DEPARTMENT	: COMPUTER APPLICATIONS
PROGRAMME	: MCA
DATE & TIME OF EXAM	**: 23.03.2021, 3pm to 5pm**
DURATION	: 120 MINUTES (Extra 30 Mins. for scanning and submitting the answer sheets)
MAX. MARKS	: 30
COURSE CODE & TITLE	: CA 715 - Computer Organization and Architecture
NAME OF THE FACULTY	: Prof.P.J.A.Alphonse

Note to Student:

1. **Make sure the 'Declaration and statement of authorship' is uploaded along with the answer sheet as cover sheet (First Sheet)**
2. **TIME MANAGEMENT IS YOUR RESPONSIBILITY**

PART-A   Answer ALL questions   (5x2 = 10 Marks)

1. What are Condition Codes (CC)? Explain the use of them.

2. What do you mean by out-of order execution? Is it Desirable?

3. How the interrupt is handled during exception?

4. What are the temporal and spatial localities of references?

5. How many total bits are required for a direct-mapped cache with 16 KiB of data and 4-word blocks, assuming a 32-bit address?

PART-B Answer ALL questions   (2x10 = 20 Marks)

6. Explain in detail about the various hazard that can stall the pipelined execution of instructions. Give relevant examples with pipelined diagrams for all the types of hazards.

7. Design an arithmetic circuit with one selection variable S and two n-bit data inputs A and B. The circuit generates the following four arithmetic operations in conjunction with the input carry C_{in}. Draw the logic diagram for the first two stages.

S	$C_{in} = 0$	$C_{in} = 1$
0	D = A + B (add)	D = A + 1 (increment)
1	D = A – 1 (decrement)	D = A + B' + 1 (subtract)

*****ALL THE BEST*****

Note: Upload the Answer sheets (handwritten) within stipulated time to the NITT CBT portal ONLY. Please contact the Faculty over phone immediately, in case of any difficulty.