

Ponce
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Date 27/08/2014

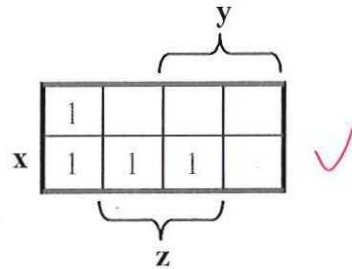
ENS1161 Computer Fundamentals

Test 4

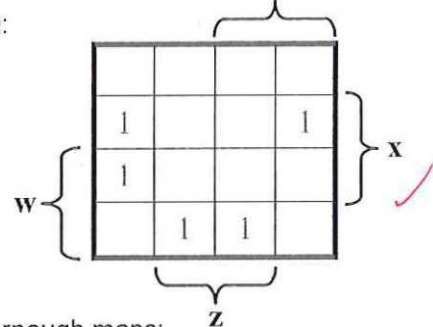
10/10.

- (a) Draw a Karnaugh map for each of
- $P = y'z' + xz$
- and
- $Q = wx'z + xy'z' + w'xyz'$

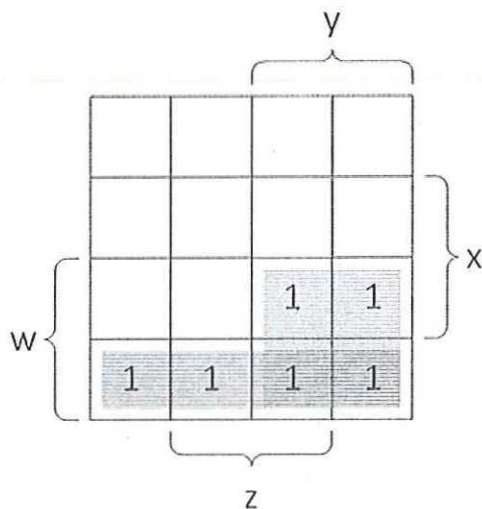
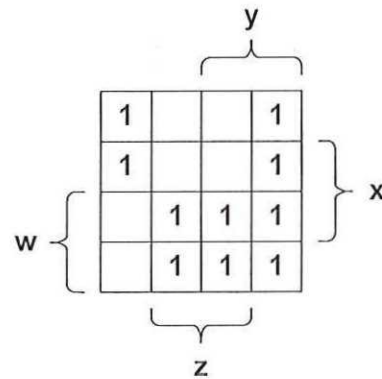
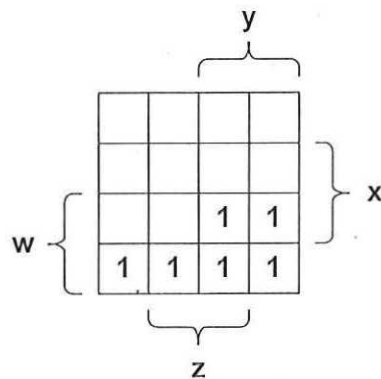
P:



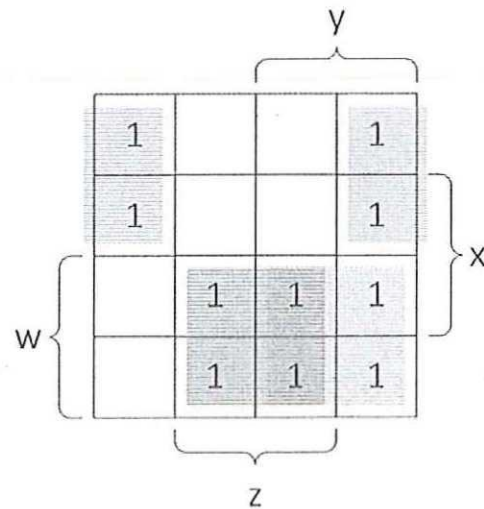
Q:



- (b) Find a
- minimal**
- sum of products for each of the Karnaugh maps:



$$i = wy + wx'$$



$$ii = w'z' + wz + wy$$

or

$$w'z' + wz + yz'$$

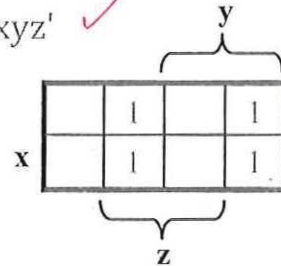
- (c) A Boolean function $M(x, y, z)$ is defined by truth table shown:

x	0	0	0	0	1	1	1	1
y	0	0	1	1	0	0	1	1
z	0	1	0	1	0	1	0	1
M	0	1	1	0	0	1	1	0

- (i) Express M as a **complete** sum of products:

$$M = x'y'z + x'yz' + xy'z + xyz'$$

- (ii) Draw a Karnaugh map for M .



- (iii) Express M as a **minimal** sum of products.

$$M = y'z + yz'$$

[2 + 4 + 4 = 10 marks]