

UF DAGRI PAST PAPERS.

SIR ARTHUR LEWIS COMMUNITY COLLEGE
End of Semester Examination
Academic Year 2003-2004 Semester Two
Division of Agriculture
Certificate Program in Agriculture
Course :Basic Farm Machinery and Buildings. BFM

Monday, May 04, 2004.

Time: 9:00 am

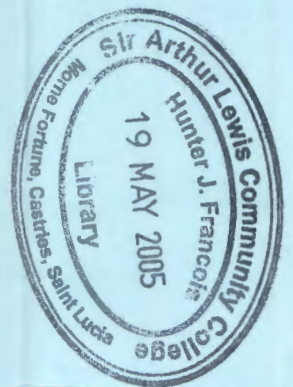
Duration: 2 ½ hours

Instructions: Answer four (4) questions. Two from each section.

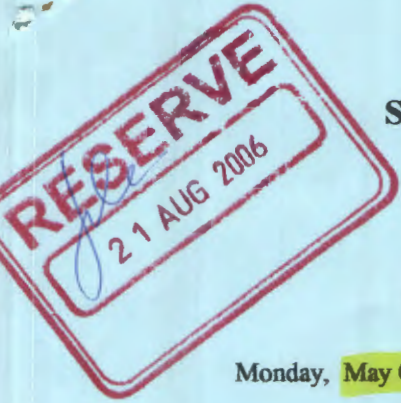
Section A

1.
 - (a) List as many separate applications of small engines as a power source on farms in Saint Lucia. (3 marks)
 - (b) What characteristics of these engines make them useful to local farmers? (4 marks)
 - (c) What are some of the problems experienced by users of small engines in Saint Lucia? (4 marks)
 - (d) What are the limitations of human labour as a power source for farmers? (4 marks)
 - (e) What situations and conditions make human labour a good choice of power for farmers? (5 marks)

2.
 - (a) List the components of a drip irrigation System and give the function or functions of each component. (5 marks)
 - (b) Give two advantages and two disadvantages of using this method of irrigation. (4 marks)
 - (c) Indicate clearly when one should use motorized knapsack mist blowers and also explain what aspects makes them so useful to crop producers generally. (7 marks)
 - (d) What are the possible disadvantages of motorized equipment for pesticide application on farms in St Lucia? (4 marks)



#F12



- (a) The first condition is that the function $f(x)$ is continuous on the interval $[a, b]$.
- (b) The second condition is that the function $f(x)$ is bounded on the interval $[a, b]$.
- (c) The third condition is that the function $f(x)$ has a finite number of discontinuities on the interval $[a, b]$.
- (d) The fourth condition is that the function $f(x)$ has a finite number of extrema on the interval $[a, b]$.
- (e) The fifth condition is that the function $f(x)$ has a finite number of points where the derivative does not exist on the interval $[a, b]$.
- (f) The sixth condition is that the function $f(x)$ has a finite number of points where the function is not differentiable on the interval $[a, b]$.
- (g) The seventh condition is that the function $f(x)$ has a finite number of points where the function is not continuous on the interval $[a, b]$.
- (h) The eighth condition is that the function $f(x)$ has a finite number of points where the function is not bounded on the interval $[a, b]$.
- (i) The ninth condition is that the function $f(x)$ has a finite number of points where the function is not continuous on the interval $[a, b]$.
- (j) The tenth condition is that the function $f(x)$ has a finite number of points where the function is not bounded on the interval $[a, b]$.

Section 2

Let $f(x)$ be a function defined on the interval $[a, b]$.

Prove that if $f(x)$ is continuous on $[a, b]$ and $f(a) = f(b)$, then there exists a point $c \in (a, b)$ such that $f'(c) = 0$.

Consider the function $f(x)$ defined on the interval $[a, b]$.
 Since $f(x)$ is continuous on $[a, b]$ and $f(a) = f(b)$,
 by the Mean Value Theorem, there exists a point $c \in (a, b)$
 such that $f'(c) = 0$.

Q.E.D.



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3. (a) What is meant by the term **Capacity** with respect to farm tools and equipment. (Give examples with respect to two selected tools or equipment.) (4 marks)
- (b) Give three reasons why farmers would purchase machines for use on their farms. (5 marks)
- (c) What are the disadvantages of lever-operated knapsack sprayers for pesticide and herbicide application on farms in Saint Lucia. (5 marks)
- (d) Suggest plausible reasons why **productivity is low** for weed control operations in Crop Enterprises in Saint Lucia. Suggest specific measures that can be taken to increase productivity. (6 marks)

Section B

4. (a) Outline separately the benefits of good ventilation in (i) chicken and (ii) propagation shelters. (5 marks)
- (b) Explain clearly the various methods by which ventilation is accomplished or promoted in these shelters. (5 marks)
- (c) Explain five factors one should take into consideration in setting up a raised - floor sheep pen. [Do not include ventilation]. (10 marks)
5. (a) What are the functions of the following in chicken shelters?
- (i) anchor straps or bolts (ii) roof and eaves (4 marks)
- (b) Explain two precautions that must be taken to ensure that concrete used in pig shelters is strong enough. (4 marks)
- (c) What are the applications of plastics in farm shelters and what properties make plastic attractive for these uses? (8 marks)
- (d) What are some disadvantages of using plastics in the applications you have mentioned. (4 marks)

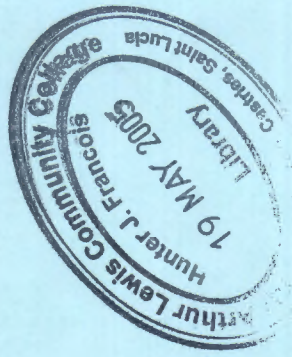
2. 1982

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3. 1983

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6. (a) List three floor types utilized for production buildings in agriculture. (3 marks)
- (b) Give instances or situations where Saint Lucian farmers utilize each floor type.
(6 marks)
- (c) What are the advantages of each floor type in the applications you have mentioned? (5 marks)
- (d) What are the disadvantages of each floor type for the various each of the various uses they are put to locally? (5 marks)



(b) [Illegible text]

(c) [Illegible text]

(d) [Illegible text]

(e) [Illegible text]