A/L ICT Marking Scheme

2017 – November Term Examination

2019 (Gr.12) Batch

Field Work Center (FWC)

Thondaimanaru

ICT

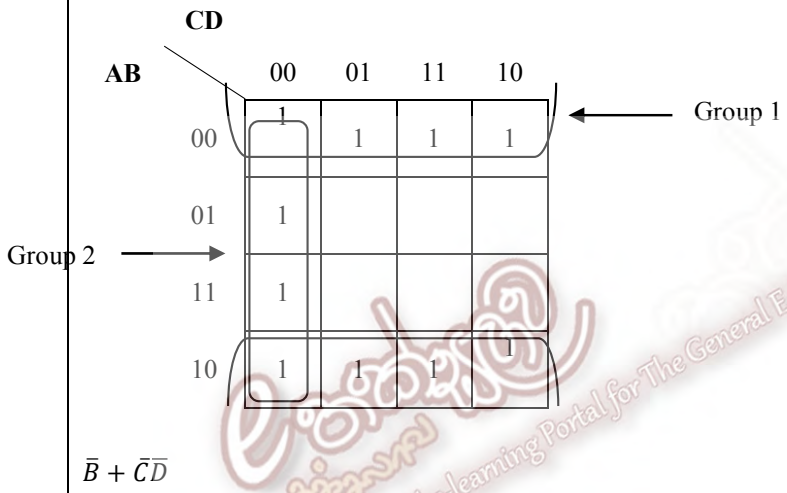
Part – I

(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)	**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)
(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)	$AB(C+\bar{C})+AB\bar{C}(D+\bar{D})+AB\bar{C}D$ } 1 $ABC+AB\bar{C}+AB\bar{C}D+AB\bar{C}\bar{D}+AB\bar{C}D$ $ABC(D+\bar{D})+AB\bar{C}(D+\bar{D})+AB\bar{C}D+AB\bar{C}\bar{D}+AB\bar{C}D$ } 1 $ABCD+ABC\bar{D}+AB\bar{C}D+AB\bar{C}\bar{D}+AB\bar{C}D+AB\bar{C}\bar{D}+AB\bar{C}D$ $ABCD+ABC\bar{D}+AB\bar{C}D+AB\bar{C}\bar{D}$ ← 1	**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

<table>
<tr><th>Question No.</th><th>Suggested Answers</th><th>Marks</th></tr>
<tr><td>(1) (a)</td><td>
<table>
<tr><th>A</th><th>B</th><th>C</th><th>X</th></tr>
<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>
</table>
A – Movement sensor (Input)
B – Smoke detector sensor (Input)
C – Manual switch (Input)
X – Alarming / Not alarming (Output)
</td><td>3 marks

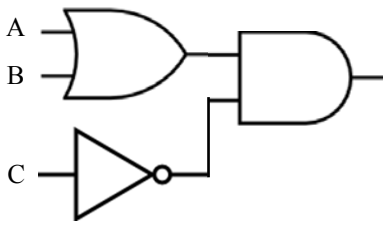
Proper rows – 1 marks
Output X – 1 marks
Complete – 1 marks
Inputs/output should be defined.</td></tr>
<tr><td>(1) (b)</td><td>$\bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$</td><td>2 marks</td></tr>
<tr><td>(1) (c)</td><td>$\bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$

$\bar{A}B\bar{C} + A\bar{C}\,(B + \bar{B})$ {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}

$\bar{C}(\bar{A}B + A)$

$\bar{C}(A + B)$ { $\bar{A}B + A = A + B$ }</td><td>3 marks</td></tr>
<tr><td>(1) (d)</td><td> 
</td><td>2 marks</td></tr>
</table>

(2) (a) — **3 marks**

$$\overline{(\bar{a}+b+c)bc}$$

$$\overline{\overline{(\bar{a}+b+c)}}+\overline{(bc)}$$

$$\bar{\bar{a}}.\bar{b}.\bar{c}+\bar{b}+\bar{c}$$

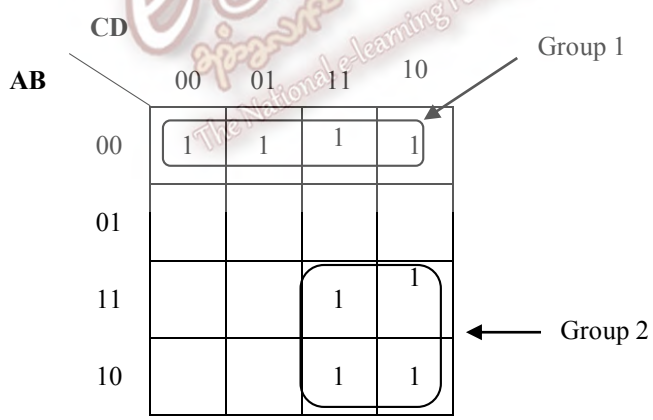
$$\bar{b}(a\bar{c}+1)+\bar{c}$$

$\bar{b}+\bar{c}$ OR $\overline{bc}$

(2) (b) — **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) — **1 marks**



(2) (c)(ii) — **2 marks**

$AC+\bar{A}\bar{B}$

(3) (a) — **3 marks [2+1]**

Data are the basic rawfacts.

For example, in library information system, book details such as book title, book number, etc. are data.

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*

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