

Credit Based Third Semester B.C.A. Degree Examination, Nov./Dec. 2018
(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 in Part B.

PART – A

(10×2=20)

1. a) What is the purpose of SP and IP ?
- b) Define bus. What is the width of data bus and address bus in 8086 microprocessor ?
- c) In real mode show that starting and ending address of segment with segment register value is 2300 H.
- d) If CS = 2300 H, IP = 1A00H, calculate the physical address of the next instruction to be executed by the processor.
- e) Write syntax and example for XLAT instruction.
- f) Differentiate LAHF and SAHF instructions.
- g) Differentiate AND and TEST instructions.
- h) Write the sequence of instruction that add AX, BX, CX and DX registers. Save the result in the AX register.
- i) Develop a short sequence of instructions that sets (1) the rightmost five bits of AX without changing the remaining bits. Save the results in CX.
- j) What is microcontroller ? Give example.
- k) List the instructions used to control carry flag.
- l) What is Interrupt vector ? Draw its diagram.



PART – B

Unit – I

2. a) What are the salient features of 8086 processor ?
b) Describe the functioning of all multipurpose registers of 8086.
c) Explain flag register of 8086 with neat diagram. Perform following operation and also write the status of conditional flags. Add 1234H to 4567H. **(5+4+6)**
3. a) Explain Real Mode Memory Addressing.
b) Explain the evolution of microprocessor from 4 bit to 8 bit.
c) Explain how the real numbers are stored in single precision number format. **(6+5+4)**

Unit – II

4. a) Explain the different program memory addressing modes.
b) Explain the following data addressing mode with examples :
 - i) Register indirect.
 - ii) Base plus indexed
 - iii) Register relative.
c) Explain any three string instructions with example. **(4+6+5)**
5. a) Assume DS=5000H, SS=7000H, BX=F000H, SI=4000H, BP=7000H. Calculate address accessed by each of the following instructions.
 - i) MOV AX, [BX+SI]
 - ii) MOV CX, [BP-20H]
 - iii) MOV AX, [BX]
 - iv) MOV AX, [BP+SI+100H]
b) Explain various forms of IN and OUT instructions with example.
c) Explain LEA, LDS and LES instructions with example. **(5+4+6)**



Unit – III

6. a) Explain MUL and DIV instructions with examples.
b) Explain DAA and DAS instructions with examples.
c) Which is/are the flags checked for the following jump instructions ? Also specify the operation performed by them.
- i) JA ii) JE iii) JO
iv) JCXZ v) JBE
- (4+6+5)**
7. a) Explain different Rotate instructions with examples to each.
b) Compare (i) ADD and ADC (ii) SUB and CMP.
c) Explain REP, REPE and REPNE prefix with examples.
- (6+4+5)**

Unit – IV

8. a) Explain NEAR and FAR calls with suitable diagrams.
b) Explain LOOP, LOOPE and LOOPNE with examples.
c) Explain SHORT, NEAR and FAR Jump with suitable diagrams.
- (4+6+5)**
9. a) Write a note on :
- i) WAIT
ii) ENTER
iii) BOUND
- b) Explain :
- i) INT 3
ii) INTO.
- c) How to call the procedure with register as operand and a call with indirect memory addressing ? Explain with example.
- (5+4+6)**
-