

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

CLASS: IMSC
BRANCH: MATHS & COMP.

SEMESTER:VI/ADD
SESSION : SP/2019

SUBJECT : CS4109 COMPUTER SYSTEM ARCHITECTURE

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 (a) Define the term computer system architecture. [2]
(b) State the parameters which affect the performance of a computer. [3]
- Q2 (a) What are the different levels of system design? [2]
(b) Give behavioural VHDL description of a half adder. Develop the truth table for the same. [3]
- Q3 (a) Differentiate between RISC & CISC processors. [2]
(b) Explain the functions of CPU & draw its functional flow chart. [3]
- Q4 (a) Explain the basic instruction cycle with state transition diagram. [2]
(b) Represent $(-1.75)_{10}$ in IEEE754 floating point format. [3]
- Q5 (a) Explain the various instruction types & formats. [2]
(b) What are smallest and largest integers representable in 8-bit values using [3]
(i) Unsigned binary representation.
(ii) Signed-magnitude binary representation.
(iii) Two's complement representation.
- Q6 (a) How the data path is designed? [2]
(b) Explain the working of Booth's Algorithm for $7*3$. [3]

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