

UNIVERSITY of PUNE
[4362]-216
S. E. Computer Engineering
Examination - 2013
Microprocessor &
Interfacing Techniques
(2008 Course)

[Total No. of Questions: 12]

[Total No. of Printed Pages: 3]

[Time: 3 Hours]

[Max. Marks: 100]

Instructions:

- (1) Answer **three** questions from each section-I and **three** questions from section-II.*
- (2) Answers to the **two sections** should be written in **separate answer-books**.*
- (3) Black figures to the right indicate full marks.*
- (4) Neat diagrams must be drawn wherever necessary.*
- (6) Assume suitable data, if necessary.*

SECTION-I

- Q. 1. A) Draw and explain internal architecture of 8086 microprocessor. (8)
- B) Explain even and odd memory bank along with BHE and A0 signals. (6)
- C) Explain how 20-bit physical address is obtained in 8086. (4)

OR

- Q. 2. A) Draw and explain the memory write timing cycle of 8086 (8)
microprocessor in maximum mode.
- B) Compare Memory mapped I/O and I/O mapped I/O. (6)
- C) Explain the function of ALE, NMI, TEST and MN/MX pins of 8086. (4)
- Q. 3. A) Explain the different addressing modes of 8086 along with suitable (8)
Example.
- B) Write an 8086 assembly language program to multiply two 8-bit (8)

numbers using add and shift method.

OR

Q. 4. A) Explain the following instruction for 8086 microprocessor. (6)

i) IMUL ii) PUSHF iii) SAR iv) INTO

B) Explain the following assembler directives. (4)

i) EQU ii) ASSUME iii) END iv) PUBLIC

C) Write an 8086 ALP to generate a delay of 100ms. If 8086 system running at 10MHz. (6)

Q. 5. A) Compare COM files and EXE files. Explain the procedure to generate (8)
and EXE files from ASM files.

B) Draw and explain internal block diagram of 8259. (8)

OR

Q. 6. A) What is IVT of 8086? Explain its structure in details. (8)

B) Draw and explain 8259 initialization command word format. (8)

SECTION-II

Q. 7. A) Explain Mode 0 and BSR mode of 8255 with appropriate control (8)
word formats.

B) Interface a typical 8-bit DAC with 8255 and write a program to (10)
generate staircase waveform.

OR

Q. 8. A) Write instructions sequence to program 8251 for asynchronous (8)
transmission with 8 data bits, 2 stop bit and no parity with 9600 baud
rate.

B) What is handshaking? Draw interfacing diagram of centronix parallel printer interface to 8255. Explain with timing diagram. (10)

Q. 9. A) Explain different I/O modes available in 8279. (8)

B) Explain operation of 8254 in modes 0 and 3 with help of timing diagram. (8)

OR

Q. 10. A) Draw and explain the complete interface diagram between 8086 and 8279 with 4x4 keyboard matrix. (8)

B) What is DMA? Explain the various modes of 8237 in details. (8)

Q. 11. A) Draw and explain minimum mode configuration of 8086 processor. (8)

B) Draw and explain internal architecture of 8087 NDP.

OR

Q. 12.A) Explain status word and control word of 8087 NDP. (8)

B) Draw and explain internal block diagram of 8288 in details (8)