



Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, June 2018
(2008 Scheme)**

08.605 : HIGH PERFORMANCE MICROPROCESSORS (R)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Explain the physical address formation in protected virtual mode of 80286.
2. Discuss the function of following signals in 80386 :
 - a) $\overline{BE0} - \overline{BE3}$
 - b) $\overline{BS16}$
 - c) \overline{ADS}
 - d) \overline{NA}
3. Explain the advantage of having separate code and data cache in Pentium.
4. What do you mean by hyperthreading technology ?
5. Describe the approaches for handling global variables in RISC machines.
6. Compare and contrast the characteristics of using a large register file and a cache memory for storing variables.
7. Explain the function of following registers in an ARM processor :
 - a) R0
 - b) R15
 - c) CPSR



8. State the relevance of TMOD register in 8051.
9. Explain the Program Status Word (PSW) of 8051.
10. List the differences between a microcontroller and a microprocessor.

(10×4=40 Marks)

PART – B

Answer **one full** question from **each** Module. **Each** question carries **20** marks.

Module – I

11. a) Describe the internal architecture of 80386 with the help of a neat block diagram. 10
- b) Discuss about cache maintenance operations in 80486. 10

OR

12. a) Explain with a neat block diagram, the Netburst microarchitecture of Pentium 4. 12
- b) Explain the features of Pentium-Pro architecture which supports dynamic execution of instructions. 8

Module – II

13. a) What are register windows ? Explain the circular buffer organization of register windows. 10
- b) Explain the register organization and various addressing modes of ARM. 10

OR

14. a) Describe briefly the architecture and instruction pipelining of MIPS R 4000. 12
- b) Write short notes on branch and subroutine instructions in ARM processors. Give examples. 8



Module - III

15. a) Explain how timers are used as counters in 8051. 8
- b) With a neat block diagram, explain the internal architecture of 8051 microcontroller. 12
- OR
16. a) Describe how a microcontroller detect and identify a key pressed on a keyboard. 10
- b) Describe the internal memory organisation of 8051. 10
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