(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3087 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. V) ODD SEMESTER THEORY EXAMINATION 2010-11

MICROPROCESSORS AND APPLICATIONS

Time : 3 Hours *Total Marks : 100*

Note : Attempt **all** questions. All questions carry equal marks.

1. Attempt any **two** parts of the following : **(10×2=20)**

(a) (I) What is a microprocessor ? What is the difference between a microprocessor and a CPU ? Also state the difference of microprocessor and a microcomputer.

(II) Explain the difference between the machine language and the assembly language. What are the advantages of an assembly language in comparison with high-level language ?

(b) (I) Specify the control signal and the direction of the data flow on the data bus in a memory-write operation.

(II) The memory address of the last location of a 1K byte memory chip is given as FBFFH. Specify the memory map.

(c) (I) Define : instruction cycle, machine cycle, and T-state.

(II) Write ALP for transfer the sixteen bytes of data stored in memory locations at XX50H to XX5FH to new memory locations starting at XX70H.

2. Attempt any **two** parts of the following : **(10×2=20)**

(a) Explain the addressing modes of 8086 with the help of examples.

(b) Write notes on :

(I) 80186

(II) 80286.

(c) (I) Write short notes on pipelining and memory segmentation of 8086. What are their advantages ?

(II) Explain the following assembler directives with examples :

(i) OFFSET

(ii) ASSUME

(iii) EVEN

(iv) DT

(v) EXTRN.

3. Attempt any **two** parts of the following : **(10×2=20)**

(a) Draw and explain the interfacing of 8237 and 8086. Explain various modes of 8237.

(b) (I) How the data can be transmitted and received serially? Explain with example.

(II) Explain the following 8251 signals :

$\overline{DSR}$, $\overline{DTR}$, C/$\overline{D}$, SYNDET/BD, TXE

(c) (I) Explain the bit set/reset mode of 8255.

(II) Interface a 4×4 matrix keyboard to the microprocessor using 8279. Also discuss the operation.

4. Attempt any **two** parts of the following : **(10×2=20)**

(a) List the difference between 8253 and 8254. Write a program to generate a square wave of 1 kHz frequency on OUT 1 pin of 8253/54. Assume CLK1 frequency is 1 MHz and address for control register=OBH, counter 1 = 09H and counter 2 = OAH

(b) Write a program for DAC 0808.

(I) to generate square wave

(II) to generate triangular wave.

(c) (I) Explain the successive approximation A/D converter technique with the help of block diagram.

(II) Explain the R/2R ladder technique of D/A conversion. Also give the advantage of it over binary weighted resistor technique.

5. Attempt any **two** parts of the following : **(10×2=20)**

(a) (I) Draw and explain instructions format of PowerPC.

(II) Explain the bit pattern for machine status register in PowerPC.

(b) (I) Explain any five Pentium processor signals.

(II) Compare microcontroller and microprocessor.

(c) (I) Discuss the memory organisation of 8051.

(II) Discuss the 8051 addressing mode. Give one example of each addressing mode.