Acids and Bases Assignment

Watch the following video podcasts and answer each question below:

Acids and Bases: https://www.youtube.com/watch?v=o9O-VCkBut4&feature=youtu.be

1) What is the Bronsted-Lowry definition of an acid?
   (A) Acids burn if you get it on your skin.
   (B) Acids contain H^+.
   (C) Acids dissociate in water completely.
   (D) Acids are proton donors.

2) Out of the list of acids provided, indicate which ones are categorized as strong acids. (Select all that apply)
   - H_2SO_4
   - $HClO_2$
   - HF
   - HCl
   - H_3PO_4
   - HNO_3
   - HBr
   - HSO_3^-
   - H_3O^+

3) What is the primary factor that determines that a strong acid is a strong electrolyte?
   (A) Strong acids dissociate completely.
   (B) Strong acids donate an H^+ to the water.
   (C) Strong acids have more oxygens than their conjugates.
   (D) Strong acids do not have conjugates.

4) What is the conjugate base for lactic acid, $HC_3H_5O_3$?
   (A) $HC_3H_5O_3$
   (B) $H_2C_3H_5O_3^+$
   (C) $C_3H_5O_3^-$
   (D) H_3O^+

5) What is the conjugate acid for hydrazine, H_2NNH_2?
   (A) H_2NNH_2
   (B) $H_2NNH_3^+$
   (C) H_2NNH^-
   (D) H_3O^+

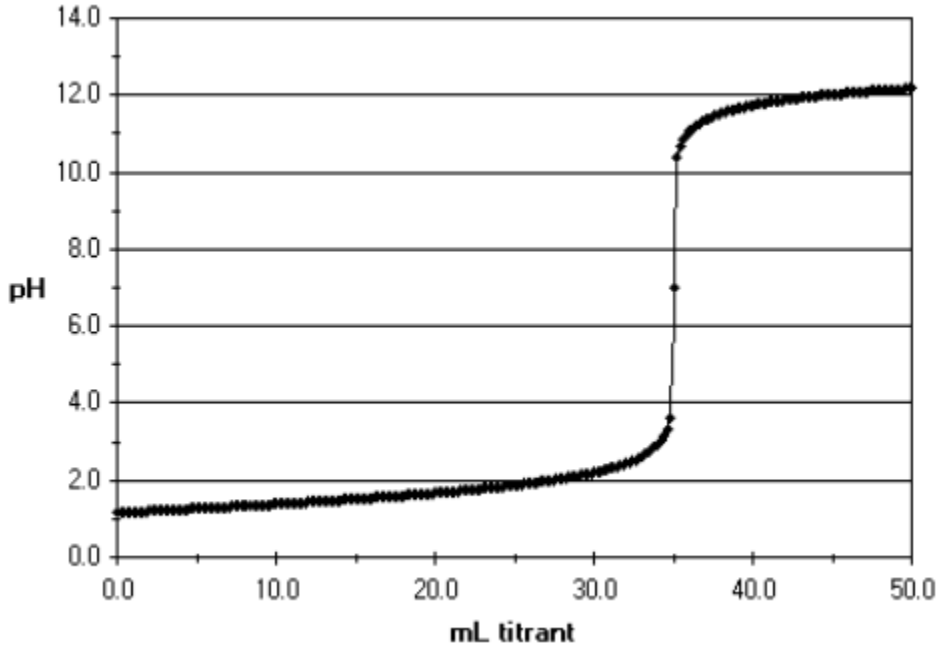
6) What is the pH of a 0.00045 M solution of HCl?
   (A) 4.50
   (B) 3.35
   (C) 2.50
   (D) 1.32

7) What is the pH of a solution that is made from 0.25 grams of sodium hydroxide, NaOH (MW = 40), in 500 mL of distilled water?
   (A) 12.10
   (B) 11.55
   (C) 10.35
   (D) 1.90

8) What is the difference between the equivalence point and the end point of a titration?
   (A) There is no difference, they are the same thing.
   (B) The equivalence point is when the volume of acid and base are equal, and the end point is when the concentrations of the acid and base are equal.
   (C) The equivalence point is when the concentration of acid and base are equal, and the end point is when the titration is completely done.
   (D) The equivalence point is when the moles of acid and base are equal, and the end point is when the color changes.

Questions 9-10 refer to the following scenario of an acid-base titration.

An unknown strong acid was measured out to 50.0 mL and was placed in a beaker. This unknown analyte was titrated with a 0.100 M NaOH solution. The data for the titration curve of mL of titrant vs pH was collected and shown below.



9) What is the volume of NaOH at the equivalence point of this titration?
   (A) 17.5 mL
   (B) 30.0 mL
   (C) 35.0 mL
   (D) 50.0 mL

10) What is the molar concentration of the unknown acid?
   (A) 0.0700 M
   (B) 0.0850 M
   (C) 0.125 M
   (D) 0.143 M