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**[5152]-165**

**S.E. (Computer Engg.) (First Semester) EXAMINATION, 2017**

**MICROPROCESSOR ARCHITECTURE**

**(2012 PATTERN)**

**Time : Two Hours**

**Maximum Marks : 50**

**N.B. :—** (i) Attempt Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4,  
Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 8.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

1. (a) Explain the test registers with their format. [3]  
(b) Differentiate between Min mode and Max mode of 8086 processor [4]  
(c) Explain the following pins of 8086 : [6]  
(i) INTA#  
(ii) HLDA  
(iii) DT/R#

*Or*

2. (a) Specify size and function of IDTR. [3]  
(b) Explain the hardware interrupt pins of 80386 processor. [4]  
(c) Draw and explain the functional pin diagram of 80386 DX processor. [6]
3. (a) Draw and explain non-pipelined write cycle of 80386 DX. [5]  
(b) Explain HOLD/HLDA signal. [4]

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- (c) Explain with example difference between SUB and SBB instruction. [3]

*Or*

4. (a) Explain the following instructions : [5]
- (i) XOR
  - (ii) TEST
  - (iii) WAIT
  - (iv) STD
  - (v) SHLD.
- (b) What do you mean by assembler directives ? Explain any *three* assembler directives used in 80386 programming. [4]
- (c) Explain the assembly language programming steps. [3]
5. (a) Explain in detail multiprocessor architecture. [6]
- (b) Give the parallel programming with diagram. [4]
- (c) Briefly explain hybrid multicore architecture. [3]

*Or*

6. (a) Draw and explain the block diagram of 64-bit architecture. [6]
- (b) Write a short note on multicore application design and implementation. [4]
- (c) Explain front side and black side bus. [3]

7. (a) Explain the IA-32 basic execution environment. [5]  
(b) State the two sub-modes of IA-32e mode. [4]  
(c) What are the advantages of hyper threading technology ? [3]

*Or*

8. (a) Explain in detail microarchitecture code name Nehalem. [5]  
(b) List the features of SSE2 extensions in Pentium 4 and Intel Xeon processor. [4]  
(c) Explain the features of Virtualization Technology. [3]