Exam Roll No....................

Tribhuvan University
Institute of Science and Technology
2082
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Bachelor Level / Second Year/ Third Semester/ Science   Full Marks: 60
Computer Science and Information Technology (CSC 213)   Pass Marks: 24
(Computer Architecture)   Time: 3 hours.
(NEW COURSE)

Candidates are required to give their answers in their own words as for as practicable.
The figures in the margin indicate full marks.

Section A

Attempt any TWO questions.   **(2 × 10 = 20)**

1. Explain pipelining processing with an example of your own. Illustrate pipelining speed up equations under various conditions.   [5+5]

2. Differentiate between restoring and non-restoring division algorithm. Explain the restoring division algorithm with an example of your own.   [3+7]

3. Describe the interrupt cycle. Explain the interrupt cycle with the required flowchart.   [3+7]

Section B

Attempt any EIGHT questions.   **(8 × 5 = 40)**

4. List different arithmetic microoperations. Explain 4-bit binary adder-subtractor.   [5]

5. Briefly explain memory reference instructions.   [5]

6. List different binary codes. Explain any two of the binary codes.   [1+4]

7. Explain any five addressing modes with an example of each.   [5]

8. Define vector operation. Explain the concept of vector operation with an example of matrix multiplication.   [2+3]

9. Illustrate the working mechanism of Direct Memory Access in association with the concept of cycle stealing. How DMA is different from IOP.   [4+1]

10. Explain microprogram sequencer for control memory with the required figure.   [5]

11. Describe temporal locality and spatial locality. Differentiate between associative mapping and set associative mapping in cache memory.   [2+3]

12. Write short notes on   [2×2.5=5]

    a) Handshaking
    b) Control word