456/1
MATHEMATICS
PAPER 1
November 2023
2 hours

WAKISSHA JOINT EXAMINATIONS

End of Year Assessment

SENIOR THREE

MATHEMATICS

Paper 1

2 hours

INSTRUCTIONS

- *Attempt all items in this paper.*
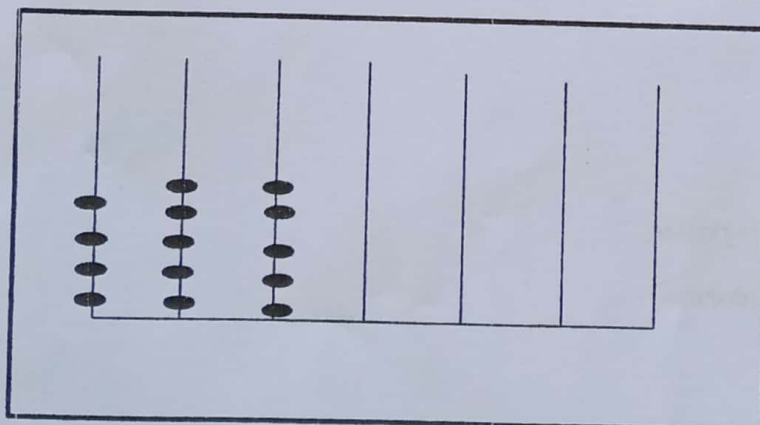- *All items carry equal scores*

1. Okello and another new comer Okot of the same age. They need to know their age to put in class register. The product of their ages is 144 years. One day during a mathematics lesson Okello borrows a calculator from Okot and on the screen he finds a number 720 which made him wonder which numbers he could have entered to get the outcome as that figure. On the same day since they had not moved with packed food, they decided to visit the school canteen. Okello bought 5 sweets with 2 chapat's and was charged ugx 2500. Okot bought 4 sweets with one chapat and was charged Ugx 1400. Since the students were many and the canteen attendant was too busy they could not ask the prices of each item.

Task

a) How old do you think are the two friends?

b) Help Okello figure out the possible values that Okot could have typed in the calculator to get the number on the screen.

c) Help the two friends to find out the prices of each items, sweet and chapat.

2. A worker wants to save money to start his own business. He is able to save Ugx 100,000 every month from his salary of Ugx 600,000. However each time money accumulates on his account, he gets a challenge and he uses the money. He, approaches a friend for advice and he is given these two options:

Open up a smart plan with his bank with the following terms:	Get an insurance policy with the following terms:
i) He is given additional 5% saving interest on total amount saved in the agreed time.	i) He is given an additional 5% saving interest on each Ugshs 1,200,000 saved every year.
ii) Here you choose how many years you want to save.	ii) Here the minimum years are 5years not less.

The worker was a man who was good at using an abacus to make his calculations. And as he calculated the amount he needs to start the business he came up with;

Base 10
Abacus

His other expenses include; House rent which is a quarter of his monthly salary. Home glossaries of Ugx 100,000. And transport to work which is one and half of the amount he spends on his groceries. The balance is what he keeps for other unexpected circumstances.

Task

a)   How long will it take him to make money he needs?

b)   Which option of saving should he take and why?

c)   Which money goes to unexpected circumstances every month?
      (Show the working on how you reached the conclusion on each part)

3.   A friend to your guardian wants to bring his child to the same school you attend.
      He calls your guardian and requests her to direct him to your school. There are two
      routes you can use from home to school;
      Route A. A straight direct murram roads from home to school
      Route B: From home, drive in the direction of 135 degrees for 55 km and then
      makes a bearing of 180 degrees turn and drive more 40 km you will find Kalagi
      trading centre. From Kalagi you will further drive in the Western direction until
      you reach the school. The home is vertically located above the school premises.
      The friend requests your guardian to send him a drawing instead summarizing his
      direction but she assigns you to draw.

      Task

      a)   Assist her to make the drawing showing the road map to school.

      b)   If after the drawing a friend rather decides to take the Southern direction from
           home. Through what distance will he drive to reach school?

      c)   If he starts driving at 12:30 pm and arrives at school at 2:30 pm through route
           B non-stop. What shall be his average speed?

      d)   Which option of the two routes should he take and why?

4.   Four members of a certain sacco namely; Aboth, Balikoowa, Dumba and Ekotu
      bought items as given below:

      A both bought one bag of posho, 5 bags of millet, 2 bags of sorghum and 2 bags of
      rice.
      Balikoowa bought 5 bags of posho, 3 bags of millet and 4 bags of rice. Dumba
      bought 4 bags of posho and 8 bags of rice.
      Ekotu bought 3 bags of rice 4 bags of sorghum 3 bags of millet and 2 bags of
      posho.

      The cost per bag of the items bought was; Rice at Ugx 200,000, sorgum at Ugx
      60,000, millet at Ugx 75,000, posho at Ugx 100,000.

      Task

      a)   Assist the sacco members to summarise the above information in matrix
           form for the
           i)   items purchased
           ii)   cost expensed

b) What do you think is the appropriate order of matrix multiplication for computing total expenses?

c) Using your knowledge of matrix multiplication help the members to know how each shall spend on their purchases.

d) If the members of the sacco sold all their items at Ugx 7, 150,000 and agreed to share this money amongst Aboth, Balikowa, Dumba, Ekotu in the ratio 2:3½: 5:2½ respectively. Help the members to determine how much each should take at the end of the business.

e) Of the four members, who got maximum profits?

END