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[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* pipeline 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]

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