ORDINARY LEVEL CHEMISTRY PROBLEMS

PART 5: ACIDS, BASES AND SALTS

1. (a). What is meant by the following terms
   (i). Acid
   (ii). Base
   (iii). Salt
   (b). Give two examples of each of the following
   (i). Acid
   (ii). Base
   (iii). Salt

2. (a). Distinguish between the following pairs of words
   (i). Strong acid and weak acid
   (ii). Base and alkali
   (iii). Normal salt and acid salt.
   Give an example in each case
   (b). Give the chemical properties of each of the following and write an equation to illustrate your answer
   (i). Acids
   (ii). bases

3. (a). What is meant by the term pH
   (b). State the condition under which a given substance is said to be
   (i). Acidic
   (ii). Alkaline
   (iii). neutral
   (c). Complete the table below by filling in an example of a pH indicator and its colour in acidic and alkaline medium

Indicator	Colour in acidic medium	Alkaline medium

4. (a). Which types of salts dissolve in water to form a solution whose pH is
   (i). Equal to seven
   (ii). Greater than seven
   (iii). Less than seven
   (b). Give two examples of salts which when dissolved in water will form a solution whose pH is
   (i). Equal to seven
   (ii). Greater than seven
   (iii). Less than seven

5. (a). What is meant by the term neutralization reaction
   (b). Write two equations to represent a neutralization reaction
   (c). Write an ionic equation for a neutralization reaction

6. (a). Give two examples of salts that can be prepare by
   (i). Direct synthesis

(ii). Double decomposition
(iii). Precipitation
(iv). Neutralization
(v). Action of a dilute acid on a metal

7. Describe how the following salts can prepared in the laboratory from sodium hydroxide
   (a). Sodium sulphate
   (b). Sodium nitrate
   (c). Sodium carbonate
   (d). Sodium hydrogen carbonate
   (e). Sodium chloride

8. Describe how the following can be prepared in the laboratory
   (a). Lead(II) sulphate from lead(II) oxide or lead(II) carbonate
   (b). Zinc sulphate from zinc, zinc oxide or zinc carbonate
   (c). Copper(II) sulphate from
      (i). Copper
      (ii). Copper(II) oxide or copper(II) carbonate
   (d). Ammonium sulphate

9. Describe how the following salts can be prepared in the laboratory
   (a). Anhydrous iron(II) chloride
   (b). Anhydrous iton(III) chloride
   (c). Anhydrous magnesium chloride
   (d). Hydrated magnesium chloride
   (e). Lead(II) chloride

10. Describe how the following salts can be prepared in the laboratory
   (a). Lead(II) nitrate crystals from lead(II) oxide or lead(II) carbonate
   (b). Zinc nitrate crystals from zinc oxide or zinc carbonate

11. Describe how the following salts can be prepared in the laboratory
   (a). Copper(II) carbonate
   (b). Calcium carbonate
   (c). Lead(II) carbonate