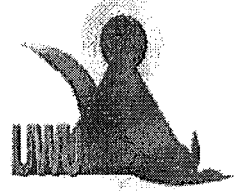




Uva Wellassa University, Sri Lanka

End Semester Examination -Feb/Mar 2011



CST102-2 Introduction to Computer Science & Technology (Repeat)

Time: Two (02) hours

Answer All Question

1. a) State the De Morgan's theorem in Boolean algebra (25Marks)
- b) Write down the expression for AND, OR gate and Draw the truth table. Design logic circuit to prove De Morgan's theorem using AND, OR and NOT gate. Prove it using the truth table.
- c) Write down the expression for the XOR gate and draw the truth table. Design logic circuit for the XOR gate using AND, OR and NOT gates.
- d) Convert each of the following Boolean expressions into the Sum-Of-Product (SOP) terms and design logic circuit for the each of the expression.
- a. $(A+B)(B+C+D)$
- b. $\overline{(A+B)} + C$
- e) Prove the following expressions using basic laws and axioms in Boolean algebra.
- a. $AB + A(B+C) + B(B+C) = B + BC$
- b. $A(A+B)=A$
2. a) Express following numbers in binary form (25 Marks)
- I. 57
- II. -145
- III. 89
- IV. -27
- V. 456.23

b) Express above numbers in BCD form.

c) Express following numbers in Hexadecimal and Octal form

I. 450

II. 890

III. 16

IV. 96

V. 1005

d) Represent the word "Number System" Using 8 bit ASCII code. ASCII values of the alphabet are given below.

Symbol	Decimal	Symbol	Decimal	Symbol	Decimal	Symbol	Decimal
A	65	N	78	a	97	n	110
B	66	O	79	b	98	o	111
C	67	P	80	c	99	p	112
D	68	Q	81	d	100	q	113
E	69	R	82	e	101	r	114
F	70	S	83	f	102	s	115
G	71	T	84	g	103	t	116
H	72	U	85	h	104	u	117
I	73	V	86	i	105	v	118
J	74	W	87	j	106	w	119
K	75	X	88	k	107	x	120
L	76	Y	89	l	108	y	121
M	77	Z	90	m	109	z	122

3. a) How can you classify computers based on their size? Give a brief account each of them. (20Mar)
- b) What is the difference between customized software and packaged software?
- c) Briefly describe the five (5) topics given below.
- Operating System
 - Mobile Computing
 - Bluetooth Technology
 - Cloud Computing
 - Wi-Fi Technology
 - Virtual Reality
 - Artificial Intelligence
 - Evolution of computers

4. (15 Marks)
- Draw Von Neumann Architecture.
 - What are the functions of the processor?
 - Describe the function of the Control Unit.
 - Provide brief account on each of the following.
 - Digital Logic Layer
 - Memory Buffer Register
 - Bus
 - Operation of the ALU(Arithmetic and Logic Unit)
5. (15 Marks)
- What are the uses of computer networks? Describe them.
 - How can you classify networks based on their size? Give examples for each of them.
 - State whether the following statements are true or false.
 - MAC address is burned into the ROM chip in the NIC
 - Hub analyses incoming packet and forwards (or filters) them based on addressing information.
 - Bridge operate at the Data Link Layer
 - The switch operate at the Physical Layer
 - Routers maintain address table.
 - What are the jobs of following protocol
 - HTTP
 - FTP
 - Telnet
 - IP
 - SMTP

(20Mar

