Reg. No. | | | | | | | | | |

BCACAC 209

III Semester B.C.A. Degree Examination, October/November 2019

(Credit Based Semester Scheme)

(Common to all Batches)

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

1. Answer **any ten** questions : **(10 × 2 = 20)**

(a) List any two features of 4004 microprocessor.

(b) List the various buses available in 8086 based computer system.

(c) Represent $(567)_{10}$ in packed and unpacked BCD format.

(d) Expand TPA and ISA.

(e) If CS=1200h, IP=1019H, calculate the physical address of the next instruction to be executed by the processor.

(f) What is the purpose of LEA instruction? Give example.

(g) Differentiate LAHF and SAHF instructions.

(h) What is the purpose of DAA instruction? Give example.

(i) What is the difference between ROL and RCL instructions?

(j) What is the difference between short an near jump instructions?

(k) What are the applications of microcontroller?

(l) List the instructions used to control carry flag.

PART-B

UNIT-I

2. (a) Explain the evolution of microprocessor from 4 bit to 8 bit. **(5+5+5)**

   (b) Write a note on (i) ASCII data (ii) Byte sized data

   (c) With a neat diagram explain the various flag register of 8086

3. (a) List and explain the various multipurpose registers of 8086.r

   (b) Represnet-$100_{(10)}$ and $12.24_{(10)}$ in single precision format.

   (c) Explain the following assembler directives (i)DB (ii) DW (iii) DUP (iv) PROC (v) ASSUME (vi) ENDS. **(5+4+6)**

UNIT-II

4. (a) Briefly explain stack memory addressing modes

   (b) Suppose DS=2500H, SS=4500H, SI=0200H, BX=0250H, DI=0570H, BP=700H, determine the address accessed by each of the following instructions

   (i) MOV AL, [BX+DI]

   (ii) MOV [BP+6], BX

   (iii) MOV BL, [BX+SI-50H]

   (c) Explain the different program memory addressing modes. **(5+5+5)**

5. (a) Explain the following data addressing modes with examples to each (i) Register (ii) Immediate (iii) Register Indirect.

   (b) Write an ALP to find the reverse of an 8-bit number (using rotate)

   (c) Explain the following instructions (i) STOSB (ii) MOVSB **(6+5+4)**

UNIT-III

6. (a) Explain DIV and IDIV instructions with suitable examples.

   (b) Explain any two ASCII arithmetic instructions.

   (c) Explain any five JUMP instructions. **(5+5+5)**

7. (a) Explain LOOP, LOOPE and LOOPNE instructions with examples.

   (b) Compare (i) ADD and ADC (ii) SUB and CMP

   (c) Write an ALP to count the number of logical 1's & 0's in a given byte. **(5+5+5)**

UNIT-IV

8. (a) Write a note on Procedures.

   (b) List the different steps of handling software interrupts in 8086.

   (c) List the various microcontrollers with their features. **(5+5+5)**

9. (a) Write a note on (i) WAIT (ii) ESC (iii) HLT

   (b) Explain (i) INTO (ii) INT 3

   (c) What is a microcontroller? Write its block diagram. **(5+5+5)**