JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA I Semester Examinations, July/August - 2021
COMPUTER ORGANIZATION AND ARCHITECTURE

Time: 3 Hours   Max.Marks:75

Answer any five questions
All questions carry equal marks
- - -

1.a) With the help of a function table and a circuit block diagram, explain how a 4 - bit arithmetic circuit works.
  b) Give examples for selective-set, selective-compliment and selective-clear operations.
[7+8]

2. How can you say that hardwired control unit is faster than micro programmed control unit? Explain with relevant diagram. [15]

3.a) Represent -534.72 as signed magnitude, 1's complement, 2's complement numbers.
  b) Explain Booth's algorithm for multiplication. [7+8]

4.a) Why page-table is required in a virtual memory system. Explain different ways of organizing a page table.
  b) Explain how cache memory is different from virtual memory. [7+8]

5. Draw the four segment pipeline diagram for floating point addition and subtraction and explain the same. [15]

6. Define an interrupt. What happens during the interrupt cycle? Demonstrate with the help of a flowchart and example. [15]

7.a) What are the design goals of control unit?
  b) Compare RISC and CISC instructions. Give their respective advantages and disadvantages. [7+8]

8.a) Describe the flowchart for the floating point division operation with an example.
  b) Explain arithmetic overflow and divide overflow with some examples for 2's complement numbers. [7+8]

---ooOoo---