



MEPSA RESOURCEFUL ASSESSMENT 2024

Uganda lower secondary certificate of education

COMPETENCE BASED CURRICULUM

S.2 BEGINING OF TERM. 11 MATHEMATICS

Paper. 1

2 HOURS

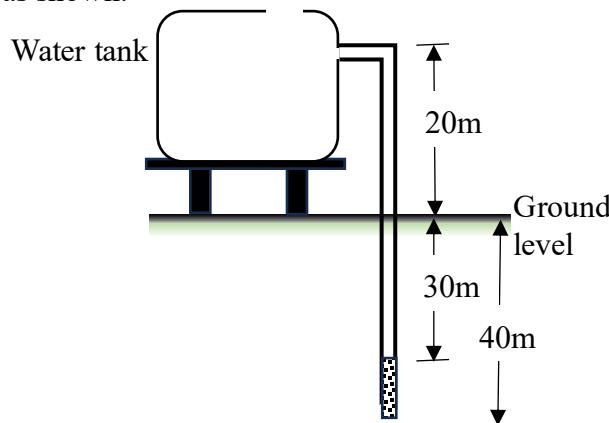
INSTRUCTIONS TO LEARNERS:

- *This paper consists of **three (3)** items.*
- *Attempt **All** items.*

Where necessary, a learner can use appropriate illustrations and diagrams while presenting their responses

Item.1

A support organization planned to dig a bore hole 40m deep, such that the water is pumped into an overhead tank whose top is 20m above the ground. When the work was done, the level of water in the pipe when pumping started was 30m below the ground, and it could rise by 5m every second as shown.



Task

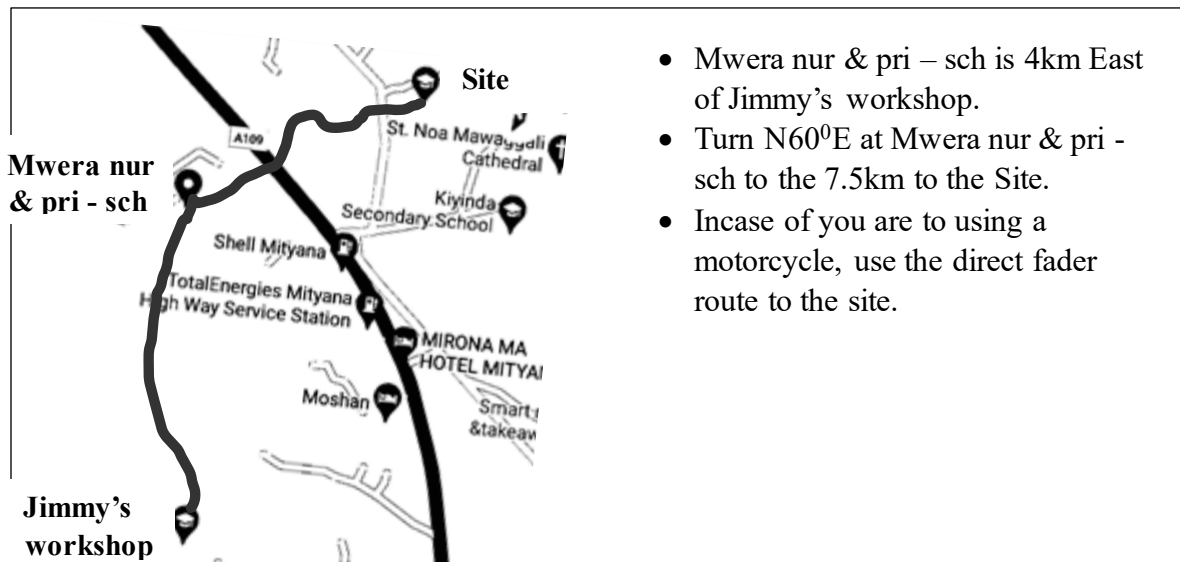
- The planning officer in the organization wants to know the length of the pipe that was used, and how long it takes for water to start entering the tank. (the horizontal distance travelled by water is too small, so it can be ignored).
- After 3 seconds, the pumping stopped. Determine whether there were some water that entered the tank. When the pump was maintained, the water level raised from -30m to 10m above the ground. How long did it take for the water level to reach at the height.

- (c) The organization plans to reduce on the time the pump takes to fill the tank., so they decide to use two inlet pipes A and B. pipe A takes 50 minutes to fill the tank, and tap B takes 30 minutes to fill the same tank. Determine how long it will take for two pipes to fill the tank when opened together.

Item 2

Jimmy is carpenter re-known for crafting traditional wooden doors with elaborate geometric patterns in Kakindu Village. A customer made an order for a door with a circular design at its center that fits perfectly within the rectangular frame of the door and should be touching the two parallel sides of the door frame. The door frames on the customer's house are rectangular with dimensions 2.5 metre in height and 1.5 metre in width. The customer needs the circular design to be Vanished with silver vanish. A tin of silver vanishes costs UGX.9,000 and it is known that one tin of vanish can be used to paint one square meter.

From the Workshop, the carpenter is supposed to transport the to the site, and is given the direction manual below.



Task

- (a) Help the carpenter determine how much of the door will be covered by the circular design so that it fits perfectly within the door frame.
- (b) How much does the carpenter need to completely paint the circular design.
- (c) If the carpenter wish to use the motorcycle to transport the door, by what distance would he have reduced.

Item.3

The ministry of health in Uganda is concerned about the spread of malaria in the country. They have collected data on the number of malaria cases in different districts, and the amount of insecticide used for mosquito control. The data is shown in the table below;

District	Malaria cases	Insecticide used in litres
Kampala	500	210
Mukono	300	150
Wakiso	400	180
Jinja	200	120
Mbale	350	160

Task

- (a) As a s.2 mathematics learner, determine the relation between the number of malaria cases and the amount of insecticide used, thus help the ministry of health come up with a function that would guide them on proper distribution of insecticide.
- (b) The ministry has just received 750 malaria cases from Masaka district and the it is left with only 4000 litres of insecticides. Help the ministry compute the quantity of insecticides that would be supplied to masaka district and the number of malaria cases they can fight with the remaining insecticides.

END