UCSC

IS1102 - COMPUTER SYSTEMS
Tutorial - 06
Introduction to Boolean Algebra and Logic Operators

- **Do the Tutorial Individually and Upload.**
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Simplify the Following Boolean Expression using Karnaugh maps.

1. F = AB+A'B
2. F = AB+AB'
3. F = AB+A'B'
4. F = AB+AB'+A'B'
5. F = A'B+AB'+A'B'
6. F = AB+A'B+AB'+A'B'
7. F = A'B'C'+A'B'C
8. F = A'BC'+A'BC
9. F = AB'C'+AB'C
10. F = ABC'+ABC
11. F = A'B'C'+A'B'C+A'BC'
12. F = A'BC'+A'BC+AB'C'
13. F = AB'C'+AB'C+ABC'
14. F = AB'C+ABC'+ABC
15. F = A'B'C'+A'B'C+A'BC'+AB'C'
16. F = A'BC'+A'BC+AB'C'+AB'C
17. F = AB'C'+AB'C+ABC'+ABC
18. F = A'B'C'+A'B'C+A'BC'+A'BC+AB'C'+AB'C
19. F = A'BC'+A'BC+AB'C'+AB'C'+AB'C+ABC'+ABC
20. F = A'B'C'+A'B'C+A'BC'+A'BC+AB'C'+AB'C'+AB'C+ABC'+ABC

Simplify the Following Boolean Expression using Karnaugh maps.

21. F = (A+B).(A'+B)
22. F = (A+B).(A'+B')
23. F = (A+B).(A+B')
24. F = (A+B).(A+B').(A'+B')
25. F = (A'+B).(A+B').(A'+B')
26. F = (A+B).(A'+B).(A+B').(A'+B')
27. F = (A'+B'+C').(A'+B'+C)
28. F = (A'+B+C').(A'+B+C)
29. F = (A+B'+C').(A+B'+C)
30. F = (A+B+C').(A+B+C)
31. F = (A'+B'+C').(A'+B'+C).(A'+B+C')
32. F = (A'+B+C').(A'+B+C).(A+B'+C')
33. F = (A+B'+C').(A+B'+C).(A+B+C')
34. F = (A+B'+C).(A+B+C').(A+B+C)
35. F = (A'+B'+C').(A'+B'+C).(A'+B+C').(A+B'+C')
36. F = (A'+B+C').(A'+B+C).(A+B'+C').(A+B'+C)
37. F = (A+B'+C').(A+B'+C).(A+B+C').(A+B+C)
38. F = (A'+B'+C').(A'+B'+C).(A'+B+C').(A'+B+C).(A+B'+C').(A+B'+C)
39. F = (A'+B+C').(A'+B+C).(A+B'+C').(A+B'+C').(A+B'+C).(A+B+C').(A+B+C)
40. F=(A'+B'+C').(A'+B'+C).(A'+B+C').(A'+B+C).(A+B'+C').(A+B'+C').(A+B'+C).(A+B+C').(A+B+C)

Formulate Boolean Algebraic expressions to represent the following truth table in Product of Maxterms and Sum of Minterms and simplify them using Karnaugh maps

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