SIR ARTHUR LEWIS COMMUNITY COLLEGE
DIVISION OF AGRICULTURE
Certificate Programme

End of Semester I Examination

#M 10

Course: Elementary Mathematics I - MAT511 **Date: December, 2002**
Duration: 2 Hours

Please answer all questions.

1. Please Simplify the following

   a) $(3^5 \times 3^{-5}) \div (3^3 \div 3^2)$ b) $64^{-2} \div 32^2$ c) find x if $x\ 3 = 512$ **(10 marks)**

2. Find the exact value of:

   $(5\ ¼ \div 2\ {}^1/_8) \div (1\ {}^3/_{11})$

   Write your answer in standard form to 3 significant figures. **(4 marks)**

3. Calculate the exact value of:

   a) $(1\ {}^2/_5 \times 3\ {}^2/_3) - (1\ {}^3/_7 \div 1\ {}^2/_3)$

   b) Calculate the value of $(1.0219) \div (8.751)$ giving your answer to 2 significant figures. **(7 marks)**

4. a) The regular of a pickup van is $68,000. A farmer can get 35% reduction on the cost by getting an exemption from duty. What price will he pay?

   b) At the duty free price, the vehicle company makes a 22% profit on selling the vehicle. What price did they pay for it originally?

   c) What would be the full price (with duty) if the company were to make a 30% profit? **(8 marks)**

5. a) A rectangular shaped flowerbed has length 12 meters and a width of 8 meters. What is the area of the bed?

b) The bed is to be fenced by 5 strands of barbed wire all around it. The wire is sold in rolls of single strand 20 m long, how much wire is needed to fence the flowerbed?

c) If the surface of the flowerbed is covered with top soil 15 cm deep, calculate the volume of soil needed to cover the entire flowerbed. **(10 marks)**

6. The first \$12,000 of a sum of money is taxed at a rate of 30% and the remainder if any is taxed at 40%. Calculate:

   a) The tax on \$15,600

   b) The sum of money for which the total tax is \$8,000. **(7 marks)**

7. A cylindrical shape water tank has a height of 9 meters and a diameter of 4.5 meters.

   a) What is the volume of the tank in liters?

   b) Water from the tank is used to irrigate 1 ha field. The requirement for irrigation 5 liters per m^2. How long will it take to irrigate the field?

   c) If the tank is filled with water, what percentage of that water remains after the field has been irrigated? **(10 marks)**

8. To spray an area of land, a farmer needs to mix, 3 liters of fungicide in a 1 : 30 ratio with water. What is the total volume of spray that will be administered to the land? If the chemical mix is applied at a rate of 4 liters per 20 m^2, what is the area of land sprayed? **(9 marks)**

9. 12 men working in a field in a field take 6 hours to harvest a crop of tomatoes. If there were only 9 men available, how long will it take them to harvest the crop? **(5 marks)**