PRIMARY SIX
LESSON 1: Use of Adverbs

Learning Outcomes
By the end of this lesson, you should be able to:

i) identify ways of doing things.

ii) use of adverbs in your daily life activities.

You will need:
- a pen
- a book

Introduction
An adverb is a word that tells more about a verb, an adjective and another adverb. Adverbs tell us how an action is done: when? why? how? and where?

Examples
i) The cyclist is riding slowly.
ii) Children should cross the road carefully.

Activity 1
Use the correct form of the word in the brackets to complete the sentences below.
Examples have been given to guide you.

1. Tino cleverly avoided the punishment. (clever)
2. Uganda's population is steadily rising. (steady)
3. St Thomas choir sang the second compulsory song beautifully. (beauty)
4. The host welcomed us cheerfully. (cheer)
5. We patiently waited for his return from Ojipaku market. (patience)
6. Italians have seen the worse coronavirus attacked. (worse)
7. They answered the question wisely. (wise)
8. A machete is usually bigger than a knife. (usual)
9. The hungry boy ate the mango greedily. (greed)
10. The hunter bravely attacked the lion in its den. (brave)

Activity 2
Order of Adverbs
When more than one adverb is used in a sentence, they usually follow in this order: manner (how?), place (where?) and time (when?).

Example
The pedestrian crossed the road carefully (how?) at the zebra crossing (where?) yesterday (when?).

From the sentences below, underline the adverbs of manner, place and time.
1. The traffic officer called the driver loudly at the junction in the morning.
2. Many cyclists ride carelessly at the traffic lights every day.
3. The bus driver spoke politely to the passenger on the bus on Tuesday.
4. My mother nicely made cakes from the kitchen last weekend.
5. It rained heavily in our area last year.
1. (a) Mission statement of the project.
   To provide clean and safe drinking water necessary for healthy living of the people in the country.
   (b) An advert for promoting the product.
   “Water is life”
   (c) Programme for launching Kyabwihure Mineral Water Co.Ltd.
   Programme for the launching of Kyabwihure Mineral Water Co.Ltd.

2. (a) The memo should have the following:
   (b) A letter of credit to customers who were over invoiced.
   (c) A Schedule for the routine maintenance of the machine.

3. (a) Notice inviting shareholders to a meeting.
   Contents of the notice:
   Name and address
   TO: ALL SHAREHOLDERS
   SUBJECT: REVIVAL OF THE MEAT FACTORY
   Notice is given to all shareholders of the Meat Factory:
   The meeting is intended to discuss the revival of the meat factory.
   The meeting is to take place on 13th Nov. 2020 at the head office in the Board room.
   Looking forward to your response.
   Yours faithfully
   Taban Kess
   Secretary General
   CC: Managing director
   CC: General Manager

(d) Organisation plan for - - - - - - - - - - - - - - Meat Packers.
   (e) Name and address of the business which must state.

Legal form of business

KYABWIHURE MINERAL WATER CO.LTD
P.O. BOX 63,
KINONI, RWAMPARA.
TEL: 0774 031 483.

Producers of high quality natural mineral water
For reducing thirst
Packed in bottles of 500m, litre and 5 litres.
Located at Plot 17 opposite St Matthew Church
Kabale
On Mbarara – Kabale high way

KYABWIHURE MINERAL WATER CO. LTD
PO BOX 345
MBARARA
TEL. 0412 276 578

Person in charge

Item number:..............................................
LOGO                                      Name and address of the business
Stock card

Item name:..............................................

STOCK CARD

Date of receiving:....................................
Qty received:...........................................
Date of issue:.........................................
Qty issued:............................................
Stock balance:.......................................
Issued to:.............................................
Authorized by:......................................
Remarks

Prepared by:...........................................
Sign:....................................................
Name:..................................................
Title:..................................................

Total:.................................................

Name:..................................................
Sign:..................................................

Amount (Shs)

We are sorry for the inconveniences caused.

Name:..................................................
Sign:..................................................
Title:..................................................

Total:.................................................
3. (b) Programme for recruiting the workers.

