Reg. No. ☐☐☐☐☐☐☐☐☐

**BCACAC 209**

**Credit Based Third Semester B.C.A. Degree Examination, Oct./Nov. 2014**
**(2013-14 Batch Onwards) (New Syllabus)**
**MICROPROCESSORS**

Time : 3 Hours                                                                 Max. Marks : 80

*Note :* Answer **any ten** questions from Part – **A** and **one full**
question from **each** Unit of Part – **B**.

### PART– A                                                                 (10×2=20)

1. a) List any two features of Intel 4004.
   b) Expand RISC and TPA.
   c) Represent decimal 75 in unpacked and packed BCD format.
   d) List the various segment registers of microprocessor 8086.
   e) Explain the LDS instruction.
   f) If CS = 1000 H and IP = 1002 H; find the physical address of the next instruction to be executed.
   g) Explain AAA instruction.
   h) What is IP register ? What is its use ?
   i) Explain LAHF and SAHF.
   j) Differentiate AND and TEST instructions.
   k) What is the purpose of STI and CLI instructions ?
   l) List any two applications of microcontrollers.

### PART – B

#### Unit – I

2. a) With a suitable diagrams, explain the bus architecture of microprocessor based computer system.
   b) List the salient features of 8086 microprocessor.
   c) Explain following Assembler Directive.                                   (6+5+4)
      i) EQU                                ii) ASSUME

P.T.O.

3. a) Write a note on ASCII and word sized data format.

   b) Explain the microprocessor based computer system with a neat diagram.

   c) Explain various multipurpose registers of 8086.      (4+6+5)

## Unit – II

4. a) Discuss, register and register indirect and base plus index addressing modes with example.

   b) Discuss program memory addressing modes.

   c) What is the purpose of segment override prefix ? Give example.      (6+5+4)

5. a) Assume DS = 3000 H, BX = 0200 H, SI = 0100 H, SS = 5000 H, BP = 1000 H. Determine the physical address accessed by the following instructions.

   i) MOV AL, [BP + 25 H]

   ii) MOV CL, [BX + SI – 10 H]

   iii) MOV DL, [SI + 20 H]

   iv) MOV [BX], BL

   b) Write an ALP to find sum and average of two numbers.

   c) Explain the following instruction.      (6+5+4)

   i) PUSHA

   ii) POPF

   iii) POP AX

## Unit – III

6. a) Differentiate the following instructions.

   i) NOT and NEG

   ii) SUB and CMP

   b) Explain the various rotation instructions with examples.

   c) Explain DAA and DAS instruction with example.      (4+6+5)

7.  a) Explain any three string instructions with examples.

    b) Write an ALP to find maximum and minimum number in an array.

    c) Explain REP prefix with an example.                                   (6+5+4)

## Unit – IV

8.  a) What is a procedure ? Discuss near and far call instructions with examples..

    b) Explain the interrupts INT 3H, INTO.

    c) Write an ALP to find GCD of two numbers.                              (6+5+4)

9.  a) Explain the following instructions :

        i) HLT

        ii) BUSY

        iii) WAIT

        iv) ENTER

    b) What is a microcontroller ? Draw the block diagram of a microcontroller.

    c) What is the use of IRET instruction ? Explain.                       (8+3+4)

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