B.E. (IT) Part-III 5th Semester Examination, 2007

Interfaces and Peripheral Devices

(IT-506)

Time : 3 hours **Full Marks : 100**

Answer Q.No.1 and FOUR from the rest.

1. Choose appropriate option(s) for the following : [2×10]

   i) Bus arbitration refers to
      a) information latening on the bus
      b) bus controlling
      c) bus controller choosing
      d) bus clearing

   ii) How many address lines are required to address each memory location in 4096 * 4 memory chip?
      a) 10
      b) 13
      c) 12
      d) 14

   iii) Which of the following is correct about PCC (program counter)?
      a) During instruction execution, it tracks the changes in the instruction
      b) During instruction execution, it keeps track of the address of the previously executed instruction
      c) It counts the number of instructions executed by CPU per second
      d) It is a register

   iv) PSW (Program Status Word) holds several status of
      a) Program
      b) ALU
      c) Main Memory
      d) CPU

   v) If any odd number is converted to corresponding binary number, the least significant bit is always :
      a) 0
      b) Not same
      c) 1
      d) none of the choices

   vi) How many units of any single bus structure can communicate concurrently?
      a) 3
      b) 1
      c) 2
      d) 4

vii) Which one of the following schemes is most suitable for transfer of large amount of data to and from memory in a short span of time?
   a) Half-duplex serial communication
   b) DMA
   c) Programmed I/O
   d) Interrupt-initiated I/O.

viii) The storage device used to compensate the communication speed difference between different equipments is :
   a) RAM
   b) buffer
   c) secondary memory
   d) associative memory.

ix) Memory bus is mainly used for interfacing between :
   a) processor and I/O devices
   b) input device and output devices
   c) processor and memory
   d) I/O devices and memory.

x) Flags can be implemented through
   a) AND gates,
   b) tri-state devices,
   c) flip-flops,
   d) registers.

2. a) What do you mean by device drivers?
   b) Discuss about several types of device drivers.
   c) Mention some device file names associated with several hardware devices in LINUX.
   d) How device drivers are operated in LINUX? Discuss briefly. **[4+4+4+8]**

3. a) Define priority interrupts.
   b) Defferentiate between memory-mapped I/O and I/O-mapped I/O.
   c) Describe the sequence of events for destination-initiated data transfer using handshake control with suitable block diagram and timing diagram.
   d) Show the one-dimensional RAM organization with suitable diagram.
   e) If any microcomputer operates at 1 GHz with 16-bit bus and a later version of it operates at 1.6 GHz and with a 32-bit bus. Calculate the maximum possible speed-up (approx) achieved due to it. **[2+4+6+5+3]**

4. a) What do you mean by expansion slots?

b) Specify several components of PC system unit in brief.

c) What are the different types of buses used in any personal computer?

d) Discuss several add-on cards in brief. **[2+6+4+8]**

5. a) Define asynchronous data transfer. How does it differ from synchronous data transfer?

b) Describe the importance of any interface between computer and any peripheral.

c) What do you mean by I/O commands? Describe the different types of I/O commands.

d) Specify the essence of IOP (Input Output Processor).

e) Give names of some peripherals.

f) The clock interrupt handler in any computer needs 3 milliseconds per clock tick. The clock runs at 100 Hz. What percent of the CPU is used for that clock? **[(1½+1½)+4+(1+4)+3+2+3]**

6. a) Why display adapters are essential?

b) What does any display adapter consist of?

c) Discuss several display adapter varieties in brief.

d) Describe the computer display process using display adapters.

e) Specify various types of ports. **[2+2+8+4+4]**

7. a) What do you know about DRO memory?

b) Discuss the working procedure of scanner.

c) Describe the DMA transfer process in brief with suitable block diagram.

d) Specify the working procedure of color inkjet printer in brief.

e) Write short notes on <u>any two</u> of the following :

i) Resolution.

ii) Simple module coding of device driver

iii) Hard Disk drive

iv) Cycle stealing and burst transfer. **[2+4+6+4+(2×3)]**

— — —