<table>
<thead>
<tr>
<th>Step</th>
<th>Time frame</th>
<th>Activity</th>
<th>Person in charge</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Identifying vacant post</td>
<td>H R M</td>
<td>Human resource manager, marketing manager and</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Establishing the required skills and qualifications</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Determining the remuneration or benefits for employment</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Preparing and placing the job advert</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Receiving applications from interested candidates</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Sorting applications and short-listing applicants for interviews</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Establishing the interviews panel and formulating interview questions</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Inviting short-listed candidates for interviews</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Interviewing the short-listed candidates</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Analysing interview results and contacting references</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Giving feedback results to the applicants</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Issuing of appointments to successful candidates</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Receiving of acceptance letters</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Organising an indication and orientation</td>
<td>H R M</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Placement of new employees</td>
<td>H R M</td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: Name…………………………
Approved by: Name…………………………

3. (d) Organisation plan for Meat Packers.

MEAT PACKERS
PO. BOX 345, MBARARA
TEL. 0774 131 000

ORGANISATIONAL PLAN
(i). Organisational structure flow of leadership from top to bottom.
(ii) Human resource needs and responsibilities; i.e., general manager, accountant, production manager, human resource manager, marketing manager and staff.

4. ABEBNE ENTERPRISES LTD CASH FLOW STATEMENT FOR THE MONTH OF JULY TO OCTOBER 2019

<table>
<thead>
<tr>
<th>Cash in flows</th>
<th>July Shs</th>
<th>August Shs</th>
<th>September Shs</th>
<th>October Shs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance b/f</td>
<td>26,000,000</td>
<td>37,700,000</td>
<td>26,600,000</td>
<td>47,500,000</td>
</tr>
<tr>
<td>Receipt from creditors</td>
<td>24,000,000</td>
<td>40,000,000</td>
<td>40,000,000</td>
<td>40,000,000</td>
</tr>
<tr>
<td>Loan</td>
<td>20,000,000</td>
<td>20,000,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash sales</td>
<td>60,000,000</td>
<td>60,000,000</td>
<td>60,000,000</td>
<td>60,000,000</td>
</tr>
<tr>
<td>Total cash inflows</td>
<td>110,000,000</td>
<td>157,000,000</td>
<td>126,600,000</td>
<td>167,500,000</td>
</tr>
<tr>
<td>Cash outflows</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales men commission</td>
<td>600,000</td>
<td>6,000,000</td>
<td>6,000,000</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Cash purchases</td>
<td>40,500,000</td>
<td>40,500,000</td>
<td>40,500,000</td>
<td>40,500,000</td>
</tr>
<tr>
<td>Delivery van</td>
<td>35,000,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wage bill</td>
<td>12,500,000</td>
<td>12,500,000</td>
<td>12,500,000</td>
<td>13,700,000</td>
</tr>
<tr>
<td>Loan interest payment</td>
<td>1,000,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion of business buildings</td>
<td>6,200,000</td>
<td>30,000,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Expenses</td>
<td>7,100,000</td>
<td>7,100,000</td>
<td>7,100,000</td>
<td>7,100,000</td>
</tr>
<tr>
<td>Income tax payment</td>
<td>12,000,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash</td>
<td>37,700,000</td>
<td>37,600,000</td>
<td>48,500,000</td>
<td>99,150,000</td>
</tr>
</tbody>
</table>

4 (b). Ways of managing cash short falls include:
- Delaying some cash payments.
- Reducing expenses i.e. dividends.
- Improving cash collections.
- Giving debtors short credit period.
- Getting cheaper sources of financing/funds.
- Raising prices of some items for some time.
- Adapting to good purchasing practices; i.e., discounts, negotiating for major credit periods.
- Selling off fixed assets.
- Reducing credit sales.
- Carrying sales promotions.
- Ploughing back profit/capitalisation of profit.
- Selling shares.
- Minimising cash drawings.
- Practising proper budgetary controls.
- Soliciting for donations.

5. Financial ratios

A (i). Gross profit margin = GP×100
   Net sales
   \[ \frac{240,000,000}{60,000,000×100} = 40\% \]

(b). Interpretation of the specified ratios.
- (i) Debt to owners’ equity or gearing ratio 63% of the long term debt is covered by owners’ equity.
- (ii) Net profit to sales For every Shs 100 of net sales received Shs14.58 is net profit.

