21. (d) $10^{-3}N$ KOH will give $[OH^-] = 10^{-2}M$

$pOH = 2$

$\because \boldsymbol{pH + pOH = 14, pH = 14 - 2 = 12}$

22. (d) It is $FeSO_4(NH_4)_2SO_4.10H_2O$.

23. (d) Salt of a strong base with a weak acid.

24. (b) NH_4CN is a salt of weak acid and weak base and thus for it

25. (a) Because it is a salt of strong base with a weak acid.

26. (d) Because $CCl_4$is a organic solvent and $AgNO_3$is insoluble in organic solvent.

27. (a) $SnS_2 \rightleftharpoons Sn^{4+} + 2S^{2-}$

$\therefore K_{sp} = [Sn^{4+}][S^{2-}]^2$

28. (d) It does not dissociate much or its ionization is very less.

29. (b) $NaHCO_3$ has one replaceable hydrogen.

30. (b) $CaOCl_2$ has two anions $Cl^-$and OCl^-along with Ca^{2+}ions.

31. (a) $K_{sp} = 4S^3$, $S^3 = \frac{4\times10^{-9}}{4} = 10^{-9}$

$\therefore S = 10^{-3}M$.

32. (d) $Be(OH)_2$has lowest solubility and hence lowest solubility product.

33. (a) Because it is a salt of strong acid and strong base.

34. (c) $NH_4OH \rightleftharpoons \boxed{NH_4^+} + OH^-$

Common ion

$NH_4Cl \rightleftharpoons \ NH_4^+ \ + Cl^-$

35. (d) It is a less ionic, so that least soluble in water.

36. (b) pH of 9 means the salt solution should be fairly basic.

37. (b) $CH_3COOH \rightleftharpoons CH_3COO^- + H^+$

On adding CH_3COONa, $[H^+]$ decreases.

38. (c) 0.01 M $CaCl_2$ gives maximum Cl^- ions to keep K_{sp} of $AgCl$ constant, decrease in $[Ag^+]$ will be maximum.

39. (b) Due to the common ion effect.

40. (a) $K_{sp} = 4s^3$

$S = \sqrt[3]{\frac{K_{sp}}{4}} = \sqrt[3]{\frac{1.0\times10^{-6}}{4}} = 6.3 \times 10^{-3}$.