Con. 3163–10.   **(REVISED COURSE)**   **AN–2764**

(3 Hours)   **[Total Marks : 100**

Microcomputer System Design

Notes:
* Question no one is compulsory
* Solve any four from remaining six questions

1.a) Explain occasions on which LOCK# is generated by Pentium processor   03
 b) What is the difference between HIT# and HITM# lines of Pentium Processor?   03
 c) What is null data phase in PCI bus?   03
 d) What is purpose of NAK and ACK token in USB?   03
 e) What is the difference between selection and reselection in SCSI?   03
 f) Explain Instruction pairing rules of Pentium Processor.   05

2.a) Explain the MESI model used for maintaining cache coherency.
 Why is it used only in data cache of Pentium?   12
 2 b) Explain how following program is fetched from code cache when the code is in two cache lines. (Split Line Access).   08

3 a) Explain the bus cycles performed by the Pentium Processor while executing following instruction and reading data from 16 bit memory device
 MOV EAX , [08004 H].
 Assume DS = 4000H and processor in real mode operation   12
 3 b) Explain special cycles of Pentium processor.   08

4 a) Master A wants to perform 3 transactions as   14
 2 data writes from device C , 6 data reads from device C and
 3 data reads from device D
 Master B wants to perform 3 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 B has more priority than A
 Explain transactions clearly with timing diagrams
 4 b) Explain Reflected Wave Switching and its advantages.   06

5 a) Explain following PCI signals.   10
 TRDY # , FRAME #, STOP# , IDSEL # , DEVSEL #
 (# :All are active low signals)
 5. b) Explain what bus access latency is.   10
 Also explain role of Latency timer in PCI bus.

6.a) Explain Register model of IDE.   06
 b) Explain following signals in SCSI.   08
 ATN , MSG , BSY , SEL
 c) Explain what is the difference between synchronous and asynchronous data phase in SCSI.   06

7. Write short notes on (Any four) :–
 a) System Management Mode of Pentium Processor.   05
 b) Central Resources for PCI based devices.   05
 c) Zone Bit Recording.   05
 d) Error reporting in Pentium Processor.   05
 e) Hidden Bus arbitration in PCI.   05
 f) Different data transfer methods in USB.   05