

Total No. of printed pages = 2

ECE 1818 OE 32

Roll No. of candidate

21/6/22

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2022

B.Tech. 8th Semester End Term Examination

ECE + ETE

ADVANCED COMPUTER ARCHITECTURE

(New Regulation (w.e.f. 2017-18) & New Syllabus (w.e.f. 2018-19))

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *four* from the rest.

1. Answer the following: (Fill in the blanks) (10 × 1 = 10)
 - (i) Computer architecture is abstracted by its _____.
 - (ii) Von Newmann architecture is slow due to the _____ execution of instructions in a program.
 - (iii) When a machine is pipelined, the _____ execution of instructions requires pipelining of the functional unit.
 - (iv) The processors in a multiprocessor system communicate with each other through _____.
 - (v) _____ Architecture uses vector registers to interface between the memory and functional lines.
 - (vi) At the system level the description of the _____ architecture is based on processor level building blocks.
 - (vii) Pipelining reduces _____ per instruction.
 - (viii) _____ is faster storage of copies of programs and data.
 - (ix) The term Computer Architecture was coined in _____ by the 'Chief architects of the _____.
 - (x) Sequential computer was improved from bit-serial to _____.

[Turn over

2. (a) Explain with a diagram and examples the four instruction set architecture classes based on operand location. (5)
- (b) Compare direct and immediate addressing mode. (3)
- (c) Explain the basic issues of concerns for instruction set design. (5)
3. (a) Explain instruction level parallelism and its difficulties in implementing it? (7)
- (b) Explain the advantages and disadvantages of Pipelining. (5)
- (c) Differentiate RISC and CISC architecture. (3)
4. (a) Describe the role of cache memory in Computer Organization. (6)
- (b) What is virtual memory? How does the cache and virtual memory differ? (4)
- (c) Write a short note on Memory Hierarchy Design. (5)
5. (a) Write short notes on how I/O are mapped to memory? (8)
- (b) What are the types of storage devices and its importance? (7)
6. (a) Explain Hardware multithreading. (7)
- (b) What are the differences between multithreading and multiprocessing? (3)
- (c) Discuss with suitable example Multiple-instruction multiple-data streams. (5)
7. (a) Write a short note on Data Level Parallelism. (5)
- (b) Compare 8085 and 8086 architectures. (10)

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