

B.E. Electronics & Communication / Telecommunication Engineering
(Model Curriculum) Semester-VIII
ET803M - Advanced Computer Architecture

P. Pages : 2

Time : Three Hours



GUG/W/24/14356

Max. Marks : 80

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
 2. Assume suitable data wherever necessary.
 3. Diagrams and Chemical equation should be given wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. All questions are compulsory.

1. a) Demonstrate Amdahl's Law in detail. 8
b) What is instruction? Explain at least four instruction with example. 8

OR

2. a) Explain performance measurement of computer hardware. 8
b) Differentiate between RISC and CISC architecture. 8
3. a) What are the types of pipelining hazards? Explain in brief. 8
b) Write short note with example. 8
 - i) Basic pipeline scheduling
 - ii) Loop unrolling

OR

4. a) How to extend MIPS pipeline to handle Multi-cycle Operation? 8
b) Write short note on static branch prediction technique. 8
5. a) What is dynamic scheduling? Explain it in brief. 8
b) Explain Very Long Instruction Word (VLIW) architecture with its features. 8

OR

6. a) Explain GPU architecture and its internal organization. 8
b) What is Multithreading? Explain its benefits. 8

7. a) Differentiate between Temporal locality and spatial locality. 8
b) Write a short note on cache misses. 8

OR

8. a) Explain write through and write back in cache. 8
b) Explain advance cache optimization techniques. 8

9. a) Explain the following terms- 12

- | | |
|--------------------|---------------------|
| i) Bus topology | ii) Star topology |
| iii) Ring topology | iv) Tree topology |
| v) Mesh topology | vi) Hybrid topology |

- b) Write a short note on NoC. 4

OR

10. a) What is topology in ACA? What needs to be considered when designing topologies? 8
b) Write a short note on Virtual channels and deadlocks. 8