6. (i). Payee for Tuschemerireivwe. Does not pay payee because his salary is below the tax threshold of Shs 235,000. Payee for Abeine = \( \frac{100}{100} \times (300,000-235,000) = \text{Shs 65,000} \)

4. (a) Justify the need for charging taxes by government.
4. (b) Explain the techniques used by government to increase taxable capacity.
5. (a) Explain the insurance policies that large government.
5. (b) Explain the need for proper business monitoring by government.

6. (a) Examine the limitations of women active participation in business.
6. (b) How can the government encourage women participation in business?

7. (a) Explain the differences between social enterprises and business enterprises.
7. (b) What are the elements of a social enterprise plan?
\[ P(E / R) = P(EnR) / P(R) \]
\[ P(R / E) \times P(E) \]

1. \[ P(A / G) = P(A \cap G) / P(G) \]
\[ P(G) = P(Ga \cup P(Gb) \]
\[ P(G) = P(G / A) \times P(A) + P(G / B) \times P(B) \]
\[ \frac{1}{3} \times \frac{3}{5} \times \frac{1}{2} \times \frac{3}{10} \times \frac{5}{30} \times \frac{8}{30} \]

\[ P(A \cap G) = \frac{1}{30} \]

\[ P(A / G) = \frac{1}{30} \times \frac{1}{30} \times \frac{1}{30} \times \frac{1}{30} \times \frac{1}{30} \times \frac{1}{30} \]

Therefore, given that a green ball is picked, the probability that it is from A is \( \frac{1}{8} \).

13. \[ \text{speed of the observer, } v_c = 60kmh^{-1} \]

At the true speed of wind be \( v_w \),

\[ \text{Relative position at any time, } \mathbf{P}_Q(t) \]

\[ \mathbf{P}_Q(t) = \mathbf{P}_Q(0) + \mathbf{v}_Q \times t \]

\[ \mathbf{v}_Q = \sqrt{16^2 + 256^2} \times 144^2 + 12^2 \times \mathbf{J} = 0 \]

\[ \mathbf{v}_Q = \sqrt{256^2 + 144^2 + 12^2 \times \mathbf{J}} = 0 \]

\[ t = \frac{16 - 12 \mathbf{J}}{40} \]

\[ \text{Time cannot be negative. This is due to an unforeseen error} \]

In the magnitude of parameters in the question but the working is okay.

14. \[ f(x) = x^3 - 5x + 2 \]

\[ f(4) = 4^3 - 5 \times 4 + 2 \]

\[ f(4) = -2 \]

\[ f(5) = 5^3 - 5 \times 5 + 2 \]

\[ f(5) = 2 \]

\[ f(4) \times f(5) = -2 \times 2 = -4 \]

Since \( f(4) \times f(5) < 0 \) the root exists in the interval \( x = 4 \) and \( x = 5 \)

\[ f(x) = -2 \]

\[ f(x) = 0 \]

Let the better approximation be \( x_n \),

\[ f(x_n) = 0 \]

From linear interpolation

\[ 5 - 4 = \frac{x_n - 4}{2} \]

\[ \frac{1}{4} (x_n - 4) = \frac{1}{4} (x_n - 4) \]

\[ x_n = 4.5 \]

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\[ 2 \]
From the property of pdfs
\[ f(x) = 1 \]
\[ \frac{2}{11} (x+1) \text{ for } 0 < x < 2 \]
\[ \frac{2}{11} (5-x) \text{ for } 2 < x < 3 \]
\[ 0 \text{ elsewhere} \]

We consider \( b = 3 \) because 7 gives a negative probability which defies the property of probabilities
\[ f(x) = \frac{2}{11}(5-x) \text{ for } 2 < x < 3 \]
\[ f(x) = 0 \text{ elsewhere} \]

For 0 < x, f(x) = 0, F(x) = 0
For 0 < x < 2, f(x) = \frac{2}{11}(x+1)
Let \( t \) be a dummy variable
\[ F(x) = \int_{t}^{x} f(t) dt = \frac{2}{11}(x+1) \text{ for } 0 < x < 2 \]
\[ F(x) = \frac{2}{11}(5-x) \text{ for } 2 < x < 3 \]
\[ F(x) = 0 \text{ elsewhere} \]

