UNIVERSITY OF PUNE
[4363]-253
T. E. (COMP.ENGG) Examination 2013
MICROPROCESSOR AND MICROCONTROLLER
(2008 Course)

[Total No. of Questions:12] **[Total No. of Printed pages :2]**
[Time : 3 Hours] **[Max. Marks : 100]**

Instructions :

(1) *Solve Q.1, or Q.2, Q.3 or Q.4,Q.5or Q.6,from SECTION- I and Q.7 or Q.8, Q.9 or Q.10,Q.11or Q.12 from SECTION-II*
(2) *Answers to the two Sections should be written in separate answer-books*
(3) *Neat diagram must be drawn wherever necessary.*
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.

SECTION I

Q.1A) Draw and Explain Pentium architecture. [10]
B) What is TLB? Explain in detail. [6]

OR

Q.2A) Write a short note on floating point unit. [8]
B) What is branch prediction? Explain in detail. [8]

Q.3A) What happens when RESET pin is activated on Pentium? [2]
B) Explain control registers of Pentium. [12]
C) Describe following instruction. [2]
i) XADD ii) SWAPB

OR

Q.4A) Explain non pipelined and pipelined cycles. [8]
B) Explain flag register of Pentium in detail. [8]

Q.5A) How pages can be protected in Pentium? Give details [8]
B) Explain CALL GATE mechanism in Pentium processor. [6]
C) Explain significance of Granularity bit, Limit field in Segment Descriptor [4]

OR

Q.6A) How logical address is converted into physical address? [8]

B) What are privilege level protection rings in Pentium ? State the rules of accessing 1) Other data segment 2) N on confirming code segment. [6]

C) How does a system programmer selects different page size in Pentium? Give details. [4]

SECTION II

Q.7A) Compare virtual mode with real mode on the following terms: [10]

i) Privilege level ii) Interrupt handling

iii) IOPL iv) Instructions allowed to be used

B) What is TSS? What does it contain? Explain in detail how it is useful in multitasking [8]

OR

Q.8A) Differentiate between interrupt handling in real mode and protected mode of Pentium in detail. [10]

B) What is IDT? Explain various mechanisms to handle interrupts in Pentium. [8]

Q.9A) List the different addressing modes of 8051. State & explain with example any 3 addressing modes of 8051 microcontroller. [8]

B) Explain the function of following pins, [8]

i) $\overline{PSEN}$ ii)$\overline{EA}$ iii)$\overline{T_X D}$ iv)$\overline{R_X D}$

OR

Q.10A) Draw the memory map of 8051 microcontroller. Show the bit addressable internal RAM area. [8]

B) Explain the following instructions [8]

a) RETI b) AJMP c) CPL bit d) ANL direct, A

Q.11A) Draw and explain architecture of 8096 microcontroller. [8]

B) Draw and explain the format of SCON and SBUF register. Also explain the serial port programming of 8051 microcontroller. [8]

OR

Q.12A) Draw & explain internal RAM organization of 8096 microcontroller [8]

B) Describe the mode 1 and mode 2 of Timer operation in 8051. [8]