

ET803M - Advanced Computer Architecture

P. Pages : 1

Time : Three Hours



GUG/S/25/14356

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
 2. Illustrate your answers wherever necessary with the help of neat sketches.
 3. All questions are compulsory.

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|-----------|----|---|----|
| 1. | a) | Explain MIPS instruction set in detail. | 8 |
| | b) | Analyze the need of Amdah's law. | 8 |
| OR | | | |
| 2. | a) | State and explain Von-Neumann architecture in detail. | 8 |
| | b) | Differentiate between sequential and parallel computing. | 8 |
| 3. | a) | Explain how pipeline hazards are classified in brief. | 8 |
| | b) | Explain the 5-stage pipeline for a RISC processor. | 8 |
| OR | | | |
| 4. | a) | What are the techniques used for pipeline scheduling? | 8 |
| | b) | Enumerate Operand forwarding with example. | 8 |
| 5. | a) | Explain architecture of CUDA programming. | 8 |
| | b) | Explain hardware based speculation. | 8 |
| OR | | | |
| 6. | a) | What is Super pipelining? Explain the pipeline structure and performance of MIPS. | 8 |
| | b) | What is Multithreading? Explain benefits. | 8 |
| 7. | | Explain Cache replacement algorithm in detail. | 16 |
| OR | | | |
| 8. | a) | Differentiate between Temporal locality and spatial locality. | 8 |
| | b) | Explain average memory access time (AMAT). | 8 |
| 9. | a) | What is crossbar switch in computer architecture. | 8 |
| | b) | What is topology in computer architecture? What needs to be considered when designing topologies? | 8 |
| OR | | | |
| 10. | a) | Write a short note on virtual channels and deadlock? | 8 |
| | b) | Write short note on Tiled Chip Multicore Processor (TCMP) | 8 |
