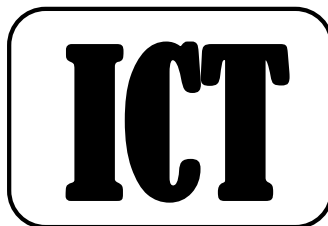




A/L ICT Marking Scheme
2017 – November Term Examination
2019 (Gr.12) Batch



Field Work Center (FWC)
Thondaimanaru



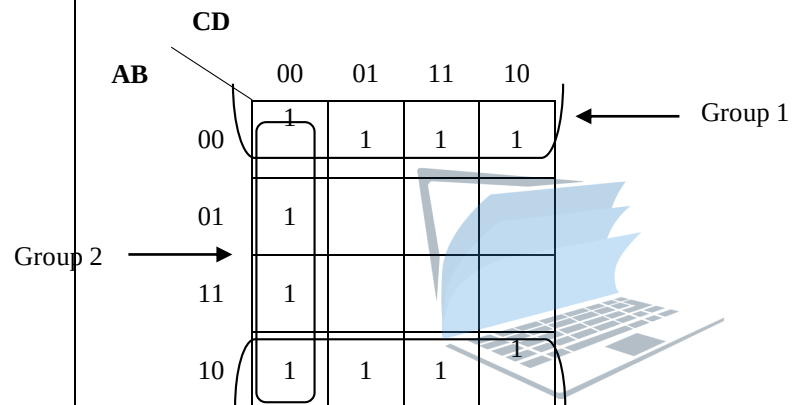
Part – I

(1)	5	(11)	3	(21)	2	(31)	1
(2)	4	(12)	5	(22)	5	(32)	4
(3)	2	(13)	1	(23)	3	(33)	3
(4)	2	(14)	5	(24)	5	(34)	3
(5)	4	(15)	4	(25)	4	(35)	2
(6)	3	(16)	2	(26)	1	(36)	4
(7)	1	(17)	3	(27)	3	(37)	5
(8)	4	(18)	4	(28)	5	(38)	1
(9)	3	(19)	3	(29)	5	(39)	4
(10)	1	(20)	4	(30)	2	(40)	4

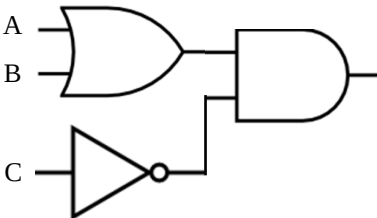
Part – II A

Question No.	Suggested Answers	Marks																
(1) (a)	<table><tr><td>i.</td><td>EDVAC</td></tr><tr><td>ii.</td><td>First microprocessor</td></tr><tr><td>iii.</td><td>First computer programmer</td></tr><tr><td>iv.</td><td>Turing machine</td></tr><tr><td>v.</td><td>Punch card</td></tr><tr><td>vi.</td><td>Analytical engine</td></tr><tr><td>vii.</td><td>Blaise Pascal</td></tr><tr><td>viii.</td><td>John V. Atanasoff</td></tr></table>	i.	EDVAC	ii.	First microprocessor	iii.	First computer programmer	iv.	Turing machine	v.	Punch card	vi.	Analytical engine	vii.	Blaise Pascal	viii.	John V. Atanasoff	4 marks (0.5 x 8)
i.	EDVAC																	
ii.	First microprocessor																	
iii.	First computer programmer																	
iv.	Turing machine																	
v.	Punch card																	
vi.	Analytical engine																	
vii.	Blaise Pascal																	
viii.	John V. Atanasoff																	
(1) (b) (i)	• Improve performance. • Fewer data/software maintenance issues. • Instant software updates. • Lower software cost.	2 marks (1 + 1)																
(1) (b)(ii)	• Data privacy issues. • Requires a constant Internet connections. • Does not work well in low speed Internet connections.	1 marks																
(1) (c)	Awareness program about ICT and its benefits. Introducing ICT as a subject for all the age groups in school levels.	3 marks																

	Donating used computers for low – economic level people who wish to learn. Establishing telecommunication infra-structure in rural areas.	
(2) (a)	Software piracy is the <u>illegal copying /distribution / use</u> of software.	2 marks [any underlined keyword]
(2) (b)	• Fetching Instructions. • Increment of Program Counter (PC). • Decoding Instructions. • Executing instructions.	2 marks (0.5 x 4)
(2) (c)	• Magnetic storage medium. Eg: Hard disk / Floppy disk / Zip disk / Jaz disk / Mag.Tape • Optical / Laser storage medium. Eg: CD /DVD / Blu Ray Disc • Solid-state storage medium. Eg: Flash drive /SSD /Memory card	6 marks (2 x 3)
(3) (a)	$15_{10} = 00001111_2$ $-12_{10} = 11110100_2$	4 marks (2 x 2)
(3) (b)	$15_{10} + (-12_{10})$ 00001111_2 11110100_2 + 00000011_2 	2 marks
(3) (c)	• Check MSB value. If it is 0, the number is positive. So just convert it into decimal number. • Check MSB value. If it is 1, the number is negative. Invert it into one's complement and add 1 to LSB (or convert it into two's complement). Now convert it into decimal number.	4 marks (2+2)

