Eastern University, Sri Lanka

First year First semester Examination in Agriculture – 2002/03 & 2002/03(A) (July 2003)

Repeat

Mat 1101 – Computer Literacy and applications & Basic Mathematics

Theory

Answer all Questions **Duration: Three (03) hours**

Section A

Q1) Briefly explain the following

i. I/O devices

ii. CPU

iii. RAM ,DRAM,SRAM, ROM, PROM,EPROM,EAROM,EEROM

iv. SMPS, Ports in computer

v. Three Application areas in computer

Q2)

I) a) Convert the following into binary

i. $(225)_{10}$ ii. $(231.68)_{10}$

b) Convert the following into Decimal

i. $(111101)_2$ ii. $(0.0111)_2$

c) Convert the following into Octal

iii. $(14)_{10}$ iv. $(1101101)_2$

d) Convert the following into Hexadecimal

v. $(339)_{10}$ vi. $(1110111)_2$

II) Define the following terms

c) Bit

d) Byte

e) Word

Q3)

a) Explain the following;

i. Data and Information

ii. Internet and Intranet

iii. E-mail & Internet chatting

iv. Computer Viruses

b) Show with reference to a block diagram, the structure of a digital computer the inter-connection of various units.

Q4)

a) Write short notes on any **six (06)** of the following in the context of Windows operating system.

i. Desktop

ii. Recycle bin

iii. Start Menu

iv. My computer

v. Explorer

vi. Answer wizard

vii. Screen server and Wallpaper

viii. "Application window" and "Document window" in the context of MS-Word or MS-Excel

ix. System tools

x. Command Prompt

SECTION B

BASIC MATHEMATICS

5. (a) Simplify the following:

i. $\left(\frac{8}{27}\right)^{2/3} \times (27)^{2/3} \times \left(\frac{9}{4}\right)^{1/2}$;

ii. $\left(\frac{9a^{-3}}{12ab^2}\right)^{-2} \times (2^0 a^2)^{-3} \times \left(\frac{3}{4}\, a^2 b\right)^2$.

(b) Solve the following equations:

i. $2^{2x} \times 4^{2x-3} = 8^{-2x}$;

ii. $\log(5x-6) + \log(2x+3) = \log(10x^2 - 3x - 6)$.

(c) Factorize the following:

i. $10a^2 - 33a - 7$;

ii. $6xy - 2ay + 3x - a$;

iii. $2x^2 - 98$.

(d) If $a^2 + b^2 = 11ab$, then prove that

$$2\log\left(\frac{a-b}{3}\right) = \log a + \log b.$$

6. (a) Differentiate the following functions with respect to x:

i. $y = \dfrac{2x-1}{1+x^2}$;

ii. $y = (5x^2-1)(x^3+2)$;

iii. $y = \log\left(\dfrac{x^2+1}{x^2-1}\right)$.

(b) If $y = 2x + \dfrac{4}{x}$ then show that

$$x^2\frac{d^2y}{dx^2} + x\frac{dy}{dx} - y = 0.$$

(c) Find the maximum and minimum values of the function

$$y = x^3 - 6x^2 + 9x - 2.$$