**BRAC UNIVERSITY**

**Department of Computer Science and Engineering**

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| Examination: Midterm  Duration: 1 hour | Semester: Fall 2019  Full Marks: 30 |

CSE 340: Computer Architecture

[Answer the following questions.

Figures in the right margin indicate marks.

Write the initial of your faculty at TOP of your answer script.]

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| Name: | ID: | Section: |

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| **1.** | a. | **Define** memory hierarchy and ISA. | 3 |
| b. | **Describe** the internal structure of a register file with necessary diagram. | 7 |
| **2.** | a. | **Compare** between Von Neumann and Harvard Architecture. | 3 |
|  | b. | Consider a processor P has an 8GHz clock rate and a CPI of 1.0. If the processor executes a program within 20s then **discover** the number of cycles and number of instructions. | 2 |
| **3.** |  | **Construct** the equivalent MIPS code of the following C code. Once you have the MIPS code, identify type of each instruction and encode them accordingly.  A[5]=A[6]+A[B[4]]+5;  B[i]=A[5]-6;  **Hints:** Consider base addresses of array A and B are in register $10 and $11. Also consider *i* is in register $8. | 10 |
| **4 (CO2)** |  | **Convert** -29.632 into IEEE 754 floating point representation. Show the hexadecimal representation of your conversion. | 5 |