IS1102 - COMPUTER SYSTEMS
Tutorial - 04

Introduction to Boolean Algebra and Logic Operators

- **Do the Tutorial Individually and Upload.**
- **Rename the file with your temporary index number and upload as a PDF file.**

Convert the Boolean Expression into truth tables

1. F = A'B+AC
2. F = XYZ+(XZ)'
3. F = (A+B).C
4. F = (A'+B')+(A+C)
5. F = (A+B).(A.C).C'
6. F = (A.B).(C.D)'
7. F = (X+Y)'.XY
8. F = (X'.Y')+X+Y
9. F = XY+Y'Z
10. F = ABC+A'+C'

Show the similarity of expressions using truth table

1. F = ABC+A'BC'+ABC' and F = AB+BC'
2. F = XY'Z+(XY)' and F = X'+Y'
3. F = BC+AB'C+ABC' and F = BC+AB+AB'C
4. F = A'BC+AB'C+ABC'+ABC and F = AB+BC+AC
5. F = (A.B)+(A+B)' and F = AB+A'B'
6. F = ABC+A.(B'C')and F = A
7. F = AC+AB+BC' and F = AC+BC'
8. F = (A+C').(B+C).(A+B) and F = (A+C').(B+C)
9. F = B'C'+AC'+AB and F = B'C'+AB
10. F = BC'+AC'+AC and F = A'.(B'+C)

Formulate Boolean Algebraic expressions to represent the following truth table in Sum of Minterms

1.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

2.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

3.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

4.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

5.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

6.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

7.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

8.

A	B	C	F
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

9.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

10.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

Formulate Boolean Algebraic expressions to represent the following truth table in Product of Maxterms

11.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

12.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

13.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

14.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

15.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

16.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

17.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

18.

A	B	C	F
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

19.

A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

20.

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0