Reg.No.									

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

III SEMESTER B.S. DEGREE EXAMINATION – NOV. / DEC. 2016

SUBJECT: COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (CS 232)

(BRANCH: CS &CE)

Monday, 28 Nov. 2016

Time: 3 Hours **Max. Marks: 100**

- ✓ **Answer ANY FIVE full Questions**
- ✓ **Missing data, if any, may be suitably assumed.**

1A. Draw the internal architecture of 8086 microprocessor and explain the functions of all the components in the Execution Unit (EU).
1B. What do you mean by segmented memory? Explain how the physical address is generated in 8086 with a suitable example. (10+10)

2A. Describe (including the effect on flags) the following 8086 instructions with syntax and one numerical example for each.

i) AAD
ii) RCL

2B. Write a program in 8086 to sort an array consisting of positive and negative integer bytes.
2C. Write the 8086 instruction (single instruction) which will perform the indicated operation

i) Copy DL to a memory location whose offset is in BX.
ii) Divide AX by BL
iii) Copy the sign of a byte in AL to all the bits in AH.
iv) Invert the lower 4 bits of BL, but do not affect the other bits
v) Shift the bits of AL left by one bit position and copy the most significant bit into least significant bit position. ((5+5)+5+(1X5))

3A. Distinguish between procedures and macros. Explain any one method of passing parameters to a procedure with an example.
3B. Write a procedure in 8086 to check a number is odd or even. Use this procedure to display all odd numbers in an array of single digit numbers accepted from the keyboard. (10+10)

4A. Explain any five addressing modes of M68HC11 microcontroller with an example for each.
4B. Explain the following BUFFALO ROM commands

i)ASM ii)T iii)BF iv)MM v)RM (10+(2X5))

5A. Explain the sources of reset in M68HC11.
5B. Explain status polling and interrupt control simple strobed mode parallel I/O in M68HC11. (10+10)

6A. Discuss the operation performed by the following M68HC11 instructions with an example for each. Specify the addressing modes used by the instructions.

i) BRSET ii) BCLR iii) BITA

6B. Write an 8086 program to compare two strings. Use string instructions and prefix. Assume that the strings are in memory. Display a message whether the strings are equal or not.
6C. What are the actions taken by the 8086 in response to an interrupt request? Write a note on interrupt vector table ((2X3)+6+8)

7A. Write an 8086 program to accept a word from the keyboard with more than one character consisting of only alphabets. Reverse the case of each character and display on the screen.
7B. Explain the BIOS function request to read the cursor position.
7C. Write a program in M68HC11 to find the largest number from an array of twenty 8-bit numbers. The array is stored in the locations $00-$13. Save the result at the location $20. (6+6+8)

8A. Explain the different modes of operation of M68HC11. What are the conditions to be set in HPRIO register and MODA & MODB pins of M68HC11 to operate in these different modes?
8B. Explain the DOS interrupt request functions 01 and 02.
8C. Write an 8086 program to accept two single digit decimal numbers from the keyboard, multiply them and display the result on the screen. (10+5+5)