

UP DAGRI PAST PAPERS.



**SIR ARTHUR LEWIS COMMUNITY COLLEGE**  
**End of Semester Examination**  
**Academic Year 2003-2004 Semester Two**  
**Division of Agriculture**  
**Associate Degree Program in Agriculture**  
**Course: Farm Machinery and Buildings. FM B 522**



Friday, May 07, 2004.

Time: 1:00 p.m.

Duration: 2 hours 40 minutes.

**Instructions: Answer four (4) questions.**

#F13

1.
  - (a) Concisely outline the factors in the local agricultural climate which suggest that farmers should explore increased mechanization. (5 marks)
  - (b) Explain concisely three factors or conditions of the local agricultural climate which may slow down or hinder a move towards increased mechanization. (Do not mentioned credit) (7 marks)
  - (c) What are the shortcomings of single axle tractors in the local farm context? Is there a role for these tractors in local farming? (6 marks)
  - (d) Outline the potential for solar energy utilization in agricultural production. (7 marks)
  - (e) What applications does **energy from biomass** find in agriculture locally? (5 marks)
  
2.
  - (a) Explain the factors which influence the strength of concrete used in pig shelters. (6 marks)
  - (b) Comment separately on the applications of (i) wood and (ii) plastic in general plant propagation shelters. (6 marks)
  - (c) Outline the areas in which the layout and functioning of the seedling nursery and propagation shelter at SALCC Farm can be improved. (6 marks)

(d) With respect to design and functioning only outline the problems encountered with French-designed, steel-framed greenhouses with Quonset shaped roof. What are the advantages of this design. (6 marks)

(e) Ignore the effects of the “prevailing wind and rainfall” explain concisely how other factors influence the orientation of farm shelters. (6 marks)

3 (a) (i) Explain the need for **temperature control** in livestock and fresh-produce packaging shelters in the Eastern Caribbean. (5 marks)

(ii) Outline the various ways in which temperature control can be accomplished in these shelters. (5 marks)

(b) (i) Describe two types of **filters** used in separate agricultural applications and indicate the function and capability of each one (6 marks)

(ii) Describe how each filter is maintained and why. (5 marks)

(iii) Explain the implication of inadequate filtration in **two separate** farm applications of filters. (4 marks)

(iv) What factors influence a farmers choice of filters for irrigation. Give examples to support your argument. (5 marks)

4 (a) Give the functions of the following engine components  
(i) carburettor (ii) crankshaft (iii) magneto (3 marks)

(b) Explain the factors that reasonably account for the increasing popularity of **small two-stroke and four-stroke engines** on farms in the Caribbean. (6 marks)

- (c) List three methods by which mechanical power from small engines is transferred to named farm equipment. (3 marks)
- (d) What precautions need to be taken to ensure that power transfer by these methods is reliable and efficient. (5 marks)
- (e) Explain why **cooling** is necessary in single cylinder engines and how it is accomplished. (7 marks)
- (f) Outline the daily checks that should be made before leaving with a farm vehicle and why these checks are important. (6 marks)
5. (a) Explain various ways in which vegetable crop production in Saint Lucia can be improved through mechanization of operations from planting to harvesting. (8 marks)
- (b) With reference to specific farming situations explain the shortcomings of lever-operated knapsack sprayers. (7 marks)
- (c) Explain the factors that influence the **actual field-capacity** of lever operated knapsack sprayers in pesticide and herbicide application on farms in Saint Lucia. (9 marks)
- (d) Explain the purpose of **calibration** in knap-sack mist-blowers and manual wheel-assisted seeders. Indicate the implications of inaccurate calibration. (7 marks)

**End of examination**

