

**GANPAT UNIVERSITY**

B. Tech. Semester V (CE/IT)

Regular Examination Nov/Dec-2012

2IT502/2CE502: Microprocessors and Interfacing

**Time: 3 Hours]****[Total Marks: 70**

- Instructions:**
1. All questions are compulsory.
  2. Answer both sections in separate answer sheets.

**SECTION-I**

- Que.1**
- (a) Why 8254 is needed in 8086? Explain 8254 internal block diagram. [4]
  - (b) Draw flag register format and specify use of each flag. [4]
  - (c) Explain the use of 74S373 octal latch, transceiver, M/IO signal, DT/R signal and DEN signal in block diagram of 8086. [4]

**OR**

- Que.1**
- (a) Explain use of hardware interrupts for timing application with example. [4]
  - (b) Explain Direct Memory, Indirect Memory, Immediate and Indirect Register addressing mode with figure. [4]
  - (c) Draw and explain format of OCW1 and OCW2 for 8259A. [4]

- Que.2**
- (a) Explain importance of segmentation in 8086 with example. [3]
  - (b) Briefly describe the condition(s) which cause the 8086 to perform type0, type1, type2, type3 and type4 interrupt? [4]
  - (c) Draw and explain block diagram of Port decoder. [4]

**OR**

- Que.2**
- (a) What are the differences between memory mapped IO and Direct IO [3]
  - (b) Explain block diagram of 8086 memory banks. [4]
  - (c) Draw and explain format of ICW3 for master and slave device to initialize 8259A device. [4]

- Que.3**
- (a) What determines whether micro processor is 16bit, 32bit or any other? [1]
  - (b) What is the main difference between 8086 and 8088? [1]
  - (c) What is the function of 8086 instruction queue? [1]
  - (d) Which address is used for type4 interrupt in interrupt vector table? [1]
  - (e) Show the control word you would use to initialize counter 1 of 8254 for read LSB, mode3 and BCD countdown. [2]
  - (f) Write an ALP to generate Fibonacci series. [6]



## SECTION-II

- Que.4.** (a) Describe the following assembler directives with example  
(i) DW (ii) PROC (iii) DB [6]
- (b) Write an ALP to generate packed BCD from ASCII [3]
- (c) Express the following decimal numbers in 8-bit sign- and magnitude form [2]  
(i) +64 (ii) - 43

OR

- Que.4.** (a) Describe following programmable logic devices [6]  
(i) PLA (ii) PROMs
- (b) Write an ALP to find the average of two 8-bit numbers [3]
- (c) How to find out length of array discuss with an example. [2]
- Que.5.** (a) Write an ALP to check the range of temperature: if temp < 30 assign ans=01h, if temp is in between 30 & 40 assign ans=02h & if temp > 40 assign ans=11h [6]
- (b) Write an ALP to perform subtraction operation on contents of A and B arrays and calculate how much time result is zero using PROCEDURE [6]

OR

- Que.5.** (a) Write an ALP to perform EX-OR operation on contents of A and B arrays without using XOR instruction ( each array consist 8- bit 5 elements) [6]
- (b) Write an ALP which checks whether given string is palindrome or not, ( If it is palindrome store 0 in result variable otherwise store 1) [6]
- Que.6.** Answer the following (any two) [12]
- (a) Write an ALP to perform 32- multiplication
- (b) Explain LOOP, CMPSB and CALL instruction
- (c) Write and ALP for generating 1 second delay

----- END OF PAPER -----