Microprocessors

2009 December

Technology BCA

Semester 3

University Exam

Mangalore University

10

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

BCACAC 201

Credit Based Third Semester B.C.A. Degree Examination,
November/December 2009
(New Syllabus)
MICROPROCESSORS

Time : 3 Hours

Max. Marks : 80

Instructions : *Answer any 10 questions from Part – A and one full question from each Unit of Part – B.*

PART – A

(10×2=20)

1. a) Define nibble, byte, word and doubleword.

b) List the any two features of Intel 4004.

c) What is the purpose of IP and SP registers ?

d) Differentiate intersegment and intra segment jump.

e) Identify the data addressing mode in the following instructions.

i) MOV Ax, [2345H]

ii) MOV CH,34H.

f) Explain the purpose of SCAS instruction.

g) Explain the purpose of LDS.

h) Why segment override prefixes are used ? Give example.

i) If AL = 86H, evaluate TEST AL, 12H.

j) Explain how LOOP instruction works.

k) How many bytes are used in far CALL instruction ? Explain.

l) What are interrupt vectors ? How many types are available ?

P.T.O.

PART – B

UNIT – I

2. a) What is a bus ? Describe the bus structure of a microprocessor based computer system with the help of a block diagram.

b) Explain how the real numbers are stored in single precision number format with suitable example.

c) Differentiate the following flag registers. Give example.

i) Carry and Auxiliary flags

ii) Parity and Sign flags

iii) Carry and Overflow flags. (5+4+6)

3. a) Explain the architecture of microprocessor based computer system briefly with a block diagram.

b) Write a note on ASCII data format.

c) Explain any four multi purpose registers.

d) Differentiate packed and unpacked BCD data format. Represent 729 in both type. (4+3+4+4)

UNIT - II

4. a) Explain Register, Direct and Base Plus Index data addressing mode.

b) Explain any two program memory addressing modes.

c) Give the purpose of PUSHA, PUSH AX, POPF and POPA (6+5+4)

5. a) Explain Register Indirect and immediate data addressing mode.

b) Determine the address accessed by the following instructions. Given DS = 1200H, BX = 0200H, LIST = 0340H, SI = 500H.

i) MOV LIST[SI + 20H], AX

ii) MOV AL, [BX + SI – 150H]

iii) MOV LIST[BX + SI], CX

iv) MOV SI, LIST[BX]

c) Explain stack memory addressing modes. (4+6+5)

UNIT – III

6. a) Explain the function of LODS and STOS with example.

b) Write assembly level program to add 9999H and 31h using BCD arithmetic. Discuss the output.

c) Explain the usage of various SHIFT instructions with example. (4+5+6)

7. a) Explain XLAT, XCHG and INS.

b) Explain the instructions MUL and DIV.

c) What will be stored in AL and CL after execution of following sequence of commands ?

```
MOV AL, 0EBH
OR AL, 10H
AND AL, 0A3H
MOV CL, AL
NOT CL
XOR CL, AL
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(6+4+5)

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UNIT – IV

8. a) Write a note on procedure.

b) Which is/are the flag conditions checked for the following jump instructions ? Also specify the operation performed by them.

i) JA ii) JNS iii) JO iv) JCXZ.

c) Explain interrupt instructions INT 3, INTO, INT. (5+4+6)

9. a) Write a note on CALL with indirect memory addresses and register operand.

b) Explain IRET. Compare it with RET.

c) Explain WAIT, HLT, BOUND, ENTER and LEAVE. (4+3+8)