For
\[ a = b = 3 \]
\[ a > 7, f(x) = 0 \]
\[ F(x) = F(3) = \frac{1}{11}(10x - 3^2 - 8) = \frac{13}{11} = 1 \]
\[ 0 < x < 0 \]
\[ F(x) = \left\{ \begin{array}{l} \frac{2}{11}(x^2 + x), 0 < x < 2 \\ \frac{2}{11}(10x - x^2 - 8), 2 < x < 3 \\ 1, x > 3 \end{array} \right. \]
\[ F(0) = 0, F(2) = \frac{8}{11}, F(3) = 1 \]
\[ (0, 0), (2, \frac{8}{11}), (3, 1) \]

12. \( \sin \theta = \frac{4}{5}, \cos \theta = \frac{3}{5} \) mass, \( m = 5kg, \mu = 0.4 \)

\[ u = 0 \text{ ms}^{-1} \]
\[ V = \frac{1}{2} \text{ ms}^{-1} \]
\[ V = \frac{5}{2} \text{ ms}^{-1} \]
\[ V = 7.808 \]
\[ V = 9.3706 \text{ ms}^{-1} \]

5. \( \int_{2}^{4} x \text{sin} 2x \text{dx} \)
6. Show that the curve \( y = ax^2 - 6x + 5 = 0 \) \( y = \sin \theta = 0, \theta = 90^\circ \)
\[ \sin \frac{12}{15} \beta = 0.3687 \]
\[ \alpha = \sin \frac{12}{5} = 0.5313 \]

\( T_1 \sin 53.13^\circ + T_2 \sin 36.87^\circ = 50g \)
\[ T_2 = \frac{4}{3} \text{ and } T_3 = \frac{3}{5} \text{ for } (i) \]
\[ 4T_1 + 3T_2 = 250g \]
\[ T_1 \cos 3.13^\circ = T_2 \cos 36.87^\circ \]
\[ T_2 = \frac{4T_1}{3} \text{ for } (ii) \]
\[ \text{sub}(ii) \text{ for } (i) \]
\[ 4 \times \frac{4}{3} T_1 + 3T_2 = 250g \]
\[ 16T_1 + 9T_2 = 750g \]
\[ 25T_2 = 750g \]
\[ T_2 = \frac{250g}{25} = 10g \]
\[ N = 294N \]
\[ T_1 = \frac{4}{3} \text{ and } T_3 = \frac{3}{5} \text{ for } (ii) \]

1. Solve the equation \( 2 \cos \theta - \cos \theta = 0 \) for \( 0^\circ \leq \theta < 270^\circ \)
2. Find the equation of the tangent to the curve \( x^2 \text{y} - b^2 = 0 \) at the point \( M_2(b, b^3) \)
3. Find the square root of \( 5 + 12i \)
4. Given that \( a + b = -3 \) and \( ab = \frac{2}{3} \), form a quadratic equation whose roots are \( a^2 \) and \( b^3 \)
5. \( \int_{2}^{4} x \text{sin} 2x \text{dx} \)
6. Show that the curve \( y = ax^2 - 6x + 5 = 0 \) represents a parabola. Find its vertex and the directrix, hence sketch it.
7. Determine the angle between the line \( \frac{x^2 - 4}{y^2} = -1 \) and the plane \( 3x + 3y - 4z = -1 \)
8. Given that \( y = \ln \left( \frac{x^2 - 1}{2x + 1} \right) \) \( \frac{dy}{dx} \) Find \( \frac{dy}{dx} \)

\[ \begin{array}{l}
\text{SECTION A} \\
\text{Solutions} \\
\text{Solution} \\
\text{Solution} \\
\text{Solution} \\
\text{Solution} \\
\text{Solution} \\
\text{Solution} \\
\text{Solution} \\
\text{Solution} \\
\end{array} \]
MATHEMATICS QUESTIONS (AMATHS006)

1. (a) \(\int x \sin(x^2 - 25) \, dx\)
   (b) Evaluate \(\int_0^1 \frac{x^3}{\sqrt{5x^4}} \, dx\).

