



SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

June 11-0079

First Year First Semester Examination – 2021

Instructions for candidates:

Answer Any five Questions

All Question carry equal marks

Calculators are allowed

No. of questions : 06

No of pages : 03

Time: Three (03) hours

Question 01.

I. Define the term Data and Information.

(04 marks)

- a. **Data** - The collection raw facts that cannot be used for decision making.
- b. **Information** - when a data is processed, structured or

II. Briefly explain the key features of following computer generations.

(04 marks)

Vaccinia tubes a. First generation

transistors: — b. Second generation

III. Convert the following number systems into given number systems.

(06 marks)

a. 135_{10} to Binary

b. 11001101_2 to Decimal

c. 247_8 to Hexadecimal

IV. Perform the following binary operations.

(06 marks)

a. $1011010_2 + 111101_2$

b. $10110110_2 - 10101001_2$

Question 02.

I. Draw the symbol and truth tables of the following basic logic gates.

(04 marks)

a. AND

b. OR \perp

123	64	32	16	8	4	2	1
1	0	1	1	0	1	1	0
1	0	1	0	1	0	0	1
0	0	0	0	0	0	1	1

123

9

160

123

32

17

5

2

165

7

71

500

II. Simplify the following expressions using Boolean algebra laws. (04 marks)

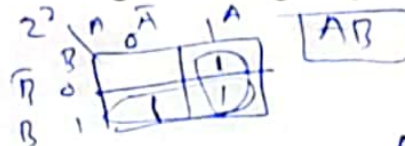
- a. $A + AB$ $A(A+B)$ Associative $(A+A) + A$
 b. $(A+B)(A+C)$ $A+(BC) =$ Associative law or Distributive

III. Draw a logic circuit for the following expression. (06 marks)

$$F = A.B.C + \bar{A}.\bar{B}.C + \bar{A}.B.C + \bar{A}.B.\bar{C}$$

IV. Simplify the following expression using the Karnaugh map. (06 marks)

$$F = \bar{A}B + A\bar{B} + AB$$



(Total 20 marks)

Question 03. Read Only Memory

A	B	Sum	Carry
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

- I. Draw the logic gates diagram and truth table for half adder. (04 marks)
 II. Define the term "ROM" and state two (02) types of ROM. (04 marks)
 III. Briefly explain the memory hierarchy with a suitable diagram. (06 marks)
 IV. Convert the following hard disk capacities into given units. (06 marks)

a. 2TB into Bytes $\rightarrow 2 \times 2048$

b. 500GB into bits

Single user and single task
 Single user to multi tasking
 Multi user - S.
 Real time

(Total 20 marks)

Question 04. memory

- I. State two (02) functions of an Operating System (OS). (04 marks)
 II. Name four (04) types of Operating System (OS). (04 marks)
 III. Briefly explain the steps of following computer operations. (06 marks)

- a. Disk Formatting \rightarrow
 b. File Compression \rightarrow

IV. Briefly explain the purpose of following utility software. (06 marks)

- a. Backup and Restore \rightarrow Our data file is all one data so Backup and Restore again got it then
 b. Device Driver
 c. Firewall \rightarrow

(Total 20 marks)

updates all device

ROM doesn't loss information when the power is switched off so it is non-volatile

EPROM
 PROM
 EEPROM
 Flash EPROM

Question 05.

client has full accessibility of the computer
easy to set up
No expensive hardware

I. Write two (02) advantages and two (02) disadvantages of setting up a computer network. (04 marks)

II. Briefly explain the following concepts with suitable examples. (04 marks)

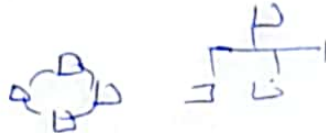
- a. LAN - Local Area Network
b. WAN - Metropolitan Area Network

III. Draw suitable diagrams for following network topologies. (06 marks)

a. Bus

b. Ring

c. Star



IV. Briefly explain the functions of following network devices. (06 marks)

- a. NIC - Network Interface Card
b. Switch - Connect multiple computers in a
c. Repeaters - Same network send the data from source computer to the destination computer control the network traffic

(Total 20 marks)

Question 06.

I. Write down two (02) advantages and two (02) disadvantages of the Internet. (04 marks)

II. Briefly explain the following transmission modes with suitable diagrams. (04 marks)

a. Half Duplex ->

b. Full Duplex - Data is transmitted to both side of the same time
Both parties can communicate with each other

III. Briefly explain the following network transmission media with examples. (06 marks)

a. Guided media ->

b. Unguided media -> wireless -

IV. Write down the file extensions for following file types. (06 marks)

a. Microsoft Excel ,

b. ASCII text only

c. Graphics format .

d. Microsoft PowerPoint ppt

e. Compression format

f. Microsoft Word (2007 and later)

(Total 20 marks)