INTERNATIONAL CENTRE FOR APPLIED SCIENCES
(Manipal University)
III SEMESTER B.S. DEGREE EXAMINATION – APRIL/MAY 2017
SUBJECT: COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (CS 232)
(BRANCH: CS & CE)
Thursday, 11 May 2017

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 of execution unit.

1B.   Write a program in 8086 to check whether the string is palindrome or not. Assume that the string is in memory and display appropriate message on the screen.

1C.   Write an assembly language program in 8086 to convert two digit packed BCD to binary using procedure. Pass the parameter to the procedure using stack

(10+6+4)

2A.   What do you mean by procedure in 8086? Write the syntax of near & far procedure definition and differentiate between them along with CALL and RET instruction execution stack diagrams.

2B.   Explain different addressing modes of 8086 with an example for each.

(10+10)

3A.   Explain any 5 string instructions handled in 8086 with an example for each.

3B. i)   What are the roles of assembler directives in 8086?
    ii) Explain the following assembler directives with example.
            i.   DW
            ii.   ASSUME
            iii.   EXTRN

(10+10)

4A.   Explain the following BUFFALO ROM commands
        i. MD   ii. MOVE   iii. BF   iv. MM   v. RM

4B.   Write a program in M68HC11 to convert the 16-bit number stored at $00-$01 to unpacked BCD format and store the result at $02-$06.

(10+10)

5A.   Explain the following instructions of M68HC11 microcontroller
            i.   FDIV   ii. BRCLR   iii. BSET   iv. TSTB   v. ADDD

5B.   What are the three functional units of M68HC11 CPU? Briefly explain each of them with the help of a block diagram.

(10+10)

6A.   Write a program using M68HC11 instruction set to sort an array of bytes

6B.   Explain AND, OR, XOR, SHL and NOT bit manipulation instructions in 8086 with an example
        for each.

                                                                                          (10+10)

7A.   Explain the working of the following instructions of 8086 microprocessor with an example.
            i.   AAM
            ii.   RCL
            iii.   MUL
            iv.   AAS
            v.   DAA

7B.   Write a note on the following
            i.   The PIOC and Full Handshake mode of parallel I/O in M68HC11
            ii.   Status Polling, Simple Strobe Mode of parallel I/O in M68HC11

                                                                                          (10+10)

8A.   Explain different modes of operation of M68HC11. What are the conditions to be set in HPRIO
        register and MODA and MODB pins of M68HC11 to operate in these different modes?

8B.   Explain DOS function request 02h, 08h used in 8086.

                                                                                          (10+10)

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