NAME= Imon Raj
MY ROLL NUMBER LAST TWO DIGIT = 98
B = 98mod4 = 2
C = 98mod5 = 3

Minterm = 0+B,1+B,……..,16+B = 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18
DontCare = C+20,C+21,…..,C+25 = 23,24,25,26,27,28
Variable = A,B,C,D,E
using Karnaugh Map (Kmap)

Solution:

Minterm = $\sum m(2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18)$

Variable = A,B,C,D,E

Dontcare = $\sum(23,24,25,26,27,28)$

A,B\C,D,E	000	001	011	010	110	111	101	100
00	0	0	1	1	1	1	1	1
01	1	1	1	1	1	1	1	1
11	-	-	-	-	0	0	0	-
10	1	1	0	1	0	-	0	0

Group : 1

A,B\C,D,E	000	001	011	010	110	111	101	100
00	0	0	1	1	1	1	1	1
01	1	1	1	1	1	1	1	1
11	-	-	-	-	0	0	0	-
10	1	1	0	1	0	-	0	0

8 Cell Grouping
Simplified Expression = A'D

Group : 2

A,B\C,D,E	000	001	011	010	110	111	101	100

00	0	0	1	1	1	1	1	1
01	1	1	1	1	1	1	1	1
11	-	-	-	-	0	0	0	-
10	1	1	0	1	0	-	0	0

8 Cell Grouping
Simplified Expression = A'C

Group : 3

$_{A,B}\backslash^{C,D,E}$	000	001	011	010	110	111	101	100
00	0	0	1	1	1	1	1	1
01	1	1	1	1	1	1	1	1
11	-	-	-	-	0	0	0	-
10	1	1	0	1	0	-	0	0

8 Cell Grouping
Simplified Expression = A'B

Group : 4

$_{A,B}\backslash^{C,D,E}$	000	001	011	010	110	111	101	100
00	0	0	1	1	1	1	1	1
01	1	1	1	1	1	1	1	1
11	-	-	-	-	0	0	0	-
10	1	1	0	1	0	-	0	0

4 Cell Grouping
Simplified Expression = C'DE'

Group : 5

$_{A,B}\backslash^{C,D,E}$	000	001	011	010	110	111	101	100
00	0	0	1	1	1	1	1	1

01	1	1	1	1	1	1	1	1
11	-	-	-	-	0	0	0	-
10	1	1	0	1	0	-	0	0

4 Cell Grouping
Simplified Expression = AC'D'

Final Expression = A'D + A'C + A'B + C'DE' + AC'D'

TRUTH TABLE OF INPUT EXPRESSION:

A	B	C	D	E	Y = A'B'C'DE'+A'B'C'DE+ A'B'CD'E'+A'B'CD'E+A'B'CDE'+ A'B'CDE+A'BC'D'E'+A'BC'D'E+A'BC'DE'+ A'BC'DE+ A'BCD'E'+ A'BCD'E+ A'BCDE'+ A'BCDE+ AB'C'D'E'+ AB'C'D'E+ AB'C'DE' (Don't cares: 23,24,…,28)
0	0	0	0	0	0
0	0	0	0	1	0
0	0	0	1	0	1
0	0	0	1	1	1
0	0	1	0	0	1
0	0	1	0	1	1
0	0	1	1	0	1
0	0	1	1	1	1
0	1	0	0	0	1
0	1	0	0	1	1
0	1	0	1	0	1
0	1	0	1	1	1
0	1	1	0	0	1
0	1	1	0	1	1
0	1	1	1	0	1
0	1	1	1	1	1

1	0	0	0	0	1
1	0	0	0	1	1
1	0	0	1	0	1
1	0	0	1	1	0
1	0	1	0	0	0
1	0	1	0	1	0
1	0	1	1	0	0
1	0	1	1	1	X
1	1	0	0	0	X
1	1	0	0	1	X
1	1	0	1	0	X
1	1	0	1	1	X
1	1	1	0	0	X
1	1	1	0	1	0
1	1	1	1	0	0
1	1	1	1	1	0

TRUTH TABLE OF OUTPUT EXPRESSION:

A	**B**	**C**	**D**	**E**	**Y =** A'D + A'C + A'B + C'DE' + AC'D'
0	0	0	0	0	0
0	0	0	0	1	0
0	0	0	1	0	1
0	0	0	1	1	1
0	0	1	0	0	1
0	0	1	0	1	1
0	0	1	1	0	1
0	0	1	1	1	1
0	1	0	0	0	1
0	1	0	0	1	1
0	1	0	1	0	1
0	1	0	1	1	1
0	1	1	0	0	1
0	1	1	0	1	1

0	1	1	1	0	1
0	1	1	1	1	1
1	0	0	0	0	1
1	0	0	0	1	1
1	0	0	1	0	1
1	0	0	1	1	0
1	0	1	0	0	0
1	0	1	0	1	0
1	0	1	1	0	0
1	0	1	1	1	0
1	1	0	0	0	1
1	1	0	0	1	1
1	1	0	1	0	1
1	1	0	1	1	0
1	1	1	0	0	0
1	1	1	0	1	0
1	1	1	1	0	0
1	1	1	1	1	0

CIRCUIT DESIGN USING TWO INPUT NAND GATES: