

P456/1

MATHEMATICS

PAPER 1

NOVEMBER.2023

2 ½ HOURS



SHAPTA JOINT ASSESSMENT BOARD

Uganda Certificate of Lower Secondary Education

MATHEMATICS

PAPER 1

SENIOR THREE

TIME: 2HRS:30MINS

INSTRUCTIONS TO LEARNERS:

- Attempts all items in this paper
- Each item will be scored considering different learning outcomes in different topics.

ITEM 1

Mary, Penny and Sarah are friends that live together. They all work as shop attendants in different shops and they rent the same house sharing rent fees. Mary's shop sales pens as ones at Shs.500, Penny's shop sells pens in pairs at Shs. 1,200 per pair and Sarah's shop sales pens in bundles of five at Shs. 4,000 each bundle. A full box of pens contains 50 pens and is bought. On one day, Sarah sold 2 boxes of pens, Mary sold pens that are half Sarah's pens and Penny sold pens that are thrice Mary's pens.

TASK:

- a) How much did each individual earn that day?
- b) If they sell the same number of pens every day, how much will each individual have at the end of the month of 30 days?
- c) If at the end of the month Penny contributes $\frac{1}{4}$ of his income towards rent, Mary contributes $\frac{1}{3}$ of his income towards rent and Sarah contributes money that is less than that of Penny by shs.150, 000, how much will they have all together for rent at the end of the month in words?
- d) If you bought pens from Penny's shop every day while storing in your drawer for five days and your friend buys from Sarah's shop every day while storing in his drawer for also five days. What is the smallest common number of pens you two will have in the drawers?
- e) If you two decide to share your pens with your other friends in class, what is the highest number of friends you will share your pens with.
- f) Prime factorize pens of two boxes.

ITEM 2

Your head teacher of the school wants to solve the problem of too much heat in S3 class room especially after lunch. He/she decided to purchase 6 fans that will be installed in class. The shop keeper offered to give a discount of 10 percent on each fan bought on cash basis. He/She also accept installments as long as the buyer pays a deposit of 50 percent on each fan. When the buyers choose to buy in installments, each installment is either 12000 shs per month for 6 months or 3000shs per week for 25 weeks. Each fan has a marked price of 90000 shs.

TASK:

As a learner of mathematics, advise the head teachers on the best option that will minimize the cost while buying the fans

ITEM 3

A school had certain regulations about the amount of pocket money and the numbers of casual wear were allowed to have in their dormitories. During the inspection of the dormitory which contained 16 learners, it was found that 8 learners had too much pocket money and 9 learners had too many casual wear.

TASK:

- (a) What was the number of learners breaking both rules?
- (b) How many learners were breaking regulation of pocket money only?
- (c) How many students did not break any rule?

ITEM 4

It was discovered that financial problems are the major reason as to why learners fail to complete their respective courses at tertiary level. So it was decided in the meeting that each learner struggling financially be provided with an envelope of the bursary in terms of dollars based on merit given that each envelope contains equal amount. 11 universities with large number of students in the country are

benefiting from this program. The number of 8 students are as follows:
3,4,6,9,8,5,10,7,13,15,16 and 18.

TASK:

- a) Using the knowledge of mathematical operations and bases, draw a distribution plan to help the NCHE and MOES on how to distribute the bursaries to the beneficiaries. Determine the actual number of bursaries the NCHE and MOES will give to the students.
- b) In case there are remaining bursaries, discuss what the NCHE and MOES should do with them.



END