

Reg. No.

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BCACAC 209

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

Time : 3 Hours

Max. Marks : 80

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

PART – A *Shri Dharmasthala Manjunatheshwara* (10×2=20)
College of Business Management, Bangalore

1. a) List any two features of 4004 microprocessor.
- b) What is the width of data bus and address bus in 8086 microprocessor ?
- c) What is the effect of direction flag on DI and SI registers ?
- d) If CS=3000h, IP=1005H, calculate the physical address of the next instruction to be executed by the processor.
- e) What is the purpose of segment override prefix ? Give example.
- f) Which registers move on to stack with PUSHA instruction ?
- g) Give example for variable port and fixed port OUT instruction.
- h) Differentiate NOT and NEG instructions.
- i) Differentiate intersegment and intrasegment jumps.
- j) Explain LAHF and SAHF.
- k) What happens when RET instruction is executed ?
- l) List any four components of a microcontroller.

PART – B

UNIT – I

2. a) With a suitable diagram explain bus structure of a microprocessor based computer system.
- b) Represent :
 - i) 517 in packed and unpacked BCD form.
 - ii) $(25.25)_{10}$ in single precision floating format.
- c) Write the diagram of FLAG register of 8086 and explain any four status flags.

(5+5+5)

P.T.O.



- a) Explain the microprocessor based computer system with a neat diagram.
- b) Explain the following assembler directives :
 - i) DB
 - ii) DUP
 - iii) ENDS
 - iv) PROC
 - v) ASSUME
 - vi) DW

(9+6)

UNIT – II

- 4. a) Explain the following data addressing modes with examples to each
 - (i) Register (ii) Immediate (iii) Register Indirect.
- b) Suppose DS = 4500H, SS = 9500H, SI = 0400H, BX = 0350H, DI = 0575H, BP = 700H, determine the effective and absolute address accessed by each of the following instructions :
 - i) MOV DX, [BX + SI]
 - ii) MOV [BP], AX
 - iii) MOV CL, [BX + DI – 250H]

(6+9)

- 5. a) Explain the different program memory addressing modes.
- b) Explain the following instructions
 - (i) INS (ii) OUTS.
- c) Explain the operation of PUSH and POP instructions.

(6+4+5)

UNIT – III

- 6. a) Compare (i) ADD and ADC (ii) SUB and CMP.
- b) Explain MUL and DIV instructions with examples.
- c) Which is/are the flags checked for the following jump instructions ? Also specify the operations performed by them
 - i) JA
 - ii) JE
 - iii) JO
 - iv) JNZ
 - v) JCXZ

(4+6+5)



7. a) Explain different Rotate instructions with examples.
- b) Write an assembly level program to add two BCD numbers.
- c) Explain short jump and Near jumps with examples.

(6+4+5)

UNIT – IV

8. a) Explain NEAR and FAR calls with suitable examples.
 - b) List the different steps of handling software interrupts in 8086.
 - c) Write an assembly level program to find GCD of two numbers.
9. a) Discuss the role of the interrupt vector in handling the interrupt and explain INT3H and INTO.
 - b) Write a note on (i) WAIT (ii) HLT
 - c) List the various microcontrollers with their features.

(6+4+5)

(6+4+5)