Code No: 153AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, October - 2020
COMPUTER ORGANIZATION AND ARCHITECTURE
(Computer Science and Engineering)

Time: 2 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

1.a) Draw the bus system for four registers and explain.
 b) An 8-bit register contains the binary value 10011100. What is the register value after an Arithmetic Shift Right? Starting from the initial number 10011100, determine the register value after an arithmetic Shift Left, and state whether there is an overflow. [7+8]

2. Draw block diagram of a control memory and the associated hardware needed for selecting the next micro instruction address. [15]

3. Perform the arithmetic operation (+42)+(-13) and (-42)-(-13) in binary using signed 2's complement representation for negative numbers. [15]

4.a) Differentiate between Isolated I/O and memory-mapped I/O.
 b) Explain programmed-I/O in detail. [8+7]

5.a) Write the major characteristics of RISC processors.
 b) Draw a space-time diagram for a four-segment pipeline showing the time it takes to process six tasks and explain. [7+8]

6.a) Draw the flowchart for instruction cycle and explain.
 b) Explain the following instructions: BUN, ISZ, BSA, LDA, STA. [7+8]

7. Explain various Data Manipulation instructions with examples. [15]

8. With an example, explain Booth Multiplication algorithm. [15]

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