#QUESTION 1

a. **Boolean Algebra**

$F = (A' \cdot (A' D)')' \cdot (A' + BC)$

$= A + (A' D) \cdot (A' + BC)$

$= (A + A'D) \cdot (A' + BC)$

$= ABC + A'D + A'BCD$

$= ABC + A'D (1 + BC)$

➔ $F = ABC + A'D$

b. **K-Map**

$G = (A'D)' \cdot (A' + BC)$

A	B	C	D	(A ' D)'	(A' + BC)	G
0	0	0	0	1	1	1
0	0	0	1	0	1	0
0	0	1	0	1	1	1
0	0	1	1	0	1	0
0	1	0	0	1	1	1
0	1	0	1	0	1	0
0	1	1	0	1	1	1
0	1	1	1	0	1	0
1	0	0	0	1	0	0
1	0	0	1	1	0	0
1	0	1	0	1	0	0
1	0	1	1	1	0	0
1	1	0	0	1	0	0
1	1	0	1	1	0	0
1	1	1	0	1	1	1
1	1	1	1	1	1	1

CD / AB	00	01	11	10
00	1			1
01	1			1
11			1	1
10				

0000
0100
0010 **1111**
<u>0110</u> **<u>1110</u>**
A'·1·1 D' A·B·C

ANS ➔ G = A'D' + ABC

#QUESTION 2

Input XYZ $_{10}$	X	Y	Z	Output ABC $_{10}$	A	B	C
0	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0
2	0	1	0	1	0	0	1
3	0	1	1	1	0	0	1
4	1	0	0	2	0	1	0
5	1	0	1	2	0	1	0
6	1	1	0	3	0	1	1
7	1	1	1	4	1	0	0

- Finding the expression of ABC, from their respective outputs.

i) $A = X \cdot Y \cdot Z$
ii) $B = X \cdot (Y \cdot Z)'$
iii) $C = Y \cdot (X \cdot Z)'$