

Indian Institute of Technology Kharagpur
Department of Computer Science and Engineering
CS31702 : Computer Architecture and Operating Systems (CAOS)
Date: 07-02-2018 Class Test - 1 Marks: 20 Time: 45 mins

Note: Answer the questions precisely to the point.

1. Mention the formula to compute CPU time in view of program execution. Briefly explain how software and hardware entities contribute to various parameters/factors involved in computation of CPU time. **(5 Marks)**
2. Write the compiled MIPS code for the following C statement.
 $P[7] = i + Q[5]$; P and Q are arrays. 'i' is a value present in one of the saved registers.
Provide appropriate explanation to each MIPS code statement. **(5 Marks)**
3. Mention the sequence of steps for performing n-bit multiplication. Provide the datapath and control signals for the above multiplication. Illustrate the above mentioned process of multiplication with all intermediate steps and results for a multiplicand 13 (1101) and multiplier 9 (1001). **(10 Marks)**

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