# EXODUS COLLEGE SCHOOL WAKISO

# END OF TERM TWO EXAMINATIONS

# SENIOR TWO MATHEMATICS

## Duration: 2 hours

**Answer all questions**

# ITEM 1

Andrew wants to save money monthly to buy a new phone which costs **UGX 480,000**. He earns a monthly salary of **UGX 1,500,000** and spends it on rent, food and others in the ratio **8:3:4** respectively. On the money he spends on "others", he uses **80% on medical** and saves the rest.

After 3 months, the phone price increases. The new price $P$ in '000s of shillings is given by:

$$P^2 - 12P + 32 = 0$$

**TASK**

a) Help Andrew know how much he will spend on food, rent and others each month.

b) How much does he save monthly?

c) Solve the quadratic equation to find the new price of the phone in shillings.

d) If Andrew keeps saving the same amount, for how many months must he now save to afford the new phone?

The district plans to build a new market at point **M** such that triangle **ABM** is an enlargement of triangle **ABC** with scale factor **2** and centre at A.

There is also another straight road that is equidistant from road AC and road AB. It meets road BC at trading centre **Domogo(D)**.

**TASK**

a) Draw a scale plan for the location of A, B, C using a scale of **1cm: 5km**.

b) Using similarity, find the distance from A to M and from B to M on the ground.

c) Construct the equidistant road and locate point D. Measure the distance AD on your plan and convert it to km.

d) In what direction must one drive straight from Chone to Bodir?

# ITEM 3

Namubiru was instructed by her trainer to do roadwork every morning. She starts running from home at **9:00am** and covers **30km in 2 hours**. She takes a rest for **1 hour**, then continues to cover another **30km at 30km/h**. Too tired, she rests for another **1 hour** before returning home on a boda-boda that travelled non-stop at a steady speed, reaching home at **4:30pm**.

The trainer marks out a rectangular training ground. The length is **5m more than twice the width**. If the area of the ground is **250m$^2$**,

**TASK**

a) Represent Namubiru's journey on a distance-time graph using **2cm to 1hour** on time axis and **2cm to 5km** on distance axis.

b) Use your mathematical knowledge to find the dimensions of the ground.

c) Determine the speed of the boda-boda.

d) What was Namubiru's average speed over the whole journey?

**END**