No. of Printed Pages : 05 **BEC 504**

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

PAPER ID : 3413 Roll No.

B.Tech Examination 2015-2016

(Fifth Semester)

MICROPROCESSORS

Time : 3 Hours] **[Maximum Marks : 100**

Note :– (i) Attempt all questions.
(ii) All questions carry equal marks.

1. Attempt any four parts : 4x05=20

(a) Explain the working of "Micro-Programmed Control Unit" with the help of a diagram.

(b) Write down the main effect, number of machine cycle and addressing mode in the following instruction :

(i) CNC 2400H

(ii) SIM

(iii) NOP

(iv) LHLD 5000H

(v) HLT

(c) (i) Write down the main effect of any four instructions which are related to the stack.

[P.T.O.

(ii) Define the meaning of 'Bus'. Briefly explain the address, data and control Bus.

(d) (i) What is the use of working register (w–z) in 8085 microprocessor?

(ii) Write down the ALP for 8085 microprocessor to provide 16 micro second delay when the clock frequency of the microprocessor is 1 MHz.

(e) Write down the ALP for 8085 micro processor to subtract the two 16 bit numbers.

(f) What is PSW? Briefly explain the all status flags of 8085 micro processor.

2. Attempt any four parts : 4×05=20

(a) What is the difference between "Memory Mapped I/O" and "I/O Mapped I/O" address scheme? Discuss the advantages and disadvantages also.

(b) Explain the working of hardware interrupt circuit of 8085 micro processor with the help of a circuit diagram.

(c) Interface the following memory chips with 8085 micro processor :

(i) Four ICs of 2k × 4 ROM

(ii) Four ICs of 4k × 4 RAM

Also draw the address decoding table.

(d) How you interface 10 peripheral devices with 8085 micro processor to send the interrupt signal?

(e) Draw the timing diagram of 'ADD M' instruction for 8085 micro processor.

(f) What are the differences between 8085 and 8086 micro processor?

3. Attempt any two parts : 2×10=20

(a) Explain the working of Mode 2 of 8255 with the help of a diagram and also draw the timing diagram. Find out the control word, if Port A is bidirectional which works in Mode 2 and Port B is input port which works in mode 1.

(b) (i) Explain the working of "Successive Approximation ADC" with the help of a diagram.

(ii) Briefly explain the "Direct Memory Access" data transfer scheme with the help of a diagram.

(c) (i) Write a program to generate a square wave of 1 KHz, assuming that 2 MHz. Clock is available and the addresses of counter and control word register are B0H, B1 H, B2 H, B3H respectively.

(ii) Explain the Mode 0 of 8253 with the help of timing diagram.

4. Attempt any two parts : $2 \times 10 = 20$

(a) (i) Explain the working of Bus Demultiplexing of 8086 micro processor with the help of a diagram.

(ii) Explain the following pins of 8086 microprocessor :

(1) $DT/\overline{R}$

(2) $\overline{LOCK}$

(3) QS, and QS_O

(4) INTR

(5) $\overline{BHE}/S_7$

(b) Explain the architecture of clock generation 8284 with the help of a diagram.

(c) Explain the all flags of 8086 microprocessor and also draw the flag register.

5. Attempt any two parts : $2 \times 10 = 20$

(a) Explain the all addressing modes of 8086 microprocessor with the help of an example.

(b) (i) Write an ALP for 8086 microprocessor to move a 256 bytes of string from offset

0200H to offset 0300H in the segment 7000H.

(ii) Write an ALP for 8086 to add the content of memory location 2000H : 0500H to the content 2000H : 0600H and store the result in 5000H : 0700H.

(c) (i) Explain the main effect and its addressing mode in following instructions :

(1) REP

(2) CMPSB

(3) OR AX, (0500H)

(4) ADC 0100H

(5) DEC AX

(ii) Draw the timing diagram of 'Memory Read Bus Cycle' in minimum mode for 8086 microprocessor.

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