RCT – 4
DIGITAL ELECTRONICS

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Date…… April, 2015

Time…….....15 Min.

Each Question……1 Mark

(No Negative Marking)

Q1. The 9 bit, signed binary 2's complement representation of $(-124)_{10}$ is

(a) 110000011

(b) 101101001

(c) 110000100

(d) 110100100

Q2. The minimized boolean expression using k-map shown

CD \ AB	00	01	11	10
00	1	1	0	1
01	0	1	0	0
11	0	0	1	1
10	1	0	0	1

(a) $\overline{B}\,\overline{D} + \overline{A}\,B\,\overline{C} + A\,C\,D + \overline{A}\,\overline{C}\,\overline{D}$

(b) $\overline{B}\,\overline{D} + \overline{A}\,B\,\overline{C} + A\,C\,D$

(c) $\overline{B}\,\overline{D} + \overline{A}\,\overline{C}\,\overline{D} + A\,\overline{B}\,C + A\,C\,D$

(d) $\overline{A}\,\overline{C}\,\overline{D} + \overline{B}\,\overline{D} + \overline{A}\,B\,C$

Q3. The Boolean expression

Y A,B,C | A B C $\overline{A}$ $\overline{B}$ | $\overline{C}$
A | $\overline{B}$ | $\overline{C}$ $\overline{A}$ | | $\overline{B}$ | | C
$\overline{A}$ | B | | $\overline{C}$

is in POS form. The equivalent expression in SOP form is

(a) $\overline{A}\,\overline{B}\,\overline{C} + \overline{A}\,B\,C + A\,\overline{B}\,C + A\,B\,\overline{C} + A\,B\,C$

(b) $\overline{A}\,\overline{B}\,\overline{C} + \overline{A}\,B\,\overline{C} + A\,\overline{B}\,\overline{C}$

(c) $A\,\overline{B}\,\overline{C} + A\,B\,C + A\,\overline{B}\,C$

d $\overline{A}\,\overline{B}\,C$ | | $\overline{A}\,B\,\overline{C}$ | | $A\,\overline{B}\,\overline{C}$

Q4. The minimum decimal equivalent of B2D is

(a) 2861 (b) 1898

(c) 2326 (d) 2197

Q5. The number of redundant prime implicants in the k-map shown

CD \ AB	00	01	11	10
00	1	0	1	1
01	0	1	1	1
11	0	1	1	1
10	0	1	1	0

(a) 0 (b) 1

(c) 2 (d) 3

Q6. The gray code equivalent of the binary code 110011011

(a) 110101011

(b) 101001010

(c) 101011101

(d) 101010110

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ANSWER KEY

1	C	2	B	3	D
4	D	5	A	6	D