ACIDS, BASES & INDICATORS

KCSE QUICK REVISION

Compilation of Possible Questions in Chemistry Likely to be Examined in KCSE.

A Special Analysis of Prediction Questions that may be Tested in KCSE from this Topic in Form 1.

CHEMISTRY

SERIES 1

For Marking Schemes

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ACIDS, BASES AND INDICATORS

1. The table below shows solutions **A, B** and **C** are tested and observations records as shown:

Solution	Observations on indicator
A	Methyl orange turns yellow
B	Phenolphthalein turns colourless
C	Litmus turns purple

(a) Using the table above, name an acid

(b) How does the pH value of 1M potassium hydroxide solution compare with that of 1M aqueous ammonia? Explain

2. The information below gives PH values of solutions **V, W, X, Y Z**

Solution	PH values
V	2
W	6.5
X	11
Y	14
Z	4.5

(a) Which solution is likely to be:

(i) Calcium hydroxide? ……

(ii) Rain water? ……

(b) Which solution would react most vigorously with Zinc carbonate

3. a) Complete the table below to show the colour of the given indicator in acidic and basic solutions.

Indicator	Colour in	
Methyl Orange	Acidic Solution	Basic Solution
		Yellow
Phenolphthalein	Colourless	

b) How does the PH value of 0.1M potassium hydroxide solution compare with that of 0.1M aqueous ammonia.Explain.

4. Use the information given below to answer the questions that follow:

Solution	**G**	**H**	**I**	**J**	**K**
pH	1.5	6.5	13.0	7.0	8.0

(a) Which of the solutions would be used to relieve a stomach upset caused indigestion?

(b) Which solution is likely to be:

(i) Dilute sulphuric acid?

(ii) Sodium hydroxide solution?

5. Solid copper (II) oxide is a base although it does not turn litmus paper to blue. Explain

6. Below are the pH values of 4 types of medicine represented by letters **P, Q, R** and **S**

MEDICINE	**pH VALUES**
P	7.0
Q	5.0
R	8.0
S	6.0

a) It is not advisable to use **S** when a patient has indigestion .Explain

b) What is the role of chemistry in drug manufacture

7. Explain why very little Carbon (IV) oxide gas is evolved when dilute sulphuric (VI) acid is added to lead (II) carbonate

8 . State **one** commercial use of Calcium Oxide

9. The following data gives the **pH** values of some solutions

Solution	pH
P	14.0
Q	6.8
R	2.5

(a) What colour change would occur in solution **P** on addition of two drops of phenolphthalein indicator?

(b) State the pH value of a resulting solution when equal moles of solution **P** and **R** react

10. In an experiment, ammonia gas was prepared by heating ammonium salt with an alkali. After drying, ammonia gas was collected at room temperature and pressure.

(a) What is meant by the term alkali?

(b) Explain using physical properties of the gas why ammonia is not collected downward delivery

11. The table shows the colours obtained when some indicators are added to solutions:-

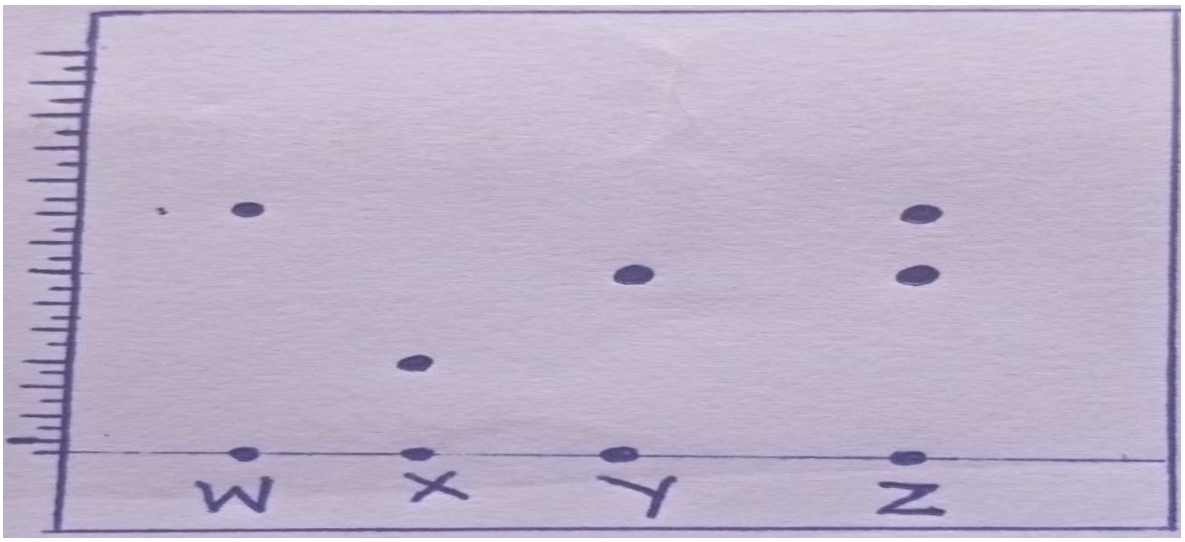
Solution	Blue litmus paper	Indicator W
Distilled water	……..	Colourless
Calcium hydroxide	Blue	Pink
Nitric acid	……	Colourless

(a) Complete the table by filling in the missing colours

(b) Identify indicator **W**

12. (a) Flower extracts can be used as Acid-base indicators. Give **two** limitations of such indicators

(b) The diagram below shows spots of pure substances **W, X**, and **Y** on chromatography paper. Spot **Z** is that of a mixture



After development **W, X**, and **Y** were found to have moved 9cm^3, 4cm^3 and 7cm^3 Respectively.**Z** has separated into two spots which have moved 7cm^3 and 9cm^3:-
On the diagram:-

I. Label the baseline and solvent front

II. Show the position of all the spots after development

III. Identify the substances present in mixture **Z**

13. A beekeeper found that when stung by a bee, application of a little solution of sodium hydrogen carbonate helped to relieve the irritation of the affected area. Explain

14. 10g of sodium hydrogen carbonate were dissolved in 20cm^3 of water in a boiling tube. Lemon juice was then added dropwise with shaking until there was no further change.

(a) Explain the observation which was made in the boiling tube when the reaction was in progress

(b) What observations would be made if the lemon juice had been added to copper turnings in a boiling tube?

15. (a) Complete the table below to show the colour of the given indicator in acidic and basic solutions:

Indicator	**Colour in acidic solution**	**Basic solution**
Methyl orange	Pink	
Phenolphthalein		Pink

16. Solutions can be classified as acids, bases or neutral. The table below shows solutions and their PH values:-

Solutions	PH VALUES
K	1.5
L	7.0
M	14.0

(i) Select any pair that would react to form a solution of PH 7

(ii) Identify two solutions that would react with aluminium hydroxide. Explain

For Marking Schemes/Answers

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