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10CS45

Fourth Semester B.E. Degree Examination, June/July 2018
Microprocessors

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. Define microprocessor. Briefly discuss evolution of microprocessors. (06 Marks)
b. Draw and explain the block diagram of computer system showing address, data and control bus structure. (06 Marks)
c. Why 8086 memory is divided into segments? Explain the use of Segment, Pointer and Index registers. (08 Marks)
- 2 a. Explain protected mode addressing of 80286 through Core2 64-bit processors. (12 Marks)
b. Explain with an example, various program memory addressing modes (any 4 addressing modes). (08 Marks)
- 3 a. Explain the coding format of MOV instruction. Also generate opcode for the following instruction :
MOV WORD PTR [BX + 1000H], 1234H (10 Marks)
b. Explain the following instructions with an example for each :
(i) LES (ii) MOVS (iii) XLAT (iv) MUL (v) CBW (05 Marks)
c. Explain the following assembler directives with an example for each :
(i) DB (ii) ORG (iii) ASSUME (iv) PROC (v) USES (05 Marks)
- 4 a. Explain the following instructions with example for each :
(i) DAA (ii) AAS (iii) AAM (iv) WAIT (v) BOUND (10 Marks)
b. Write an 8086 assembly language program to separate odd and even numbers in an array. (06 Marks)
c. Write an 8086 assembly language program to read a key from the keyboard and store its hexadecimal value in memory location TEMP (Use IF....ELSE statements). (04 Marks)

PART – B

- 5 a. What is an inline assembly? Explain the basic rules of the same for 16-bit DOS applications. (08 Marks)
b. Differentiate between :
(i) Assembler and Linker
(ii) Public and EXTRN
(iii) Macros and Procedures (06 Marks)
c. Write an 8086 ALP to find largest of 3 numbers. (06 Marks)
- 6 a. Explain the functions of following pins of 8086 microprocessor :
(i) READY (ii) $\overline{\text{BHE}}$ (iii) ALE (iv) $\text{M}/\overline{\text{IO}}$ (v) NMI (vi) HOLD (06 Marks)
b. Draw and explain minimum mode memory read machine cycle of 8086. (06 Marks)
c. With an internal block diagram, explain 8288 bus controller. (08 Marks)

- 7 a. Briefly explain the following memory devices :
(i) ROM (ii) PROM (iii) EPROM (iv) EEPROM (v) SRAM (vi) DRAM (06 Marks)
- b. Design an interface between 8086 MPU and two chips of 16k×8 EPROM and two chips of 32k×8 RAM, Select the starting address of EPROM suitably. (08 Marks)
- c. Differentiate between I/O - mapped - I/O and memory-mapped - I/O. (06 Marks)
- 8 a. Explain different I/O modes of operation of 8255. (06 Marks)
- b. With an internal block diagram, explain 8254 Programmable Interval Timer. (06 Marks)
- c. Explain the structure of 8086 interrupt vector table with a neat diagram. (08 Marks)

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