12. (a) Express \(\cos(\theta + 45^\circ) - \cos(\theta + 60^\circ)\) in the form \(\sin A \sin B\), where \(A\) and \(B\) are constants. Hence solve the equation \(\cos(\theta + 45^\circ) - \cos(\theta + 60^\circ) = 0.4\)
   (b) Differentiate \(\sin^2 \theta\) from first principles.

13. Sketch the curve \(y = x^3 + 3x^2 - 3x\), stating clearly the asymptotes.
   14. (a) The points \(P\) and \(R\) have position vectors \(p = 5i + 3j + k\)
       \(q = 2i - j + 3k\) and \(r = 7i - 3j + 10k\) respectively.

   Show that \(PQR\) is a triangle.

   (ii) Calculate the coordinates of the point of intersection of the line \(r = 2i - k + \gamma(1 + 3j)\) and the plane \(5x - y - 7x - 9 = 0\).

15. (a) Show that the equation of the normal with gradient \(m\) to the parabola \(y^2 = 4ax\) is given by \(y + am^2 = mx - 2am\).
   (b) \(p\) is a point \((ap^2, 2ap)\) and \(q\) is a point \((aq^2, 2aq)\) on the parabola \(y^2 = 4ax\). The tangents at \(p\) and \(q\) intersect at \(R\).

   Show that the area of the triangle \(PQR\) is \(\frac{1}{2}a^2(p - q)^3\)

16. (a) Solve the differential equation \(\frac{1}{x^2} \frac{dy}{dx} + cos^2y = 2\).

   Where \(x = 1\) and \(y = \frac{n}{2}\)

   (b) The rate at which the temperature of a body falls is proportional to the difference between the temperature of the body and that of its surrounding. Initially the temperature of the body is \(80^\circ C\). After 10 minutes the temperature of the body is \(60^\circ C\). The temperature of the surrounding is \(15^\circ C\).

   (i) Form a differential equation for the temperature of the body.
   (ii) Determine the time it takes for the temperature of the body to reach \(40^\circ C\).

Look out for answers next Tuesday

SECTION A

1. (a) 0.98g of a cyclic organic compound \(Q\), on complete combustion yielded 2.64g of carbon dioxide and 0.90g of water.

   Determine the empirical formula of \(Q\).

   (b) When \(Q\) was distilled in steam, the distillate took place at 98.5°C and standard pressure. The distillate was found to contain 0.60g of water and 14.88g of \(Q\). [The vapour pressure of water at 98.5°C is 0.18 atms of phores]

   (i) Determine the molecular formula of \(Q\).
   (ii) \(Q\) had no effect on ammoniacal silver nitrate solution.

   Identify \(Q\).

2. (a) Describe the reactions of group (IV) element with
   (i) Dry air
   (ii) Bromine
   (iii) Concentrated nitric acid.

   (b) State what would be observed if the chlorides of carbon, silicon and lead in +4 oxidation state are separately reacted with each of the above reagents.

   Write an equation to show how lead (IV) chloride can be prepared in the laboratory.

3. (a) Define the following terms:
   (i) Electrolytic conductivity
   (ii) Molar conductivity

   (b) Describe an experiment to determine the solubility product of silver chromate by conductivity method.

   (ii) The electrochemical conductivity of a saturated solution of silver chromate is \(1.8589 \times 10^{-5}\) and that of pure water is \(1.519 \times 10^{-6}\) \(\Omega^{-1}\) cm\(^{-1}\).

   If the molar ionic conductivities of silver ions and chromate ions at infinite dilution and at 25°C are 61.9 and 2\(\times\)10\(^{-4}\) respectively.

   (i) Plot a graph of first electron affinity against atomic number.
   (ii) Explain the shape of the graph.

