

Logic Design– Assignment 04 – Boolean Algebra

#	Student ID	Student Name	Grade (10)
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Delivery Date	
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١. يتم تسليم التمرين محلولا في خلال أسبوع من تاريخ التمرين، و يتم حذف درجتين من التمرين عن كل أسبوع تأخير
٢. يتم التسليم لمعيد المقرر مباشرة
٣. تتم أجابه التمرين في نفس ورق الأسئلة

Q1	Simplify each of the following expressions by applying <i>one</i> of the theorems. State the theorem used (a) $X'YZ - (X'Y'Z)'$ (b) $(AB' - CD)(B'E - CD)$ (c) $ACF - AC'F$ (d) $A(C + D'B) + A'$ (e) $(A'B - C + D)(A'B + D)$ (f) $(A + BC) + (DE - F)(A - BC)'$
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Sol 1	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
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Q3	<p>Simplify each of the following expressions by applying <i>one</i> of the theorems. State the theorem used.</p> <p>(a) $(X - Y'Z) + (X - Y'Z)'$</p> <p>(b) $[W - X'(Y + Z)][W' + X'(Y + Z)]$</p> <p>(c) $(V'W + UX)'(UX + Y + Z - V'W)$</p> <p>(d) $(UV' + W'X)(UV' - W'X + Y'Z)$</p> <p>(e) $(W' + X)(Y - Z') + (W' + X)'(Y - Z')$</p> <p>(f) $(V' + U + W)[(W + X) + Y + UZ'] - [(W + X) + UZ' + Y]$</p>
Sol 3	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>



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Q6

For each of the following functions find a sum-of-products expression for F' .

(a) $F(P, Q, R, S) = (R' + PQ)S$

(b) $F(W, X, Y, Z) = X - YZ(W + X')$

(c) $F(A, B, C, D) = A' + B' + ACD$

Sol 6

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<p>Q8</p>	<p>Prove the following equations using truth tables: (a) $(X + Y)(X' + Z) = XZ + X'Y$ (b) $(X + Y)(Y - Z)(X' - Z) = (X + Y)(X' + Z)$ (c) $XY + YZ + X'Z = XY + X'Z$</p>
<p>Sol 8</p>	<p>..... </p>

