Total No. of Questions—**12**] [Total No. of Printed Pages—**4+2**

Seat No.	

[4757]-187

S.E. (Computer) (Second Semester) EXAMINATION, 2015

MICROPROCESSORS AND INTERFACING TECHNIQUES

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 100**

N.B. **:—** (*i*) Answer *three* questions from Section I and *three* questions from Section II.

(*ii*) Answers to the two sections should be written in separate answer-books.

(*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*) Explain with neat diagram memory segmentation in 8086 microprocessor. [8]

(*b*) Explain the following 8086 signals : [4]

(*i*) INTR

(*ii*) DT/R

P.T.O.

(*iii*) TEST

(*iv*) ALE.

(*c*) Draw and explain the flag resister of 8086 microprocessor. [4]

Or

2. (*a*) Draw and explain the Read cycle timing diagram of 8086 in maximum mode. [6]

(*b*) State the difference between memory mapped I/O and I/O mapped I/O. [4]

(*c*) Draw block diagram of 8086 microprocessor and explain Execution Unit (EU). [6]

3. (*a*) Explain the following adressing modes : [8]

(*i*) Register Addressing Mode

(*ii*) Based Index Addressing Mode

(*iii*) Register Relative Addressing

(*iv*) Relative Based Index Addressing.

(*b*) Explain with the example following instructions for 8086 : [8]

(*i*) XCHG

(*ii*) XLAT

(*iii*) MUL

(*iv*) LEA.

Or

4. (*a*) Explain PUBLIC and EXTERN assembler directives with the help of suitable example. [4]

(*b*) Differentiate between the following : [8]

(*i*) Macro and procedure with examples

(*ii*) Near and Far Procedure.

(*c*) Explain the following instructions of 8086 Microprocessor with example : [4]

(*i*) ROR

(*ii*) CLC.

5. (*a*) Draw and explain Block diagram of 8259 PIC. [8]

(*b*) What does the CPU do when it receives an interrupt ? [6]

(*c*) What is the difference between DOS and BIOS calls ? [4]

Or

6. (*a*) What are the components of MS-DOS ? Explain the steps by which MS-DOS is loaded after power on. [10]

(*b*) Draw and explain the structure of program segment prefix clearly indicate offsets in the structure. [8]

SECTION II

7. (*a*) Draw and explain the functional internal block diagram of 8255. What is the use of the IC ? [8]

(*b*) What is D/A converter ? Which are different methods for D/A conversion ? Explain R2R ladder DAC with block diagram. [8]

Or

8. (*a*) With the help of block diagram explain various modes of operations of 8255. [8]

(*b*) Define the following terms for D/A converters : [8]

(*i*) Resolution

(*ii*) Accuracy

(*iii*) Monotonicity

(*iv*) Conversion time.

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*) Draw the interfacing diagram of 8254 with 8086. [8]

Or

10. (*a*) Explain the following modes of operation for DMA in detail : [6]

(*i*) Single transfer

(*ii*) Block transfer

(*iii*) Demand transfer mode.

(*b*) Explain control word format of 8254. [5]

(*c*) What is DMA ? Explain the mechanism by which 8237 DMA controller is used for data transfer in DMA operation. [5]

11. (*a*) Draw the 8086 maximum 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.

Or

12. (*a*) Explain concept of stack in 8087 NDP with suitable diagram. [8]

(*b*) Explain the following instructions of NDP : [10]

(*i*) FXCH

(*ii*) FADDP

(*iii*) FSQRT

(*iv*) FABS

(*v*) FIST.