JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech II Year II Semester Examinations, November/December-2013
COMPUTER ORGANIZATION
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks
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1.a)   What are the advantages of Grey codes? Discuss areas of application.
 b)   Perform the arithmetic operation (+34) + (-21) in binary using signed 2's complement of the subrahend.   [15]

2.a)   Write a program to evaluate the arithmetic statement
$$X = \frac{A - B + C * (D * E - F)}{G + H * K}$$
       using a general register computer with two address instructions.
 b)   What is a register transfer bus? Explain.   [15]

3.a)   Write short notes on micro operation and micro code. Explain the difference between them.
 b)   How can branch logic hardware be implemented?   [15]

4.a)   Formulate a hardware procedure for detecting an overflow by comparing the sign of the sum with signs of the augund and addend. The numbers are in signed 2's complement representation.
 b)   Write short notes on Decimal Arithmetic Unit.   [15]

5.a)   What is the function of a cache memory? Explain the terms cache hit and cache miss.
 b)   What are the different types of magnetic memory? Describe them briefly. [15]

6.a)   What is DMA scheme of data transfer? Discuss its operating principle.
 b)   Explain what do you understand by interrupts. Discuss enabling, disabling and masking of interrupts.   [15]

7.a)   Formulate a four-segment instruction pipeline for a computer.
 b)   What are the several ways in which branch instructions can be handled in order to avoid performance degradation caused by instruction branching?   [15]

8.a)   What is an array processor? Describe its operating principle.
 b)   How can the problem of cache coherence be resolved with a Snoopy Cache Controller?   [15]

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