

Total No. of Questions—12]

[Total No. of Printed Pages—4+2

<b>Seat No.</b>	
---------------------	--

**[4657]-76**

**S.E. (Computer) (Second Semester) EXAMINATION, 2014**

**MICROPROCESSORS AND INTERFACING TECHNIQUES**

**(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 100**

**N.B. :—** (i) Answers to the two Sections should be written in separate answer-books.

(ii) Answer any *three* questions from each Section.

(iii) Neat diagrams must be drawn wherever necessary.

(iv) Figures to the right indicate full marks.

(v) Use of calculator is allowed.

(vi) Assume suitable data, if necessary.

**SECTION I**

1. (a) Draw and explain functional block diagram of 8086 micro-processor. [8]

P.T.O.

- (b) Explain the following 8086 signals : [4]
- (i) NMI
  - (ii) MN/MX
  - (iii) BHE/S7
  - (iv) CLK.
- (c) Explain memory segmentation in 8086 microprocessor with a neat diagram. [4]

*Or*

2. (a) Draw and explain the READ cycle timing diagram of 8086 in Maximum mode. [6]
- (b) Explain how 20-bit physical address is obtained in 8086 microprocessor. [4]
- (c) Explain flag register of 8086. [6]
3. (a) Explain the following addressing modes : [8]
- (i) Direct Addressing Mode
  - (ii) Immediate Addressing Mode
  - (iii) Register Indirect Addressing
  - (iv) Base Register Addressing.

- (b) Explain with example the following instructions for 8086 : [8]
- (i) PUSH
  - (ii) MOVSB/MOVSX
  - (iii) DAA
  - (iv) STOS/LODS.

*Or*

4. (a) Explain with example 8086 instruction : [6]
- (i) LOOPZ
  - (ii) LODSB.
- (b) Differentiate between the following : [6]
- (i) MACRO and PROCEDURE with examples
  - (ii) NEAR and FAR Procedure.
- (c) Explain the use of PUSH and POP instruction in 8086 microprocessor. [4]
5. (a) What is interrupt vector table of 8086 ? Draw and explain its structure. [8]
- (b) What is a TSR ? How is it made resident in the memory ? Can we remove it ? If yes, how ? [6]
- (c) What is the difference between DOS and BIOS calls ? [4]

*Or*

- 6.** (a) What are the different components of MS-DOS ? With the help of neat diagrams, explain how MS-DOS gets loaded. [10]
- (b) What is PSP ? Explain in detail. [8]

## **SECTION II**

- 7.** (a) With the help of block diagram explain various modes of operations of 8255. [8]
- (b) What is A/D converter ? Which are different methods for A/D conversion ? Explain successive approximation ADC with block diagram. [8]

*Or*

- 8.** (a) Draw and explain the functional internal block diagram of 8251. What is the use of the IC ? [8]
- (b) Draw and explain the BSR and I/O mode word format of 8255 PPI. [8]
- 9.** (a) Draw and explain the complete interface diagram between 8086 and 8279 keyboard/display controller with 4×4 keyboard matrix. Also write the instructions in 8086 assembly to initialize 8279. [8]

(b) Discuss the following modes of DMA transfer : [8]

(i) Single transfer mode

(ii) Block transfer mode

(iii) Demand transfer mode

(iv) Cascade mode.

*Or*

10. (a) Explain the various modes of operation for DMA in detail. [8]

(b) Draw and explain a detail block diagram of 8279. [8]

11. (a) Draw the 8086 Maximum mode system configuration. Give the necessity of each chip used in the system. [10]

(b) Explain the working of LVDT with the help of neat diagram. [8]

*Or*

12. (a) Draw the 8086 minimum mode system configuration. Give the necessity of each chip used in the system. [10]

(b) Explain the following instructions of NDP : [8]

(i) FMUL

(ii) FSTP

(iii) FILD

(iv) FISUB.