

Set (discrete math) by KT

Number one

a). define a set and its application (4 marks)

**b).** In a mathematics class, 20 students had forgotten their rulers and 17 students had forgotten their pencils. “Go and borrow them from someone at once” said Mr. Munanura. 24 students left the room. Draw a Venn diagram and find how many students had forgotten both? (6 marks)

**c).** As a requirement for the NLSC, learners in a certain institution have to opt for either Agriculture, Performing Arts or Chinese as a language. Out of the 120 S.1 learners who joined the school this year, 40 opted to do Performing Arts, the number of learners who opted to do Chinese is twice the number of those who opted to do Agriculture. The head teacher agreed to purchase new Chinese text books if the probability of a learner taking Chinese is greater than 50%. In the first month, some learners were still finding out which subject they can take and some ended up studying more than one subject. 10 learners studied all the three subjects, 25 studied Agriculture and Performing Arts, 10 studied only Performing Arts while 12 studied only Agriculture and Chinese

**Task:**

(a) Present the information on a Venn diagram.

(b) Find by calculation if the head teacher will buy more Chinese text books?

(c) What is the number of learners who opted for the required subjects?  
(15 marks)

**NUMBER TWO**

a. In a survey of 1000 households, statistics showed that 502 used gas, 454 used electricity and 448 used oils. Of these, 158 used both electricity and gas, 160 used gas and oil and 134 used both electricity and oil.

- i. Draw a Venn diagram to represent this information.
- ii. How many used all the three. (7 marks)

b. Thirty four first year university girls were asked to choose their favorite color from black (B), red (R) and green (G). 20 chose Black. 16 chose Red. 22 chose Green. 2, 1 and 3 girls chose only black, red and green respectively. 6 girls chose all the three colors. The number of

girls who chose red and green only was the same number that did not choose any of the three colors.

- i. Use a Venn diagram to represent the given information.
- ii. Find the number of girls that chose;
  - i. None of the three colors.
  - ii. green and black only
  - iii. black and red only