

T.E. Sem 5 (Rev)

Dec. PR 120

Con. 5363-08.

EXTC. Computer Architecture & Organisation 11/12/08.

RC-6518

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions out of the remaining **six** questions.
(3) Assume **suitable** data wherever **necessary** and justify the **same**.

1. Write short notes on :-
 - (a) IEEE 754 format for floating point number representation. 5
 - (b) I/O Processor 5
 - (c) Bus arbitration. 5
 - (d) Memory hierarchy. 5

2. (a) Explain with a neat flowchart the data path for the floating point ALU. 10
(b) With a neat diagram and flow-chart, explain Booths' algorithm multiplication of signed numbers. 10

3. Explain in detail the organisation of a computer (mention stored program computer, register file, data path, ALU, buses, memory hierarchy, peripherals). 20

4. (a) What is micro programmed control ? Explain in detail about Wilkes micro programmed control unit. 10
(b) Write in detail about Flynn's classification of parallel processors. 10

5. (a) What are advantages of pipelining ? Explain with respect to a floating-point data path. Prove that for a K stage pipeline, the speed up factor = K. 12
(b) What are the various hazards you can encounter in a pipelined processor ? 18

6. (a) Why is Cache memory required ? Explain two way set associative mapping used in a Cache memory system. 10
(b) What is virtual memory ? Explain how a virtual address is translated into a physical address. 10

7. (a) What are the different I/O access methods ? 10
(b) What are the different modes of operation of a DMA controller ? 10