සියලු ම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது / All Rights Reserved]

Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Kha
කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලී
Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Kha
කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලීෆානියාස් කලී
Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Khalifa Niyas Kha

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2025
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீடசை, 2025
General Certificate of Education (Adv. Level) Examination, 2025

තොරතුරු හා සන්නිවේදන තාක්ෂණය	II
தகவல், தொடர்பாடல் தொழினுட்பவியல்	II
Information & Communication Technology	II

20 E II

UNIT TEST
04

FULL NAME : .....

Important:

- This Question Paper compromises of Two Parts, **Part A** and **Part B.** The Time allotted is for both these parts.
- Use of Calculator is **Not Allowed.**

Part A - Structured Essay

- Answer **all** the Questions **on this paper itself.** Write your answers in the space provided for each question. Note that the space provided is sufficient for your answers and that extensive answers are not expected.

Part B - Essay

- Answer **all** the Questions in a Separate Paper. Start **each question** on a **New Page.**
- At the end of the time allotted for this paper, tie the **two parts together** so that **Part A** is on top of **Part B** before handing them over.
- You are Permitted to remove only Part B of the Question paper.

For Examiner's Use only

For Second Paper		
Part	Question No.	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
Total		

Final Marks

In Numbers	
In Words	

Markers Remarks

See Page 2

Part- II- A (Structured Essay)

01.

I. Consider the following k-map below
Write the simplified SOP and POS separately for above K-map.

SOP: .....

POS: .....

CD \ AB	00	01	11	10
00	1	1	1	1
01	0	1	0	0
11	0	1	0	0
10	1	1	1	1

II. Give a Difference between Combinational circuits and Sequential circuits.

.....

.....

III. Give 02 rules that should be followed during simplification using K-map.

.....

.....

IV. Convert the following into NAND and NOR. (Using the De-Morgan Law)

	NAND	NOR
a. ((A+B)'(C+D)')'	.....	.....
b. ((A'C)'.D')'	.....	.....

02.

I. The below truth table shows all alternative input values of a half-adder.

Inputs		**Outputs**	
A	B	*Sum*	*Carry out*
0	1		
1	0		
1	1		
0	0		

a) Write the corresponding output values.

See Page 3

b) Draw a logic circuit diagram to represent the binary half adder.

.....

.....

.....

.....

II. Convert the following SOP expressions to POS.

a) A'B'C+AB'C+ABC'

b) F(P,Q,R) = P'Q'R+PQR'+PQR

....

III. Convert the following POS expressions to SOP.

a) (X+Y'+Z)(X'+Y+Z')(X'+Y'+Z')

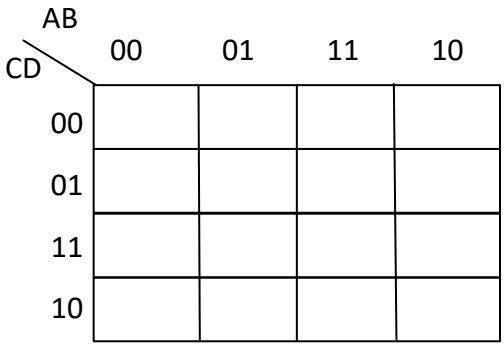
b) F(P,Q,R)=(P+Q+R')(P'+Q'+R)(P+Q'+R)

....

03.

I. Complete the K-map and convert it into SOP form

(A+B'+C'+D) (A+B+D) (A'+B'+C'+D) (A'+B+D) (B+C+D')



.....

II. Map the following SOP expression on a Karnaugh map:

$\overline{B}\overline{C}$ + A$\overline{B}$ + AB$\overline{C}$ + A$\overline{B}$C$\overline{D}$ + $\overline{A}\overline{B}\overline{C}$D + A$\overline{B}$CD

.....

.....

.....

04.

I. Construct a truth table for a Full Adder, showing all possible input combinations and their corresponding sum and carry outputs.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

II. Draw a logical circuit diagram for a Full Adder using basic logic gates to represent its functionality

.....

.....

.....

.....

.....

III. Compare combinational circuits vs sequential circuits using a diagram.

.....

.....

.....

.....

.....

See Page 5