G 587

(Pages : 2)

B.TECH. DEGREE EXAMINATION, MAY 2014

Fourth Semester

Branch : Computer Science and Engineering

ADVANCED MICROPROCESSORS AND PERIPHERALS (R)

(Old Scheme—Prior to 2010 admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 4 marks.

1. Describe the mode set register of 8279.

2. Explain the following signal descriptions of 8251 :

    (i) SYNDET/BD.   (ii) $\overline{\text{CTS}}$.

    (iii) TXEMPTY.   (iv) TXD.

3. What is sensor matrix mode of 8279 ?

4. What are the advantages of microcontroller based systems over microprocessor based systems ?

5. Explain the function of opcode prefetch queue in 8086.

6. Explain the concept of segmented memory. What are its advantages ?

7. "A single instruction may use more than one addressing mode or some instructions may not require any addressing mode. " Explain with examples.

8. What are the salient features of protected virtual address mode ?

9. Enlist the different data types supported by the coprocessor 80387.

10. Discuss the disadvantages of RISC processors.

$(10 \times 4 = 40 \text{ marks})$

Part B

Answer **all** *questions.*
Each full question carries 12 marks.

11. Interface an 8255 with 8086 so as to have port A address 00, port B address 02, port C address 01 and CWR address 03. Draw your circuit diagram and give the control words.

Or

Turn over

12. With a block diagram, describe the various functions of 8251. Draw and describe the synchronous mode transmit and receive data formats of 8251.

(12 marks)

13. Using a 12-bit DAC, generate a step waveform of duration 1 sec, maximum voltage 3 volts and determine the duration of each step suitably.

Or

14. Draw the schematic of an 8279 keyboard controller interfaced to 8085. An 11-key keyboard and an 8 digit seven segment display is to be driven by the system so that by reading the FIFO, we should directly get the number of the key pressed.

(12 marks)

15. (a) Draw and discuss a typical maximum mode 8086 system. What is the use of a bus controller in maximum mode ?

(8 marks)

   (b) With a neat diagram, explain the 8086 interrupt pointer table.

(4 marks)

Or

16. Draw the timing diagram of MOV [SI], AL instruction and explain the signal flow.   (12 marks)

17. Write an assembly language program to find out ASCII codes of alphanumeric characters from a lookup table. Explain your logic with the help of a flow chart.

(12 marks)

Or

18. (a) What are the differences between shift and rotate instructions ? Explain with examples.

   (b) What are the salient features of 80286 in real address mode ?

(8 + 4 = 12 marks)

19. Explain the procedure of converting a linear address into a physical address in 80386 when programmed in protected mode.

(12 marks)

Or

20. (a) What do you mean by MMX ? Explain the different MMX instructions.

   (b) Does Pentium-Pro support multimedia applications ? Why ?

(8 + 4 = 12 marks)

[5 × 12 = 60 marks]