SECTION A.

COMPULSORY QUESTION.

Item 1:

Amos is a commercial cattle keeper dealing in local breeds of cattle specifically for beef production called the Ankole cattle. These are characterized by long and thick horns which can grow up to 6 feet. Amos lives in an area which is densely populated. This great population provides a high demand for his beef from the ankole cattle which in most time the beef supplied fail to satisfy all the people in his area. Amos decided to go to National Animal Genetic Resources Centre and Data Bank and bought Aberdeen Angus the exotic beef bull reared for beef which he expects to naturally mate with his Ankole cows to improve the trait of beef production in his local herd by carrying out cross-breeding of these two pure breeds of the Ankole cattle and the Aberdeen Angus bull. The Ankole cows are homozygotes for the recessive alleles of milk production and the Aberdeen Angus bull is a homozygote for the dominant allele for beef production. The dominant allele is responsible for high beef production and the recessive allele is responsible for low milk production. After the crossing of these pure breeds, Amos will get the off springs of the first filial generation with a high breed vigour. Mating of any two of the off springs in the first filial generation will produce off springs of the second filial generation. The three off springs in the second filial generation will be with high beef production and only one off spring will be with a low beef production in the herd of Amos. After the crosses, it will increase beef production on his farm. Amos can neither write the phenotypic ratio of the first filial generation nor the genotypic and phenotypic ratio of the second filial generation.

Task

As a learner of agriculture who has studied genetics, write a report to help Amos to learn how to come up with the different ratios.

SECTION B

SOIL SCIENCE

Item 2:

Ms. Magado has never practiced agriculture. She wishes to put her newly bought piece of land in Kween district under production.

This plot of land is bushy, dry and with tightly packed soil particles. She wishes to grow a crop from which she will obtain high yields. She has no idea on how to start and which crop to grow. She wants to start planting as soon as possible.

Task

You have been approached by Ms. Magado, how would you advise her?

Item 3

When you visit a garden and look carefully at the soil, you will observe some of the different materials or components. Others cannot be easily seen. As a learner of agriculture, you might have noticed that some soils are dark coloured, moist, with bad odour likely caused by the presence of organic matter which is formed when plants and animals die and decay.

Task

a) You've been appointed by Chairperson of Kitezzi deliver a message to the locals on the value of these decayed plants and animals materials in the soil? (20 scores)

Item 4.

Mr Makanga discovered that agriculture is one most profitable venture. He managed to acquire two plots in different locations i.e. In one of the plots in Mityana he grew coffee but amidst applying all agro-practices, coffee failed to grow well and in second plot in Namalebe he grew beans that also failed to grow well though he did all agro-practices.

Now Mr Makanga wonders why coffee and beans failed to grow well and when he contacted an agronomist, he was advised to check the potential hydrogen (pH) level for different garden plots and improve accordingly according to what each crop require. Soil samples were collected from different garden plots labelled M and N respectively and taken to the laboratory for testing.

Task.

Write the guidelines Mr Makanga would carry on to find out better results.