

- Oxides of the alkaline earth family form
  - basic solutions.
- In which reaction is  $\text{H}_2\text{PO}_4^-$  acting as a base?
  - $\text{H}_2\text{PO}_4^- + \text{HF} \rightarrow \text{F}^- + \text{H}_3\text{PO}_4$
- The hydronium ion concentration of a 0.00100 acetic acid solution is  $1.34 \times 10^{-4}$  M. The pH of the solution is
  - 3.87.
- The name of the coordination compound with the formula  $(\text{NH}_4)_2[\text{CuCl}_4]$  is
  - ammonium tetrachlorocuprate(II).
- All of the following would be expected to function as reducing agents **EXCEPT**
  - $\text{Al}^{3+}$ .
- All of the following reactions could be used to produce a protonic acid **EXCEPT**
  - $\text{Na}_2\text{O} + \text{H}_2\text{O} \rightarrow$
- When the expression
$$\text{C}_5\text{H}_6\text{NS(l)} + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O} + \text{NO}_2(\text{g}) + \text{SO}_2(\text{g})$$
is balanced, the sum of all the smallest whole number coefficients is
  - 39
- What is the oxidation number of the metal ion in  $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$ ?
  - +2
- How many unpaired electrons are present in the high spin complex  $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$ ?
  - 4
- Which of the following occur as native ores?
  - Al
  - K
  - Au
  - 3 only

11. Which of the elements indicated below would be classed as transition elements?
- c.  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^2$
12. Transition metals can be distinguished from main group metals by the fact that
- e. transition metals have a greater tendency to form colored compounds than main group metals.
13. What is the electron configuration of iron?
- b.  $[\text{Ar}] 3d^6 4s^2$
14. The formula for a platinum(IV) complex is  $[\text{Pt}(\text{NH}_2)_2\text{Br}_2]\text{Cl}_2$ . In aqueous solution, it will dissociate into
- b. 3 ions.
15. If a nucleus decays by successive  $\alpha$ ,  $\alpha$ ,  $\beta$  decay, the atomic number will
- e. decrease by three units.
16. All isotopes having an atomic number greater than that of the element \_\_\_\_\_ are radioactive.
- b. bismuth
17. Which of the following particles causes a nuclear fission reaction in a uranium nucleus?
- c.  ${}_0^1\text{n}$
18. What do scientists call the sequence of rapidly occurring reactions that results when a nuclear fission reaction produces enough neutrons to produce more fission reactions?
- a. chain reaction
19. Positron emission can give increased nuclear stability by
- c. increasing the n/p ratio.
20. What is the half-life of an isotope if the decay constant is 3.2/year?
- c. 0.22 year