Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5057]-2061

S.E. (Information Technology) (First Semester)

EXAMINATION, 2016

COMPUTER ORGANIZATION AND ARCHITECTURE

(2015 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. :— (*i*) Attempt Q. **1** or Q. **2**, Q. **3** or Q. **4**, Q. **5** or Q. **6** and Q. **7** or Q. **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*) Describe the computer performance parameters such as CPU time, CPI, MIPS, MFLOPS, Benchmark and Amdahl's law. [6]

(*b*) Explain any *four* addressing modes with suitable diagrams. [6]

Or

2. (*a*) Multiply 0111 by 0011 using booth's algorithm. [6]

P.T.O.

Or

(*a*) Perform the division using non-restoring method 15/2.

(*b*) Explain instruction cycle states of a processor with suitable diagram. [6]

3. (*a*) Explain sequence of events that occur in Fetch Cycle symbolically with diagrams at each stage. [7]

(*b*) Explain need of cache memory and direct mapping cache organization technique. [6]

Or

4. (*a*) Explain control unit and its functions along with block diagram. [7]

(*b*) How virtual memory is managed using paging and TLB ? [6]

5. (*a*) Explain MIPS pipeline with appropriate pipeline registers between each pipeline stage. [6]

(*b*) Describe in brief any *one* pipline hazard. [6]

Or

6. (*a*) Explain events of Execute cycle of MIPS Pipeline. [6]

(*b*) Explain basic performance issues in Pipelining. [6]

7. (*a*) Write about Flynn's Taxonomy for Multiple Processor Organizations. [6]

(*b*) Explain Symmetric Multiprocessor (SMP) Organization with features. [7]

Or

8. (*a*) Explain benefits of clustering and its configurations. [7]

(*b*) What is Multicore Computers and explain hardware performance issues of same. [6]