

Fourth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Microprocessors

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. What is μp ? Explain how data, address and control bus interconnect various system components. (06 Marks)
- b. Explain the flags of 8086 processor using suitable examples. (08 Marks)
- c. What is pipelining? How is it achieved in 8086? (06 Marks)
- 2 a. What are the advantages of memory paging? Illustrate the concept of paging with a neat diagram. (10 Marks)
- b. Discuss the following addressing modes with examples:
(i) Direct (ii) Register (iii) Base plus Index (iv) Immediate (v) Scaled Indexed. (10 Marks)
- 3 a. Write Bubble sort program using 8086 assembly instruction. (08 Marks)
- b. Describe the following instructions with suitable examples:
(i) PUSH (ii) MUL (iii) IN (iv) AAA. (08 Marks)
- c. Bring out the importance of XLAT instruction using a suitable program. (04 Marks)
- 4 a. Explain the following assembler directives with examples:
(i) DB (ii) EXTRN (iii) PROC (iv) SEGMENT (08 Marks)
- b. Differentiate between procedures and macros. (04 Marks)
- c. Write an ALP using 8086 instruction to count the number of zeroes in a given 8 bit number and store the result in memory location 'Res'. (08 Marks)

PART – B

- 5 a. Explain the basic rules for using assembly language programming for 16 bit DOS applications with the help of examples of assembly level program. (08 Marks)
- b. What is inline assembly? Explain its need. (06 Marks)
- c. Write a program to convert ASCII to Binary. (06 Marks)
- 6 a. With a neat timing diagram explain memory read cycle. (08 Marks)
- b. Explain how address demultiplexing is done in 8086 processor based systems. (07 Marks)
- c. Explain the functions of the following pins of 8086 μp .
(i) Reset (ii) Ready (iii) ALE (iv) BHE (v) INTR (05 Marks)
- 7 a. Explain the concept of 3-to-8 line decoder with the help of a neat diagram in detail. (08 Marks)
- b. What is flash memory? Explain how a flash memory is interfaced to 8086 μp . (06 Marks)
- c. Differentiate between memory mapped I/O and I/O mapped I/O. (06 Marks)
- 8 a. With internal block diagram, explain 8254 PIT. Give two applications of 8254. (08 Marks)
- b. Briefly explain the control word format of 8255 in I/O mode and BSR. Give the control word format to program port A and port C lower as input and port B and port C upper as outputs ports in mode O. (12 Marks)

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