

SIR ARTHUR LEWIS COMMUNITY COLLEGE
DIVISION OF AGRICULTURE

CERTIFICATE IN GENERAL AGRICULTURE
2011/2012 ACADEMIC YEAR

END OF SECOND SEMESTER EXAMS

DATE: 17TH APRIL, 2012

DURATION: 2½ HRS



- Instructions:**
1. This paper consists of **FIVE** questions.
 2. Answer **ANY FOUR** questions.
 3. Begin each question on a **NEW PAGE**.

#F28

1. You have been contracted as a consultant to advise farmers who want to build swine production shelters.
 - a) Define the following: **purlins and joists**. [2]
 - b) Explain to the farmers **TWO** reasons why /some shelters are important for successful production. [4]
 - c) Explain to the farmer **THREE** factors he must take into consideration in selecting a proper location for the shelter. [6]
 - d) List what materials you would use for the following building parts:
 - i) Floors,
 - ii) Walls,
 - iii) Roof [3]
 - e) Give **TWO (2)** reasons for your choices in (d) above. [9]
 - f) Advise the farmers on the precautions he should take into consideration in building concrete floors and walls for pigs. [4]

Total 25 marks

2. High tunnels have been generally used for vegetable production in St. Lucia.
 - a) Explain to a group of young farmers **THREE (2)** benefits of greenhouse production over open field production. [6]
 - b) Explain **THREE (3)** factors which must be taken into account when selecting a site for locating a high tunnel. [6]
 - c) State **TWO (2)** factors **MUST** be considered in the orientation of the structure. [4]
 - d) Explain the importance of using green polyethylene plastic as covering materials for high tunnels. [3]
 - e) Drip irrigation is preferred in high tunnels over sprinkler irrigation.
 - i. State the function of any **TWO (2)** components of a drip irrigation system. [4]
 - ii. Explain one reason why you would use drip irrigation over sprinkler irrigation in these structures. [2]

Total 25 marks

3. Various power sources are essential in carrying out farming activities

a) List one farming activity that requires the use of power. [1]

b) A farmer has to transport ten (10) bags of fertilizer to his farm which is half a mile away from the point of pickup. He can choose to utilize manual power, draught power or mechanical power.

Compare the following sources of power by highlighting at least TWO advantages and TWO disadvantages of each source of power.

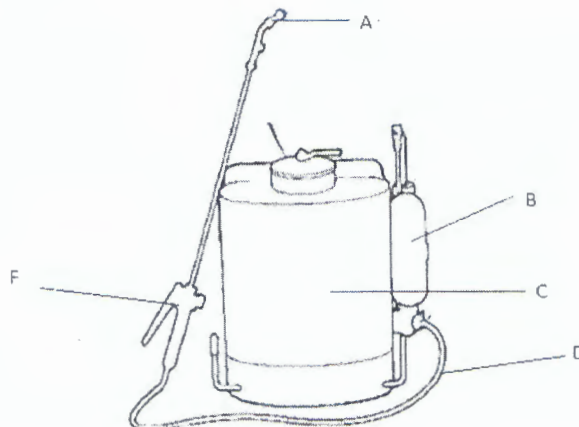
Power source	Advantages	Disadvantages
Manual	1. 2.	1. 2.
Draught	1. 2.	1. 2.
Mechanical (engine)	1. 2.	1. 2.

[12]

c) Knapsack sprayers are frequently used on farms in St. Lucia.

i. State TWO uses of knapsack sprayers. [2]

ii. Study the diagram below and label the parts A –E. [5]



d) Explain how you can increase the efficiency of a knapsack sprayer. [2]

e) After using a knapsack sprayer what steps must be taken to ensure that the equipment is maintained in good working condition? [3]

Total 25 marks

4. Small machines are appropriate for small countries like St. Lucia.

a) Define the terms **Mechanization** and **Appropriate Mechanization**. [2]

b) String trimmers are appropriate in the St. Lucian context; explain **THREE (3)** reasons to support this argument. [9]

c) The **Stihl String** trimmers carry a TWO stroke engine. Describe the cycle of events in a single cylinder two stroke engine. [8]

d) Explain how the cooling system on the machine functions. [3]

e) List **THREE (3)** safety precautions one should observe when operating this machine. [3]

Total 25 marks

Basic Farm Machinery and Building (BFM107) Exams

5. A farmer needs to construct a slab to build a storeroom. The dimension of the floor is as follows: ten meters (10m) wide and fifteen meters long (15m) and fifteen centimeters thick. He has been advised to use a mix ratio of 1:3:5 (cement: sand: stone) and the water to cement ratio of 0.5.

(a) Calculate the volume of each material to be used.

[10]



fig 1

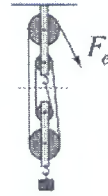


fig.2

(b) Pulleys give the user a mechanical advantage. To lift the materials he has a choice between two pulleys like the ones above.

i) Define the term **mechanical advantage**.

[1]

ii) Supposing he has to lift a bag of cement which weighs 50kg using the pulleys above, determine the minimum effort that would be required to raise the bag of cement in each case. (Assume friction is negligible)

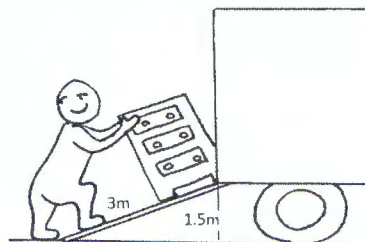
[6]

iii) Which of the pulleys is would you advise him to use. Why?

[3]

iv) How long should be the rope which must be pulled to lift the load 0.5m above the ground in each case?

[2]



c) An incline plane can be used to move a load to the back of a truck as in the diagram above. If the slope length is 3m and the height of the truck above the ground is 1.5m;

i) Determine the mechanical advantage of this incline plane.

[2]

ii) How can you make the effort of moving this load easier?

[1]

Total 25 marks