(4) (a)	$ \begin{aligned} &AB(C + \bar{C}) + AB\bar{C}(D + \bar{D}) + AB\bar{C}\bar{D} \\ &ABC + AB\bar{C} + AB\bar{C}D + AB\bar{C}\bar{D} + AB\bar{C}\bar{D} \quad \left. \vphantom{AB(C + \bar{C}) + AB\bar{C}(D + \bar{D}) + AB\bar{C}\bar{D}} \right\} 1 \\ &ABC(D + \bar{D}) + AB\bar{C}(D + \bar{D}) + AB\bar{C}D + AB\bar{C}\bar{D} + AB\bar{C}\bar{D} \\ &ABCD + ABC\bar{D} + AB\bar{C}D + AB\bar{C}\bar{D} + AB\bar{C}D + AB\bar{C}\bar{D} + AB\bar{C}\bar{D} \quad \left. \vphantom{ABC(D + \bar{D}) + AB\bar{C}(D + \bar{D}) + AB\bar{C}D + AB\bar{C}\bar{D} + AB\bar{C}\bar{D}} \right\} 1 \\ &ABCD + ABC\bar{D} + AB\bar{C}D + AB\bar{C}\bar{D} \quad \leftarrow 1 \end{aligned} $	3 marks (partial marks given)
(4) (b)	$A + B$	3 marks
(4) (c)	 $\bar{B} + \bar{C}\bar{D}$	4 marks (2 – proper grouping, 2 final answer)

Part –II B Essay – Two questions only

Question No.	Suggested Answers	Marks																																				
(1) (a)	<table border="1"><thead><tr><th>A</th><th>B</th><th>C</th><th>X</th></tr></thead><tbody><tr><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td></tr></tbody></table> A – Movement sensor (Input) B – Smoke detector sensor (Input) C – Manual switch (Input) X – Alarming / Not alarming (Output)	A	B	C	X	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	0	1	0	0	1	1	0	1	0	1	1	0	1	1	1	1	0	3 marks Proper rows – 1 marks Output X – 1 marks Complete – 1 marks Inputs/output should be defined.
A	B	C	X																																			
0	0	0	0																																			
0	0	1	0																																			
0	1	0	1																																			
0	1	1	0																																			
1	0	0	1																																			
1	0	1	0																																			
1	1	0	1																																			
1	1	1	0																																			
(1) (b)	$\bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$	2 marks																																				
(1) (c)	$\bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$ $\bar{A}B\bar{C} + A\bar{C}(B + \bar{B})$ {Distributive Law} $\bar{A}B\bar{C} + A\bar{C} . 1$ { $B + \bar{B} = 1$, Inverse Law} $\bar{A}B\bar{C} + A\bar{C}$ {Identity Law} $\bar{C}(\bar{A}B + A)$ $\bar{C}(A + B)$ { $\bar{A}B + A = A + B$ }	3 marks																																				
(1) (d)		2 marks																																				

(2) (a)	$\overline{(a + b + c)}bc$$\overline{(a + b + c)} + \overline{(bc)}$$\bar{a} . \bar{b} . \bar{c} + \bar{b} + \bar{c}$$\bar{b}(a\bar{c} + 1) + \bar{c}$$\bar{b} + \bar{c} \text{ OR } \overline{bc}$	3 marks																																																							
(2) (b)	<table><tr><th>x</th><th>y</th><th>$\bar{x}$</th><th>$\bar{y}$</th><th>$x + \bar{y}$</th><th>$\bar{x} + y$</th><th>$(x + \bar{y}).(\bar{x} + y)$</th><th>$xy$</th><th>$x + y$</th><th>$\overline{x + y}$</th><th>$xy + \overline{x + y}$</th></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td></tr></table>	x	y	$\bar{x}$	$\bar{y}$	$x + \bar{y}$	$\bar{x} + y$	$(x + \bar{y}).(\bar{x} + y)$	xy	$x + y$	$\overline{x + y}$	$xy + \overline{x + y}$	0	0	1	1	1	1	1	0	0	1	1	0	1	1	0	0	1	0	0	1	0	0	1	0	0	1	1	0	0	0	1	0	0	1	1	0	0	1	1	1	1	1	0	1	4 marks
x	y	$\bar{x}$	$\bar{y}$	$x + \bar{y}$	$\bar{x} + y$	$(x + \bar{y}).(\bar{x} + y)$	xy	$x + y$	$\overline{x + y}$	$xy + \overline{x + y}$																																															
0	0	1	1	1	1	1	0	0	1	1																																															
0	1	1	0	0	1	0	0	1	0	0																																															
1	0	0	1	1	0	0	0	1	0	0																																															
1	1	0	0	1	1	1	1	1	0	1																																															
(2) (c)(i)	CD AB <table><tr><td>00</td><td>01</td><td>11</td><td>10</td></tr><tr><td>00</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>01</td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td>1</td><td>1</td></tr><tr><td>10</td><td></td><td></td><td>1</td><td>1</td></tr></table> Group 1 Group 2	00	01	11	10	00	1	1	1	1	01					11			1	1	10			1	1	1 marks																															
00	01	11	10																																																						
00	1	1	1	1																																																					
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(2) (c)(ii)	$AC + \bar{A}\bar{B}$	2 marks																																																							
(3) (a)	Data are the basic rawfacts. For example, in library information system, book details such as book title, book number, etc. are data.	3 marks [2+1] Or any other suitable examples																																																							

(3) (b)	Information is the processed and organized data. For example, in library information system, total no. of books borrowed in a day is information.	3 marks [2+1] Or any other suitable examples
(3) (c)	• Inaccuracy / may lead to human error. • Inefficiency. [in record keeping / report generation / retrieval]	2 marks [1+1]
(3) (d)	• Students may check the availability of books using web based library information system easily. • Library staff may generate reports such as books, students and borrowed details using web based library information system in an effective and efficient manner. • Library staff may store details about books, students and borrowing using web based library information system efficiently.	2 marks [1+1] Or any other suitable answers Explanation important

Part – I 1 x 40 = 40 marks

Part – II A 10 x 4 = 40 marks

Part – II B 10 x 2 = 20 marks

agaram.lk
