Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.Tech (ECE-MVLSI)/SEM-2/MVLSI-201/2012
2012
PROCESSOR ARCHITECTURE FOR VLSI

*Time Allotted :* 3 Hours   *Full Marks :* 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words
as far as practicable.

GROUP – A
(Short Answer Type Questions)

1. Answer the following questions :   7 × 2 = 14

    i)   What is meant by course-grain parallelism ?

    ii)   What is flag register ?

    iii) Distinguish between Von-Neumann and Harvard architectures.

    iv)   What are the operation of latch input and output enable of register ?

    v)   What do you mean VLIW ?

    vi)   State the differences between shared memory organization and distributed memory organization in MIMD.

    vii) Compare RISC and CISC architectures of computers.

30060 (M.Tech)   [Turn over
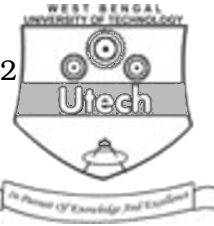
GROUP – B

(Long Answer Type Questions)

Answer any *four* of the following. $4 \times 14 = 56$

2. a) What is pipelining ?

   b) Explain the concept with a suitable example.

   c) What is speed-up of a pipelined architecture. $4 + 8 + 2$

3. a) What do you mean by SOC (System On Chip) ?

   b) Give brief description of three platform based SOC architecture. $4 + 10$

4. a) What is the basic architectural and functional difference between Digital Signal Processor and General Purpose Processor ?

   b) Why do we prefer Digital Signal Processor in signal processing field ?

   c) With appropriate example, discuss about evolution of Digital Signal Processor. $6 + 4 + 4$

5. a) Explain the UMA, NUMA & COMA architectural models for a multiprocessor system.

   b) Describe briefly Flynn's taxonomy with appropriate diagrams. $7 + 7$

6. a) Explain briefly RAW architecture with neat diagram.

   b) Describe with neat diagram of TMS320C6XXX series processor architecture.   6 + 8

7. a) Explain the status register and current program status register of ARM processor.

   b) What is exception ? Describe briefly the different types of exceptions handled in ARM processor.

   c) Explain the actions that ARM processor takes during an interrupt.   4 + 6 + 4