   (c) The thermodynamic data about lithium and oxygen are given below:

   \[\begin{align*}
   2Li(s) + \frac{1}{2}O_2(g) &\rightarrow Li_2O(s) \quad \Delta H = -596kJmol^{-1} \\
   Li_2O(s) &\rightarrow 2Li(g) + O_2(g) \quad \Delta H = +2852.8kJmol^{-1} \\
   \text{Li(g)} &\rightarrow \text{Li}^+(g) + e^- \quad \Delta H = +161kJmol^{-1} \\
   \text{Li}^+(g) &\rightarrow \text{Li}^+(g) + e^- \quad \Delta H = +519kJmol^{-1} \\
   O(g) &\rightarrow O_2(g) \quad \Delta H = +498kJmol^{-1} 
\end{align*}\]

   (i) Draw an energy level diagram for the formation of lithium oxide.
   (ii) Use your diagram in (i) and the table in (b) to calculate the second electron affinity of oxygen.

   (d) Comment on the electron affinities of oxygen.

4. (a) Explain what is meant by the term first electron affinity?

   (b) The table below shows the first electron affinities of period 2 elements of the Periodic Table.

<table>
<thead>
<tr>
<th>Element</th>
<th>Li</th>
<th>Be</th>
<th>B</th>
<th>C</th>
<th>N</th>
<th>O</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atomic number</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>First electron affinity (kJ/mole)</td>
<td>-52</td>
<td>-50</td>
<td>-29</td>
<td>-120</td>
<td>-3</td>
<td>-142</td>
<td>-348</td>
</tr>
</tbody>
</table>

   (i) Plot a graph of first electron affinity against atomic number.
   (ii) Explain the shape of the graph.

5. Write equations to show how the following compounds can be synthesised:
   (a) Iodobenzene from \(\text{CH}_3\text{CONH}_2\)
   (b) Propane-1, 2-diol from calcium ethanoate.
   (c) 2-methylpropanoic acid from propanol
   (d) \(\text{O} - \text{C} \text{CH}_3\) from aminobenzene
   (e) Benzaldehyde from benzene

6. (a) Soap can be prepared from a vegetable oil or animal fat.

   (i) Distinguish between a vegetable oil and animal fat.
   (ii) Briefly explain how vegetable oil can be extracted from a natural source.

   (b) (i) Briefly describe how soap can be prepared from a vegetable oil.
       State the chemical principles involved.
   (ii) Write the equation for the reaction leading to the formation of soap.
   (iii) State one advantage and one disadvantage of using soap.

   (c) (i) Briefly explain the cleansing action of soap.
       (ii) Explain why an aqueous solution of soap is alkaline.

   (d) (i) Distinguish between soap and non-soap detergent.
       (ii) Starting from suocdecan- 1- ol write equations to show how you would prepare a detergent.

   State one advantage and one disadvantage of using a detergent in washing.

   7. Explain the following observations:
   (a) When hydroperoxide solution was added to lead (II) sulphide, a black solid turned to white solid.
   (b) Benzoic acid liberates carbon dioxide from carbonates whereas phenol does not.

   (c) When potassium iodide solution was added to copper (II) sulphate solution, a white precipitate and a brown solution were formed.

   (d) When excess water was added to a solid mixture of copper (II) carbonate and iron (III) sulphate, a blue solution and brown precipitate were formed.

   (e) Ethanoic acid is weaker acid than chloroethanoic acid.

8. (a) Describe how:
   (i) Concentrated sulphuric acid is manufactured from zinc blende.
   (ii) Dilute sulphuric acid reacts with zinc granules.

   (b) Write an equation to show how concentrated sulphur acid reacts with
   (i) Glucose
   (ii) Calcium phosphate
   (iii) Hydrogen bromide.

   (c) Name a reagent that can be used to distinguish between the following pairs of ions and in each case state that would be observed when the reagent is treated with each ion in the pair.

   (i) \(SO_4^{2-}\) and \(CO_3^{2-}\)
   (ii) \(SO_4^{2-}\) and \(SO_3^{2-}\)

Answers and more questions next Tuesday

CHEMISTRY QUESTIONS (ACHEM006)

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THE TEACHERS

MOSES MUGOGO,
SEETA HIGH SCHOOL

ANDREW HANNINGTON KASEKEDO
BISHOPS SENIOR SCHOOL – MUKOLO

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O’LEVEL GEOGRAPHY & ENTREPRENEURSHIP TOMORROW

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