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SF-7069

B. E. III (Sem. VI) (Comp.) Examination

May / June – 2011

Advance Microprocessor Systems & Applications

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

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 3 (Sem. 6) (Comp.)**

Name of the Subject :

☛ **Advance Microprocessor Systems & Applications**

☛ Subject Code No. : **7 0 6 9** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

1 (a) Answer the following : **10**

(i) What is the physical address corresponding to DS : 103FH if DS = 90D0H ?

(ii) To maximize the 8086 performance, a data word should be stored beginning at _____ memory address.

(iii) If following an addition, AX = 000F, executing AAA instruction will cause register AX = _____.

(iv) Register _____ is the only register used as an I/O address pointer in IN and OUT instruction.

(v) What is the difference between jump & loop instructions of 8086 μP.

(vi) Describe how 8086 memory is configured. Also describe the bus operation needed to write a word to address 03437H.

(vii) Explain XLAT instruction with example.

(viii) Write about the following instruction :

MOV CS : [BX], DL

(ix) Identify the addressing mode of the following instruction :

MOV AH, TEMP [BP+2]; TEMP defines a memory location.

(x) Explain OFFSET directive.

(b) What is lock prefix and what is its use ? 4

(c) Write the memory storage allocation for : 4
ARR1 DB 10, 11, 12
ARR2 DW 10H, 11H, 12H, 3 DUP ('*')
ARR3 DB 5 DUP ('?' 2 DUP ('!'))

2 (a) Write a program to determine if a string stored in memory is palindrome or not. Disply message 'PALINDROME' or 'NOT PALINDROME' according on screen. 8

OR

(a) Write a program to reverse the digits of a double word stored in memory. Store the result in memory. 8

(b) Explain 8086 interrupt response upto coming back to calling program. Why is INTR input automatically disabled as part of interrupt response ? 8

3 (a) Why segmentation is required ? What is the advantage of using a CPU register for temporary data storage over a memory location ? **6**

(b) Explain the following 8086 instructions. **4**
FPREM FINIT

(c) Write an 8087 program to compute the volume of a sphere. **6**

OR

(c) Explain data types of 8087 coprocessor. **6**

4 (a) Answer the following :

(i) A procedure located in a segment which has a higher privilege level can be called indirectly through a special structure called_____.

(ii) CPL stands for _____.

(iii) When 80286 is reset, it starts execution in _____ mode.

(iv) The paging unit organizes the physical memory in terms of _____ bytes size each.

(v) The _____ processor is the first processor with an external co-processor support.

(vi) The _____ processor has on-chip common code and data cache.

(vii) The _____ processor was the first to have Dual Bus Architecture.

(viii) In 80386, the _____ number of instructions are pre-decoded in the instruction unit.

(ix) In some virtual memory systems, the _____ bit is used in descriptor to keep track whether a segment contents have been changed or not.

(x) If G bit of descriptor is 1, it means length of segment is _____ (byte/page) granular.

(b) An IBM PC adapter board uses 10 x 15 dot matrix. There are 80 + 20 char/row and 25+2 rows/frame. Vertical synchronize frequency is 50 Hz. **6**

(i) What is the total number of scan lines per frame including retrace ?

(ii) Horizontal Synchronize frequency

(iii) Character clock frequency.

5 (a) Design the memory decoding logic circuit and draw the required interfacing diagram to interface the following to 8086. **12**

(i) **32** KB RAM - using 8 KB RAM ICs.

(ii) **64** KB ROM - using 8 KB ROM ICs

Lower addresses are to be assigned to RAM and higher addresses to ROM.

OR

(b) Explain conversion of linear address to physical address in 80386 μP with paging. **6**

OR

(b) Explain in brief functions of Hard Disk Controller ports. **6**

6 (a) Draw and explain block diagram of 80286. How much physical and virtual memory space in accessible in 80286. **8**

OR

(a) Describe Write Pre-Compensation and Data Separation using PLO for Floppy Disk. **8**

(b) Answer the following : (any **two**) **8**

(i) Explain SCSI bus.

(ii) Explain IEEE 488 bus

(iii) Explain MMX.
