



SIR ARTHUR LEWIS COMMUNITY COLLEGE
DIVISION OF AGRICULTURE

ASSOCIATE IN GENERAL AGRICULTURE
2009/2010 ACADEMIC YEAR
END OF SEMESTER SECOND EXAMS

#F23

Instructions: 1. This paper consists of seven questions **answer any five (5) questions.**

2. Read carefully and begin each new question on a new page.

1. With the introduction of machinery in agriculture there has been a significant increase in global food production.
 - a) Define the term 'Appropriate Mechanization'. [2]
 - b) Give THREE ways in which the introduction machinery has impacted on global food production. [9]
 - c) Discuss THREE factors that should be considered before the introduction of any technology into a country. [9]

Total 20 marks

2. Machine efficiency is never one hundred percent.
 - a) Define the term machine efficiency. [2]
 - b) Discuss TWO factors which can affect machine efficiency. [6]
 - c) List in sequential order the steps in calibrating a mist blower. [5]
 - d) Mist blowers carry a two stoke engine:
 - i) Explain the stages in the cycle of a two stoke petrol engine. [4]
 - ii) List THREE checks one should perform before starting an engine. [3]

Total 20 marks

3. Trickle or drip irrigation is more efficient in water consumption
 - a) Define the term 'drip or trickle Irrigation.' [2]
 - b) List four components of a drip irrigation system and state their functions. [4]
 - c) Discuss TWO advantages and TWO disadvantage of drip irrigation. [8]
 - d) At the farm in Dennery the electric pump raise water from the river to the tanks at a rate of 1000 kg per hour. If the vertical height the water is raised between the river and the tanks is 150 meters. Calculate the power requirement of the pump. [6]

Total 20 marks

4. Levers are simple machines which can be used to perform a variety of tasks on the farm, which greatly reduces effort.
 - a) Explain how a lever works and name the types of levers giving an example of each. [8]
 - b) Explain how one can determine the mechanical advantage of a lever. [2]
 - c) Explain how one can increase the Mechanical advantage of a lever. [2]



- d) A farm worker wants to lift a load unto the back of a pick-up truck. He decides to use an incline plane. The worker is able to slide the 2200N load up a 6.0m slope to the back of the pick which stands at 1.0m from the ground surface.
- i) Calculate the ideal mechanical advantage of the ramp. [2]
 - ii) If the worker exerts 500N force to move the load up the ramp with a constant, what is the actual mechanical advantage of the ramp? [3]
 - iii) What is the efficiency of the ramp? [3]

Total 20 marks

5. Wood has been used by man for centuries as a building material.

- a) List **THREE** properties of wood which give it an advantage over other building materials. [3]
- b) State the functions of pillars and beams. [4]
- c) Discuss two properties of plywood which gives an advantage over lumber. [4]
- d) Discuss any **THREE** factors which should be considered when erecting poultry production shelters.
- e) Discuss **THREE** factors one should consider when erecting a poultry production shelter and say how each of these are resolved locally. [9]

Total 20 marks

6. Plastics have a wide range of applications in greenhouses and nurseries.

- (a) List **TWO** properties of plastics that make them useful in agricultural applications. [2]
- (b) State **ONE** disadvantage of plastics as a material used in farm building. [2]
- (c) High tunnels are very popular in St. Lucia:
 - (i) What are high tunnels? [2]
 - (ii) Explain **TWO** benefits of growing vegetables in high tunnels locally [4]
 - (ii) Outline **ONE** shortcoming of these units in local conditions? [2]
- d) Discuss **TWO** factors which must be considered when selecting a site for a high tunnel. [4]

Total 20 marks

- 7.
- (a) Define the term “internal combustion engine” [2]
 - (b) What is the function of:
 - (i) Camshaft
 - (ii) Valve system [4]
 - (c) (i) Sketch the operation of a four-stroke petrol engine, explaining the events at each stage. [8]
 - (ii) How will the events differ from those of a diesel engine? [2]
 - (d) Discuss **TWO** advantages of using small engines as a source of power on local farms. [4]

Total 20 marks

