Code: AE-13 **Subject: COMPUTER ENGINEERING**

JUNE 2007

Time: 3 Hours **Max. Marks: 100**

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q. 1. must be written in the space provided for it in the answer book supplied and nowhere else.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 Choose the correct or best alternative in the following: (2x10)

a. The instruction pointer:-

(A) holds the address of the next memory location to be fetched into the instruction register
(B) is loaded within the CPU
(C) is incremented by 1 as part of the basic fetch and execute cycle
(D) all of these

b. A 16 bit process is more efficient than an 8 bit processor because

(A) it can address a large number of memory locations.
(B) fewer memory and I/O accesses are required for multibyte instructions
(C) a simplified control bus can be used
(D) all of these.

c. To write a compute program in machine language requires.

(A) an interpreter or compiler to generate an object code.
(B) the hexadecimal codes for each instruction
(C) a text editor for creation of the source code
(D) a special assembler program.

d. What is the physical address corresponding to DS: 103 FH if DS = 94 DOH?

(A) 95D3FH (B) 94DSFH
(C) 103DH04 (D) 94DS103FH

e. Using a MOV instruction, which of the following data transfer is illegal:

(A) memory to memory (B) memory to register
(C) register to memory (D) segment register to memory

f. List the three steps required to create an executable run file.

(A) edit, disassemble, delink (B) code, edit, link
(C) edit, assemble, link (D) edit, assemble, code

g. The 8086 has a flag register of

(A) 9 bit (B) 32 bit
(C) 64 bit (D) 16 bit

Please state True & False for the following questions

h. Programs written in High level language are easy to write but execute more slowly than the corresponding Machine language program.
(A) True
(B) False

i. Most microprocessor based products include conventional keyboards, floppy disk drives and video monitors.
(A) True
(B) False

j. A low priority processor can not gain control of the system bus from a higher priority processor unless the $\overline{\text{Test}}$ bar signal is asserted.
(A) True
(B) False

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Briefly explain the different stages for the development of software. **(8)**

b. Discuss the different features of Windows 98 & Linux. **(4)**

c. Briefly explain BIOS. **(4)**

Q.3 a. With proper timing diagram explain how instruction MVI A, 32H is executed in 8085. **(4)**

b. List the status flags that get affected when following tasks are performed on 8085:-
(i) Assuming accumulator content to be 26H and previous operation has set carry flag, instruction ACI 57H is executed.
(ii) Accumulator contents are 4AH & instruction ADI 59H is executed. **(4)**

c. Write an assembly language program-
Set of three readings is stored in memory starting at XX50H. Sort the readings in ascending order. Data(H) 87, 56, 42. **(8)**

Q.4 a. Draw the symmetric diagram of programmable interrupt controller Intel 8259 and briefly describe the pins configuration. **(8)**

b. What is DMA data transfer scheme? Discuss the function DMA data controller. 8257 **(8)**

Q.5 a. What is Interrupt? Explain enabling, disabling and masking of interrupt. Discuss with suitable examples, how to transfer data using interrupts. **(10)**

b. What is the function of
(i) Hard Disk controller
(ii) Floppy Disk controller
(iii) Dynamic RAM controller
(iv) Dot Matrix printer controller **(6)**

Q.6 a. What do understand by?
(i) Main memory
(ii) Secondary memory
(iii) Cache memory **(6)**

b. Find two's complement of 96. **(4)**

c. What are various addressing modes in 8085? Briefly explain direct addressing, immediate addressing. **(6)**

Q.7 a. Briefly explain the operating principle of
(i) A raster scan CRT display.
(ii) A vector scan CRT display. **(6)**

b. How the printers are classified? Briefly explain Line printer. **(6)**

c. Briefly explain
(i) OCR
(ii) OMR
(iii) MICR
(iv) Optical bar code readers **(4)**

Q.8 a. What are the silent features of 80486. **(4)**

b. Briefly explain Pentium CPU architecture with the help of block schematic **(6)**

c. What is MMX (Multimedia Extension) and how it is integrated with Pentium architecture. **(6)**

Q.9 Write Short note on

(i) Address bus
(ii) Data bus
(iii) Control bus
(iv) ISA bus
(v) EISA
(vi) PCI bus
(vii) MCA bus
(viii) VESA bus **(16)**