusion (D) Enthalpy of formation**
3. **According to the reaction**

**C6H6 + O2 3H2O + 6CO2 (𝚫H = - 3264.6 kJ/mol )the energy evolved when 3.9g of Benzene is burnt in air will be**

1. **163.23 kJ/mol (C) 32.64 kJ/mol**
2. **326.4 kJ/mol (D) 3.264 kJ/mol**
3. **In view of the signs of ΔG◦ for the following reactions**

**PbO2 + Pb 2PbO ΔG◦ < 0**

**SnO2 + Sn 2SnO ΔG◦ > 0**

**Which oxidation states are more characteristic for lead and tin?**

1. **For lead +4 and for tin +2 (C) For lead +4 and for tin +4**
2. **For lead +2 and for tin +2 (D) For lead +2 and for tin +4**
3. **If Kp for a reaction**

**A(g) + 2B(g) 3C(g) + D(g) is 0.05 atm at 1000K. Its Kc in terms of R will be**

1. **2000R (B) 0.02R (C) 5 × 10-5R (D) (5 × 10-5) / R**
2. **For the reaction H2(g) + I2(g) 2HI(g), the equilibrium constant Kp changes with**
3. **Total pressure (C) The amount of H2 and I2 present**
4. **Catalyst (D) Temperature**
5. **For the reaction N2(g) + O2(g) 2NO(g), the equilibrium constant is K1. The equilibrium constant is K2 for the reaction 2NO(g) + O2(g) 2NO2(g)**

**Then what is K for the reaction, NO2(g) ½ N2(g) + O2(g)**

1. **[1/K1K2]1/2 (C) 1/(2K1K2)**
2. **1/(K1K2) (D) 1/(4K1K2)**
3. **The solubility of AgCl in 0.2 M NaCl is [ Ksp of AgCl = 1.8 × 10-10 ]**
4. **1.8 × 10-11  M (C) 6.5 × 10-12 M**
5. **9.0 × 10-10 M (D) 5.6 × 10-11  M**
6. **The kinetic energy of two moles of N2 at 27◦C is ( R = 8.324 J/K/mol )**
7. **5491.6 J (C) 7491.6 J**
8. **6491.6 J (D) 8882.4 J**
9. **Which of the following statement is not true about the effect of an increase in temperature on the distribution of molecular speed in a gas ?**
10. **The most probable speed increases**
11. **The fraction of the molecule with the most probable speed increases**
12. **The distribution becomes broader**
13. **The area under the distribution curve remains the same as under the lower temperature.**
14. **The pressure exerted by 6.0g of Methane gas in a 0.03 m3 vessel at 129◦C (atomic mass C = 12.01, H = 1.01 and R =8.314 J/K/mol ) is**
15. **215216 Pa (C) 41648 Pa**
16. **13405 Pa (D) 31684 Pa**
17. **In a face centered cubic lattice, a unit cell is shared equally by how many unit cell?**
18. **4 (C) 6**
19. **2 (D)8**
20. **If NaCl is doped with 10-4 mol% of SrCl2, the concentration of cation vacancies will be ( NA = 6.02 × 1023 mol-1 )**
21. **6.02 × 1014 mol-1 (C) 6.02 × 1016 mol-1**
22. **6.02 × 1015 mol-1 (D) 6.02 × 1017 mol-1**
23. **For a chemical reaction 2X + Y Z, the rate of appearance of Z is 0.05 mol/ L per min. The rate of disappearance of X will be**
24. **0.05 mol/ L per hour (C) 0.1 mol/ L per min**
25. **0.05 mol/ L per min (D) 0.25 mol/ L per min**
26. **The rate constant of a reaction at temperature 200K is 10 times less than the rate constant at 400K. What is the activation energy (Ea) of the reaction? ( R = gas constant )**
27. **1842.4 R (C) 460.6 R**
28. **921.2 R (D) 230.3 R**
29. **Half-life period of a first order reaction is 1386 seconds. The specific rate constant of the reaction is**
30. **5.0 × 10-2 S-1 (C) 0.5 × 10-2 S-1**
31. **5.0 × 10-3 S-1 (D) 0.5 × 10-3 S-1**
32. **The oxidation number of phosphorus in Ba(H2PO2)2 is**
33. **+3 (C) +1**
34. **+2 (D) -1**
35. **How long 2 ampere of current is passed to supply 72000 C of charge?**
36. **1 Hour (C) 15 Hour**
37. **10 Hour (D) 20 Hour**
38. **Equal volume of 0.1 M Ag NO3 and 0.2 M NaCl are mixed.The concentration of NO3- ions in the mixture will be**
39. **0.1 M (C) 0.2 M**
40. **0.05 M (D) 0.15 M**
41. **If liquids A and B form an ideal solution**
42. **The enthalpy of mixing is zero**
43. **The entropy of mixing is zero**
44. **The free energy of mixing is zero**
45. **The free energy as well as the entropy of mixing are each zero**
46. **The half- cell reaction, with its standard reduction potentials are**

**( i ) Pb2+ + 2e-  Pb ( E◦  = -0.13 V )**

**( ii ) Ag+ + e-  Ag (E◦  = + 0.80 V )**

**Which of the following reactions will occurs?**

1. **Pb2+ + 2Ag 2Ag+ +Pb**
2. **Pb2 + H2 2H+ + Pb**
3. **2H+ + 2Ag 2Ag+ + H2**
4. **2Ag+ + Pb Pb2+  + 2Ag**
5. **The limiting molar conductivity Λ◦ for NaCl, KBr and KCl are 126,152 and 150 Scm2 respectively. The Λ◦ for NaBr is**
6. **128 Scm2 (C) 278 Scm2**
7. **302 Scm2 (D) 176 Scm2**
8. **Lyophilic colloids are stable due to**
9. **Charge on the particle (C) Small size of the particle**
10. **Large size of the particle (D) Layer of dispersion medium on the particle**
11. **According to Freundlich adsorption isotherm, which of the following is correct**
12. **x/m α p1 (C) x/m α p0**
13. **x/m α p1/n (D) All the above are correct for different ranges of pressure**
14. **The IUPAC name of (CH3)3C-CH = CH2 is**
15. **2,2-Dimethyl but-2-ene**
16. **2,2- Dimethyl pent-3-ene**
17. **3,3- Dimethyl but-1-ene**
18. **Hex-1-ene**
19. **Racemic mixture is optically inactive due to**
20. **Presence of plane of symmetry**
21. **External compensation**
22. **Internal compensation**
23. **(D) None of the above**
24. **1,3-Butadine when treated with Br2 which gives**
25. **1,4-Dibromo-2-butene (C) 3,4-Dibromo-1-butene**
26. **1,3-Dibromo-2-butene (D) 2,3- Dibromo-2-butene**
27. **The treatment of Benzene with isobutene in the presence of sulphuric acid gives**
28. **Isobutyle benzene (C) n-Butyle benzene**
29. **Tert-butyle benzene (D) No reaction**

**ANSWER KEY**

1. **(B) 2. (A) 3. (D) 4. (C) 5. (A) 6. (D)**

**7. (D) 8. (D) 9. (A) 10. (B) 11. (C) 12. (B)**

**13. (C) 14. (C) 15. (D) 16. (C) 17. (B) 18. (D)**

**19. (C) 20. (B) 21. (B) 22. (A) 23. (D) 24. (A)**

**25. (D) 26. (D) 27. (C) 28. (B) 29. (A) 30. (B)**