

M.E. 1th Semester (CST) Examination 2011
Bengal Engineering and Science University, Shibpur
Computer Organization and Architecture (CST-903)

Time: 3 hours

FM: 70

(Answer any five)

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| 1. (a) Define the advantage of using multilevel CLA with example. | 5 |
| (b) How cache misses can be reduced using victim cache and pseudo associative cache? | 3+4 |
| (c) What is nonlinear pipeline? | 2 |
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| 2. (a) Compare the performance of software pipelining and loop unrolling. | 5 |
| (b) What is the basic principle of trace selection and trace compaction in trace scheduling? | 4 |
| (c) Define compiler speculation with poisson bits. | 5 |
| 3. (a) What are the functions of 5 basic registers in a DMA controller? | 10 |
| (b) What is multiplexed DMA? | 4 |
| 4. (a) What are the features of superpipelined processor? | 3 |
| (b) Describe the functions of various stages in a superpipelined processor. | 7 |
| (c) Describe the register window in scalable processor architecture. | 4 |
| 5. (a) What are the major steps to achieve dynamic redundancy? | 4 |
| (b) Derive an expression for the overall reliability of a TMR system. | 6 |
| (c) What is the unreliability density function of the TMR system? | 4 |
| 6. (a) What is convoy? How to determine the execution time of a vector sequence? | 2+4 |
| (b) Describe strip mining with example. | 5 |
| (c) How to improve the vector performance using chaining? | 3 |