

**ET803M - Advance Computer Architecture**

P. Pages : 2

Time : Three Hours



**GUG/S/23/14356**

Max. Marks : 80

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

1. a) State and explain in brief Von-Neumann architecture in detail. **8**  
b) Demonstrate Amdahl's law. **8**

**OR**

2. a) Give a note on the RISC and CISC controversy. **8**  
b) Understand the instruction cycle in detail. **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) Enumerate operand forwarding with example. **8**
5. a) What is dynamic scheduling? Explain it in brief. **8**  
b) What is the different between Fine Grained and Coarse Grained Multithreading? **8**

**OR**

6. a) What is vector processing in computer architecture? Explain its features. **8**  
b) Explain architecture of CUDA programming? **8**
7. a) Differentiate between Temporal locality and spatial locality. **8**  
b) What is cache memory? Explain operation of cache memory? **8**

**OR**

- 8.** a) Discuss 3 types of cache memory mapping. **8**  
b) Write a short note on cache misses. **8**
- 9.** a) Write a short note on NOC (Network on Chip). **4**  
b) Explain the following terms: **12**
- i) Bus topology.
  - ii) Star topology.
  - iii) Ring topology.
  - iv) Tree topology.
  - v) Mesh topology.
  - vi) Hybrid topology.

**OR**

- 10.** a) What is Flow Control in Computer Network? Explain in detail. **8**  
b) Write a short note on Virtual Channels and deadlocks. **8**

\*\*\*\*\*