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Reg. No.....<sup>2</sup>.....

Name.....

**B.TECH. DEGREE EXAMINATION, APRIL 2011**

**Fourth Semester**

Branch : Computer Science and Engineering

**ADVANCED MICROPROCESSORS AND PERIPHERALS (R)**

(Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

**Part A**

*Answer all questions.*

*Each question carries 4 marks.*

1. Write the control word format for 8255 in BSR mode.
2. Explain the bidirectional data transfer mode of 8251.
3. Write control word for 8255 and give the assignments of ports I/O for the control word data of 95 H.
4. Explain the memory system of microcontroller.
5. Explain minimum mode operation of 8086.
6. What are the roles of various flags in 8086 flag register?
7. What are the actions of 8086 when interrupt flag is set and INTR input receives a high signal?
8. What are the roles of status signals  $S_0$ ,  $S_1$ ,  $S_2$  and Queue status bits  $QS_0$  and  $QS_1$  with respect to 8086?
9. Write the control register structure of 80386.
10. Draw the circuit for generating memory and I/O control signals for 80386.

(10 × 4 = 40 marks)

**Part B**

*Answer either Section (a) or (b) of each module.*

*Each full question carries 12 marks.*

**MODULE 1**

11. (a) (i) Explain various modes of operations of 8251 USART.  
(ii) Describe the architectural features of 8279 keyboard and display controller.

(6 + 6 = 12 marks)

*Or*

**Turn over**

- (b) (i) With neat diagrams, explain the internal architecture of 8255 PPI.  
(ii) Give the details of mode word, command word, and status word format of 8251 PCI.  
(6 + 6 = 12 marks)

## MODULE 2

12. (a) Assume that 8255 chip is assigned with the address of control register PA, PB and PC. Draw the circuit using any number of ports for two-digit seven segment display. Also write the value of control word.  
(12 marks)

*Or*

- (b) Draw the connection of 4 × 4 hex key pad using 8255 ports and draw the flow chart for the key closure.  
(12 marks)

## MODULE 3

13. (a) (i) Draw and explain the read and write cycle timing diagram for 8086 in minimum mode configuration.  
(ii) Explain the interrupt cycle of 8088.  
(8 + 4 = 12 marks)

*Or*

- (b) Explain the maximum mode of 8086. Differentiate between maximum and minimum mode.  
(12 marks)

## MODULE 4

14. (a) Design a 8086 system with single seven segment display as in I/O device accessed with an address F000. Write the program to get a BCD up-count 0–9 on the seven segment display.  
(12 marks)

*Or*

- (b) What are the system requirements for implementing a multi-tasking environment? Explain the multi-tasking features of 80286.  
(12 marks)

## MODULE 5

15. (a) With a neat diagram, explain the architecture and memory management unit of 80386.  
(12 marks)

*Or*

- (b) Discuss the memory organisation of PENTIUM IV. Indicate how paging is done?  
(12 marks)  
[5 × 12 = 60 marks]