UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
(TAKE HOME)
SEMESTER II
SESSION 2019/2020

COURSE NAME   : INDUSTRIAL AUTOMATION

COURSE CODE   : BPC 41203

PROGRAMME CODE   : BPB

EXAMINATION DATE   : JULY 2020

DURATION   : 24 HOURS

INSTRUCTION   : ANSWER **ALL** QUESTIONS
                       OPEN BOOK EXAMINATION

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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BPC 41203

Q1 The application of binary numbers is fundamental to the construction of logic circuits in every automated machine system. Developers of the program system will try their best to simplify the logic circuit for reducing production cost. Given Boolean algebra expression of a logic circuit equation is:

$$\overline{(\overline{A} + C)(B + \overline{D})} \qquad \text{..................................... (1)}$$

(a) Sketch a logic circuit based on **Equation (1)** by showing the input signal "ABCD" and output signal is "Q".

(5 marks)

(b) Determine the output signal in **Table Q1** based on the logic circuit constructed in **Q1(a)**

Table Q1: Title

INPUT				OUTPUT
A	B	C	D	Q
0	0	0	0	
1	0	1	0	
1	0	1	1	
1	1	0	0	
1	1	1	1	

(5 marks)

(c) Analyse the equation into a simple equation of a Boolean Algebra using De Morgan's method based on the **Equation (1).**

(10 marks)

Q2 Malaysia's inspiration to be a developed country in 2020 has not been achieved. The changing political landscape has influenced Malaysia's vision of a developed country. Discuss by targeting Malaysia towards developing a vision of Malaysia's competitive future to become the world's most advanced country focused on science and technology. These factors will affect the overall household income for the betterment of the Malaysian population.

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(a)   Outline developed country meaning according to your perception?

(5 marks)

(b)   Discuss the challenges in building a developed country?

(10 marks)

(c)   Outline the method to overcome the challenges in **Q2(b)**?

(10 marks)

(d)   Discuss Malaysians expectation of the advantages from the develop country?

(5 marks)

- END OF QUESTIONS –

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