UNIVERSITI TEKNOLOGI MARA

INDIVIDUAL ASSIGNMENT

COURSE : COMPUTER ORGANIZATION

COURSE CODE : CSC159

DATE : APRIL 2022

TIME : 10 DAYS

INSTRUCTIONS TO CANDIDATES

1. Answer **ALL** questions.

PART		Marks	Marks Obtained
Question 1	(a)(b)	5	
Question 2	(a)(b)(c)(d)	5	
Question 3	(a)(b)(c)(d)(e)	5	
Question 4	(a)(b)(c)(d)(e)	5	
Question 5	(a)(b)	5	
Question 6	(a)(b)	5	
Question 7	(a)(b)	5	
Question 8	(a)(b)	5	
TOTAL		40	

NAME:	
MATRIC NO:	
LECTURER:	
ASSIGNMENT GIVEN	**WEEK 4**
ASSIGNMENT SUBMITTED DATE	
ASSIGNMENT MARKED & RETURNED DATE	

Question 1

Given the following Boolean expression:

$$Y = \bar{A}\bar{B} + \overline{BC}A$$

a) Draw the logic circuit.

(2 marks)

b) Derive the truth table.

(3 marks)

Question 2

Study the following logic circuits:

a) Write the Boolean expression for the logic circuit in Figure 1.

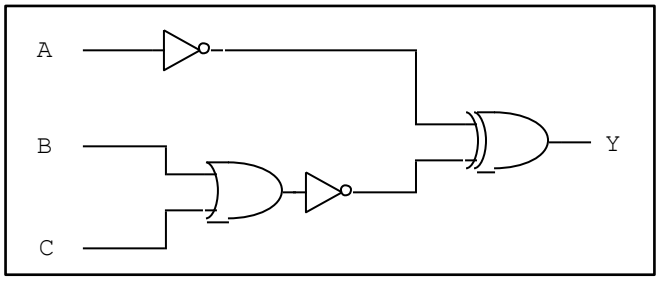

Figure 1

(1 mark)

b) Write the Boolean expression for the logic circuit in Figure 2.

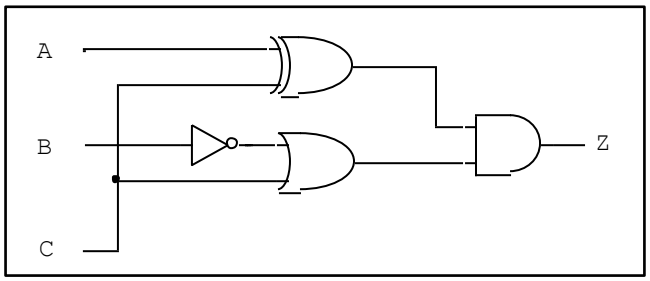

Figure 2

(1 mark)

c) Find the output Y for question 2(a). Given the input A=0, B=1, and C=0. Show your work by providing the truth table.

(1.5 marks)

d) Find the output Z for question 2(b). Given the input A=1, B=0, and C=0. Show your work by providing the truth table.

(1.5 marks)

Question 3

Change the number bases of the following numbers. **Show your work steps.**

a) 57732 decimal to binary

b) C35DE hexadecimal to binary

c) 45263 octal to hexadecimal

d) 21125 decimal to octal

e) 101011000011 binary to decimal

(5 marks)

Question 4

Perform the following addition and subtraction by using different base. **Show your work steps.**

a) $43275_8 - 2776_8 =$

b) $42776_8 + 341117_8 =$

c) $3EB22_{16} – FA3A_{16} =$

d) $1101101101_2 - 11011010_2 =$

e) $28EFA1_{16} + 8D0CB9_{16} =$

(5 marks)

Question 5

Change the number bases of the following numbers. **Show your work.**

a) 1101.110011_2 to decimal

b) 1784.625_{10} to binary

(5 marks)

Question 6

Calculate the following arithmetic operations using 2's complement method. **Show your steps and give answers in binary numbers.**

a) $-79_{10} – 35_{10}$ (in bytes)

b) $2345_{10} - 45_{10}$ (in word)

(5 marks)

Question 7

Convert the decimal number below into IEEE single precision floating point representation. **Show your work step by step.**

a) 346.375

b) -55/1024

(5 Marks)

Question 8

Convert the IEEE single precision floating point below into decimal. **Show your work step by step.**

a) 42DE7200

b) BEF50000

(5 Marks)

END OF QUESTION PAPER