

B.E. (ETRX) Sem VII (CR)  
 Microcomputer System Design  
 (3 Hours)

31/12/09

10:30 to 1:30

N.B.: (1) Question No. 1 is **compulsory**.

(2) Solve any **four** questions from remaining **six** questions.

(3) Draw **neat** diagrams wherever **necessary**.

1. (a) Explain what is internal snoop in the code cache of Pentium processor. 5  
 (b) Explain methods of invalidating cache lines for Pentium processor. 5  
 (c) Explain different types of data transfers in USB. 5  
 (d) Explain what is Latency Timer in PCI bus. 5
2. (a) Explain what are special cycles of Pentium processor. 10  
 (b) With respect to data cache of Pentium processor, explain Clean line replacement and Bank conflict in simultaneous data access. 10
3. (a) Explain with a neat diagram which bus cycles are performed while executing the following instruction. Assume 16 bit device interfaced to Pentium processor. 10  
**MOV EAX, [400001C H]**  
 (b) Explain following signals in Pentium processor :— 10  
**R/S#, LOCK#, CACHE#, AHOLD, SCYC**
4. (a) What parameters are stored in Configuration space of PCI Compliant device ? Explain. 6  
 (b) Explain how are interrupts routed in PCI bus ? Give suitable example. 8  
 (c) Explain bus access latency in PCI. 6
5. (a) Explain following terms of USB bus :— 10  
 (i) Host Controller and its functions  
 (ii) NAK and ACK token  
 (iii) Transaction frame.  
 (b) Explain following signals in SCSI :— 10  
**ATN, MSG, BSY, SEL**
6. (a) Master **A** wants to perform 2 transactions as 3 data reads from device C, 4 data reads from device D  
 Master **B** wants to perform 5 data reads from device D  
 Master **A** requests first and starts the transaction, Master **B** requests while first transaction of Master **A** is going on and rotating priority is implemented.  
 Explain transactions performed with timing diagrams. 12  
 (b) Explain protocol for data read / write commands in IDE. 8
7. (a) Explain Reflected wave switching used in PCI bus. 5  
 (b) What is the difference between Selection and Reselection in SCSI ? 5  
 (c) Explain what is DEVSEL signal in PCI bus and its role in selecting the target device. 5  
 (d) Explain what is sector interleave and its use. 5