Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2014/2015

COURSE NAME	:	COMPUTER SYSTEM ENGINEERING
COURSE CODE	:	BEC 41603
PROGRAMME	:	BEJ
EXAMINATION DATE	:	DECEMBER 2014 / JANUARY 2015
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

Q1 (a) Identify two (2) techniques to improve Central Processing Unit (CPU) performance.

(2 marks)

(b) Explain the answer for Q1(a)

(2 marks)

(c) Create an assemble code for division using the following methods:
(i) Different addressing mode as listed below
   (a) direct addressing mode
   (b) register addressing mode

(8 marks)

(ii) Different type of bit length
   (a) word/word
   (b) word/byte

(6 marks)

(d) Rewrite the following code with one line of code.

```
DEC CX
JNZ BACK
```

(2 marks)

Q2 (a) Explain two (2) functions of INT 10H in BIOS.

(5 marks)

(b) Analyze Figure **Q2 (b)** by showing every reason for each coding and data that are being used and give a purpose of this program

```
.MODEL SMALL
      PUBLIC B2ASC_CON
      .CODE
B2ASC_CON PROC FAR
            PUSHF
            PUSH BX
            MOV BX,10
            ADD SI,4
B2A_LOOP:  SUB DX,DX
            DIV BX
            OR DL,30H
            MOV[SI],DL
            DEC SI
           CMP AX,0
           JA B2A_LOOP
           POP DX
           POP BX
           POPF
           RET
B2ASC_CON ENDP
            END
```

Figure Q2 (b)

(12 marks)

(c) The answer for Q2 (b) is saved in a memory that is pointed by SI. Why the addition of 4 is needed with SI in the program Q2(b).

(3 marks)

Q3 (a) Every microprocessor based system must have 3 sets of separate buses: (1) address bus, (2) data bus and (3) control bus. Explain the function of each bus.

(3 marks)

(b) A computer system with an Intel microprocessor requires 16Kx8 ROM. Based on Figure **Q3**, investigate a suitable design by evaluate the address range for Y5.

(6 marks)

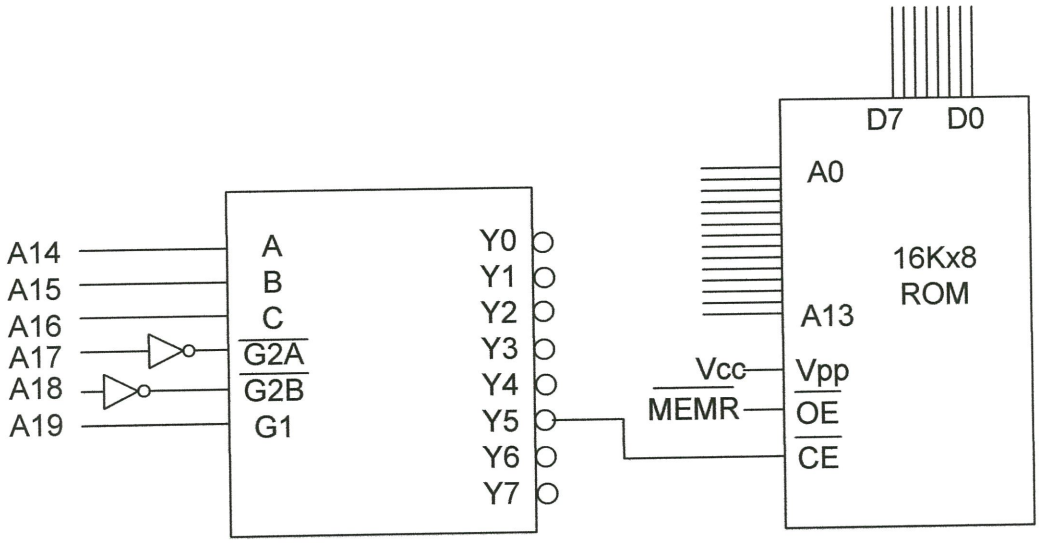

FIGURE Q3

(c) To avoid the use of too many wait states in interfacing memory to CPU, cache memory and other high speed DRAM were invented. According to this statement, predict the important of cache in eliminating the wait state.

(11 marks)

Q4 (a) Monitoring the busy flag could speed up the process of transferring data to LCD

(i) Propose a technique to monitor a busy flag for LCD.

(3 marks)

(ii) Write a line of coding using assemble language to implement the proposed technique.

(2 marks)

(b) Distinguish between MDA, CGA, VGA and EGA by giving the advantages and disadvantages for each of them.

(10 marks)

(c) Predict the performance of transmission data using serial and parallel communication if the distance is short.

(5 marks)

Q5 (a) Define the meaning of primary storage and secondary storage by giving appropriate examples.

(8 marks)

(b) List out the step of cold boot. In your opinion, which step can be cancel out. Give reason to support your answer.

(10 marks)

(c) Is the TSR can be excluded in the IBM PC?

(2 marks)

-END OF QUESTIONS-